"What's Special About This Number" Facts

by Gianni A. Sarcone
http://www.archimedes-lab.org/numbers/Num1_69.html

People have always been fascinated by NUMBERS... Numbers are actually basic elements of mathematics used for counting, measuring, ranking, comparing quantities, and solving equations. Numbers have unique properties: for some ones of us they are merely concise symbols manipulated according to arbitrary rules, for others numbers carry occult powers and mystic virtues.
Almost all numeration systems start as simple tally marks, using single strokes to represent each additional unit. The first known use of numbers dates back to around 30,000 BC when tally marks were precisely used by stone age people.
To show that each number is unique and has its own beauty, we have collected for you a huge amount of facts pertaining to the magical world of numbers, covering a range of different topics including mathematics, history, philosophy, psychology, symbolism, etymology, language, and/or ethnology...

The number facts in this 'Numberopedia' are available as features for print and electronic publishing.

If you got a distinctive fact about any number listed here you think Archimedes' Lab community might enjoy, why not post it here?

Conoscete un numero con delle proprietà originali? Contattateci!

Connaissez-vous un nombre avec des propriétés étonnantes? Contactez-nous!

Number list: *lista dei numeri* (it), *liste des nombres* (fr), *lista de números* (es, por), *Liste besonderer Zahlen* (ger), *getallen en getalverzamelingen* (du), *seznam čísel* (cz), 數表 (ch), 数の一覧 (jap), *список чисел* (ru), *שמות מספרים* (he).
→ **0-6** | → **7-12** |→ **13-23** | → **24-69** | → **70-200** | → **201-684** | → **5H0P**

NaN	**NaN** (**N**ot **a** **N**umber) is, in computing, a value (or symbol) that is usually produced as the result of an operation on invalid input operands, especially in floating-point calculations. NaNs are close to some undefined or inderterminate expressions in mathematics. In short, NaN is not really a number but a symbol that represents a numerical quantity whose magnitude cannot be determined by the operating system. = $\sqrt{-1}$

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	= log (-*n*) = ln (-*n*) = 0 / 0 = 0^0 = 1^∞ = ∞^0 = ∞ / ∞ = ∞ / -∞ = -∞ / ∞ = -∞ / -∞ = 0 x ∞ = 0 x -∞ = (-∞) + ∞ = ∞ + (-∞) = ln |0| / ln |±∞| = $e^{\pm\infty}$ x ln |0| = (*m* / ±∞) x (*n* / 0) if *m* ≠ ±∞ and *n* ≠ 0
√-1	= ***i***, is the imaginary unit of any imaginary number. Discovered by the Italian mathematician Girolamo Cardano. An imaginary number is a number of the form **b*i*** where 'b' is a real number, '*i*' is the square root of -1, for b ≠ 0. Imaginary numbers (and complex numbers in general) are essential for describing physical reality and have concrete applications in: electromagnetism, signal processing, control theory, quantum mechanics, cryptology, and cartography... is the result of the folowing equations: $x^2 + 1 = 0$ $x^3 - x = 0$ (for x ≠ 0 or x ≠ 1) Square roots of negative numbers other than -1 can be written under the form: $\sqrt{-n} = i\sqrt{n}$ $e^{i\pi/2} = \cos(\pi/2) + i \sin(\pi/2) = \boldsymbol{i}$ $\boldsymbol{i}^{\boldsymbol{i}} = e^{-\pi/2} \approx 0.207879576...$ (cf. *i* to the *i* is a Real Number) the reciprocal of ***i*** is ***-i***: $i^{-1} = 1/i = i/i^2 = i/-1 = -i$ Powers of ***i*** repeat in a definite pattern (*i*, -1, -*i*, 1, ...): $i^1 = i$ $i^2 = -1$ $i^3 = i^2 i = (-1)i = -i$ $i^4 = i^3 i = (-i)i = -(i^2) = -(-1) = 1$ $i^5 = i^4 i = (1)i = i$ ...

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Multiplicative table with ***i***

	1	**-1**	***i***	***-i***
1	1	-1	*i*	*-i*
-1	-1	1	*-i*	*i*
i	*i*	*-i*	-1	1
-i	*-i*	*i*	1	-1

The first roots of ***i*** are:
$\sqrt[1]{i} = i$
$\sqrt[2]{i} = \pm(1 + i)/\sqrt{2}$
$\sqrt[3]{i} = (\sqrt{3} + i)/2$
$\sqrt[4]{i} = \pm(i\sqrt{(2 - \sqrt{2})} + \sqrt{(2 + \sqrt{2})})/2$
$\sqrt[5]{i} = i$

A '[paradox](#)' with ***i***:
a) $\sqrt{-1} = \sqrt{-1}$
b) $\sqrt{(1/-1)} = \sqrt{(-1/1)}$
c) $\sqrt{1}/\sqrt{-1} = \sqrt{-1}/\sqrt{1}$
d) $(\sqrt{1})^2 = (\sqrt{-1})^2$
e) 1 = -1 and then 2 = 0 ??? Is this possible? Can you discover what led to this poetic licenced conclusion?

0

零

is a separate and special entity called '[Identity element](#)'. 0 is actually the identity element under addition for the real numbers, since if *a* is any real number, *a* + 0 = 0 + *a* = *a*. Mathematicians refers to 0 as the *additive identity* (or better said, the *reflexive identity of addition*).

is considered to be a purely imaginary number: 0 is the only complex number which is both *real* and purely *imaginary*.

identifies the concept of "almost" impossible in probability. More generally, the concept of almost nowhere in measure theory.

0 = $\log_a 1$
$a^{\mathbf{0}}$ = 1, only when *a* doesn't equal 0.

By convention, you cannot divide any number by zero.
In theory, zero multiplied by infinity is undetermined (as is zero divided by zero).

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It is the only integer (actually, the only real number) that is neither negative nor positive. The question whether 'zero' is odd or even seems to be totally subjective!

Mathematical equations with one or more unknown factors are solved by equalizing them to zero.

is the number of *n* x *n* magic squares for *n* = 2.

The difference between 3, 30 and 300 is only some extra zeros, but those little circles are actually one of the world's greatest inventions! As early as 200 B.C., Hindu scholars were working with nine oddly shaped symbols and a dot that eventually would bring order out of a world of mathematical chaos. The dot and nine symbols were the earliest known forerunners of the numbers 0, 1, 2, 3, 4, 5, 6, 7, 8, 9. Comprised of only ten symbols and based on multiples of ten, the Hindu numeral system was easily learned and easily used. Who first thought of using a dot (*bindu*, in sanskrit) as the tenth number is not known. But it can be supposed that a Hindu, working on his abacus, wanted to keep a written record of the answers on his abacus. One day he used a symbol '**.**' which he called *shunya* (**शून्य**) to indicate a column on his counting board in which he had moved no beads... Shunya, the dot, was originally not zero the number, but merely a mark to indicate empty space.

The word "zero" was coined by the Italian mathematician Leonardo Pisano, said Fibonacci. He transformed the Arabic word 'صِفْر', *sifr* (from the semitic root *s.p.r.*, 'empty') into Italian equivalent **zefiro**, shortened to **zero** afterwards. Many languages have adopted the word "zero": english, catalan, french (zéro), portuguese, romanian, spanish (cero), wallon (zérô), albanian, polish, japanese...
Europe is divided into two regions: the '*zero* region' (see above) and the '*nullus* region' (*nullus*, 'zero' in Latin). The 'nullus region' includes the Germanic, the Skandinavian and some Slavonic countries. The following is a table of the number 0 in a sample of the languages of the 'nullus region':

Dutch	**nul**	Czech	**nula**
German	**null**	Russian	**nol'**
Swedish	**noll**	Slovak	**nula**

The Greek word for zero is μηδεν, read as 'meden', which means, etymologically, *not even one* (i.e. *nothing*). The Oracle of Delphi in ancient Greece had a wise motto, like this: "meden agan" - *nothing too*

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much (or *nothing in excess*)... - posted by George Pantazis

Love is a score of 0 in tennis.

What English word contains **0** vowels?
Answer: hymn, gypsyfy, myth, rhythm, sylph, syzygy, etc.

The Czech phrase: *Strc prst skrz krk* meaning "thrust finger through neck", contains **0** vowels and semi-vowels!

In German, the expression ***in Null Komma nichts*** (in zero point nothing) means 'in a trice'

In Italian, the expression ***a chilometri zero*** (in zero kilometers from any location) means 'local'. For instance, *un gelato a chilometri zero* translates as 'an ice-cream produced with local products'.

There are no letters assigned to the numbers **0** and **1** on a phone dial. These numbers remain unassigned because they are so-called 'flag' numbers, kept for special purposes such as emergency or operator services.

"Wuji" (Number 0), in the Mystical Numbers of Taoism, represents the Null, the Chaos, the Origin and the End.

Joke: Chuck Norris ***can*** divide by zero. (More Chuck Norris facts)

Zero Star Hotel (*Null Stern Hotel*)
The "Null Stern", or "Zero Star" Hotel is a cross between a hostel and an art installation by Swiss concept artists Frank and Patrik Riklin. This hotel is actually a converted bomb shelter...

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1/2

= sinus(30°)
= cosinus(60°)
= cosinus(30°)/√3
= 1/3 + 1/6

Using all digits from 1 to 9 once:
= 6 729 / 13 458
= 9 327 / 18 654 (there are 10 other possibilities to write similar fractions by using all digits from 1 to 9 once)
= (123 - 45) / (67 + 89)

Using the same number twice, but just swapping the place of ONE digit:
= 105263157894736842 / 210526315789473684
= 157894736842105263 / 315789473684210526
= 210526315789473684 / 421052631578947368
= 263157894736842105 / 526315789473684210
= 315789473684210526 / 631578947368421052
= 368421052631578947 / 736842105263157894
= 421052631578947368 / 842105263157894736
= 473684210526315789 / 947368421052631578
Numbers with such properties are called '[parasit or parasitic numbers](#)'.

≈ angular magnitude of the Sun, and of the Moon.

In a group of 23 people, at least two have the same birthday with the probability greater than **1/2**.

∑ = 1 - 1 + 1 - 1 + 1 - 1 + 1 - 1 + ... =

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= (1-1) + (1-1) + (1-1) + (1-1) + ... = 0

= 1 + (1-1) + (1-1) + (1-1) + ... = 1

= 1 + (1-1+1-1+1-1+ ...) = 1 + ∑ => ∑ = **1/2**

Another '[paradox]' involving **1/2**:
Since $(1/2)^2 = 1/4$
and $(1/2)^3 = 1/8$
then $(1/2)^3 < (1/2)^2$
using the logarithms we obtain:
3 log (1/2) < 2 log (1/2)
and after dividing by log (1/2):
3 < **2**
How can that be?

The population of the Roman Empire under [Augustus] was about one hundred millions, of which more than **one half** were slaves!

Did you know that the Romans too could transcribe unit fractions? e.g. to write **1/2** they used the letter **S** (semis). Knowing that, what represents the Roman numeral SIX? Obviously not 6, but 8.5! (10 - 1 - 1/2)

In Italy, "fojetta" (*small leaf*, in Roman dialect) is a measure corresponding to half a liter of wine.

A typical 'fojetta' ->

[Tupper's self-referential formula]
is an amazing formula concocted by Jeff Tupper that, when graphed in 2 dimensions, can visually reproduce the formula itself:

$$\frac{1}{2} < \left\lfloor \mathrm{mod}\left(\left\lfloor \frac{y}{17} \right\rfloor 2^{-17\lfloor x \rfloor - \mathrm{mod}(\lfloor y \rfloor, 17)}, 2 \right) \right\rfloor,$$

If one graphs the set of points (x, y) with $0 < x < 106$ and $k < y < (k + 17)$, such that they satisfy the inequality given above, the resulting self-referential 'plot' looks like this:

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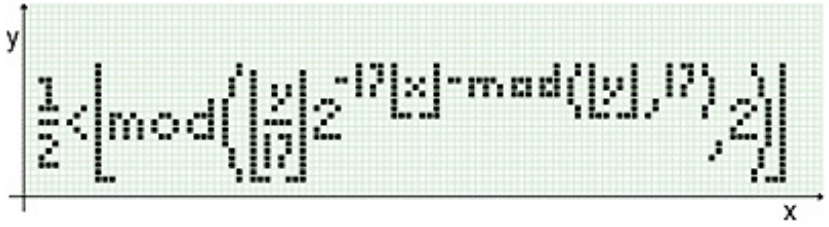

1

is a separate and special entity called 'Unity' or 'Identity element'. 1 is actually the identity element under multiplication for the real numbers, since *a* x 1 = 1 x *a* = *a*. Mathematicians refers to 1 as the *multiplicative identity* (or better said, the *reflexive identity of multiplication*).

is NOT prime! Primes or prime numbers can be poetically described as the 'atoms' of mathematics - the building blocks of the world of numbers. But, mathematically speaking: "*a prime number is a positive integer with exactly TWO positive divisors: 1 and itself*". Modern textbooks consider 1 neither prime nor composite, whereas older texts generally asserted the contrary. In 1859, Henri Lebesgue stated explicitly that 1 is prime in "Exercices d'analyse numérique". It is also prime in "Primary Elements of Algebra for Common Schools and Academies" (1866) by Joseph Ray, and in "Standard Arithmetic" (1892) by William J. Milne. A list of primes to 10,006,721 published in 1914 by Derrick N. Lehmer includes 1 ("List of prime numbers from 1 to 10,006,721", Carnegie Institution of Washington).

is the only real solution of the equation $x^3 + 3x - 4 = 0$

Benford's law states that in a huge assortment of number sequences - in listings, tables of statistics, random samples from a day's stock quotations, a tournament's tennis scores, the populations of towns, electricity bills in the Solomon Islands, and much more, **the digit 1 tends to occur with probability ~30%**, much greater than the expected 11.1% (i.e., one digit out of 9). Dr. Nigrini gained recognition by applying a system he devised based on Benford's Law to some fraud cases in Brooklyn. The idea underlying his system is that if the numbers in a set of data like a tax return more or less match the frequencies and ratios predicted by Benford's Law, the data are probably honest. But if a graph of such numbers is markedly different from the one predicted by Benford's Law, he said, "I think I'd call someone in for a detailed audit".

Mathematicians define a 'sphere' as the surface of a sphere, not a solid ball, so a sphere has 2 sides: the outside and the inside. However, there are also 1-sided surfaces!

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$f(x) = e^x$ at the point x = 0 is exactly 1.

=0!
Why 0! = 1? Because 4! = 4x3x2x1 and 3! = 3x2x1. Therefore 4! = 4x3! In the same way 3! = 3x2! and 2! = 2x1! So it follows that 1! = 1x0! Therefore 0! must be equal to 1 or 1! would be 0... And so 2! would be zero and then 3! and so on.

$= \log_a a$

$= a^0$ (for $a \neq 0$)
$= 35 - 3^2 - 5^2$
$= 75 - 7^2 - 5^2$
$= 1/2 + 1/3 + 1/6$
$= 1/2 + 1/4 + 1/6 + 1/12$
$= 1/2^1 + 1/2^2 + 1/2^3 + 1/2^4 + 1/2^5 + ...$
$= \sin^2(a) + \cos^2(a)$
$= | F_n \times F_{n+3} - F_{n+1} \times F_{n+2} |$ (F = Fibonacci numbers)

$= 1/(1x2) + 1/(2x3) + 1/(3x4) + 1/(4x5) + ... + 1/n(n+1)$

$= 0.9 = 0.9 + 0.09 + 0.009 + 0.0009 + 0.00009 + ...$

$\lim_{n \to \infty} \sqrt[n]{n} = 1$

$= e^{2i\pi}$

= 35/70 + 148/296 (all digits 0 through 9 were used once!)

$= \sqrt[3]{(13\sqrt{3/36} + 5/8)} - \sqrt[3]{(13\sqrt{3/36} - 5/8)}$

Curious multiplications using 1's:
1 x 1 = 1
11 x 11 = 121
111 x 111 = 12321
1111 x 1111 = 1234321
11111 x 11111 = 123454321
etc...

The numbers in the series **1**, **11**, **111**, **1111**, **11111**, etc... are all triangular numbers in **base-9**.

During any police lineup the suspects wear nos. 2 through 9 because it is considered too suggestive to make anyone display the no. **1**!

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Symbolizes the essence of all phenomena, which is a single unity, before being divided. It represents also the contrast between essence and existence; the enduring and the ephemeral; the unity in diversity (one/many). According to Hopper, the first advance towards counting is with the use of words for *one* and for *many*, the differentiation from the self from the group. We still say 'numero uno' to speak of ourselves.

"Taiji" (also termed as "Dayi" or "Taiyi"), in the Mystical Numbers of Taoism, represents the ONE, the Ultimate, the Order. The martial art known as "Taijiquan" based its movement's philosophies upon the notion of Taiji.

In the English language, there is a word with just ONE vowel which occurs 6 times: indivisibility.

'Strengths' is the longest word in the English language with just ONE vowel.

Impoverished counting system: 1 + 1 = ?
When it comes to counting, a remote Amazonian tribespeople have been found to be lost for words. In fact, researchers discovered that Pirahã tribe of Brazil, with a population of 200, have no words beyond ONE, two and many.
The word for "one" can also mean "a few", while "two" can also be used to refer to "not many"... (But is there any case where not having words for something doesn't allow you to think about it?) *Source BBC*

ONE in different languages (© G. Sarcone)
(Old English ***ān***)

Reconstructed proto-language: | ***TIK** |
Indo-european | ***OIN**-, ***OIW**-, ***OIK**- |, | ***SEM**- |

Sanskrit | एक ***EKA*** |
एकः*(m)*/ एका*(f)*/ एकम्*(n)* ***ekaḥ*** (m) / ***ekā*** (f) / ***ekam*** (n)

Proto-Hellenic | ***HEMS** (< *sems*) |
Greek, Attic | **'ΕΙΣ**, **ΜΙΑ**, **'ΕΝ** ***HÊS*** (m), ***MIA*** (f), ***HÉN*** (n) |
Latin | **VNVS**, -**A** |
Archaic Latin | ***ŒNVS**, -**A** |, | ***OINOS**, -**A** |

Italian, Spanish ***uno***; Romanian, French, and Catalan ***un***; Provençal ***uns***; Portuguese ***um***; Romansh ***in***; Sardinian ***únu***.

Old Celtic | **OINO** |

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Breton ***unan***; Welsh ***un***; Irish ***a haon*** (cardinal), ***amháin*** (thing), ***duine*** (person).

Old Germanic | **AINAZ** |

Dutch ***een***; German ***eins***; Danish and Norwegian ***en***, ***et***; Swedish ***ett***; Icelandic ***einn***.

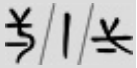
Old Slavic | **JEDINU**, **-A**, **-0** |

Russian один ***odÕn***; Czech and Polish ***jeden***; Slovenian ***êna***.

Proto Indo-Iranian | ***AIWAS** |

Persian یک ***yek***; Hindi एक ***ek***.

Evolution from 'seal script' to modern sinograph 一 :
Old Chinese (pron.) | **iêt** |



Chinese 一 ***yī*** . 幺 ***yāo*** is used as a replacement for *yī* in series of digits such as phone numbers, room numbers, etc... to prevent confusion between similar sounding words.

Proto-Semitic | ***HAD** |; | ***'IShT** |
Semitic root | **WHD** | or | **?HD** | (**?** = glotal stop)
Ancient Egyptian [w'.-] ***ua-***; Akkadian 𒌓 ***ishte'n***; Punic 𐤀𐤇𐤃 ***e'hd***

Arabic واحد ***wa:hid***; Hebrew אחת ***'aHat***; Maltese: ***wiehed***; Amharic ***and***.

More languages
Magyar ***egy***.
Turkish ***bir***.
Mayan ***hun***.
Nahuatl ***cē***.
Suomi ***yksi***.
Zulu ***(u-ku)nye***.

HIDDEN ROOTS
The roots of the word **one** (un-, sim-, prin-, cen-) are hidden in the following words: inch (from Lat. *uncia*), onion, ounce, primal, primate, primitive, primrose, prince, recent, simple, simulate, sincere (from Lat. *sincerus* meaning "clean, pure, sound", derived from the Indo-European roots '*sem*' and '*ker*', the underlying meaning of which is: 'of one growth', hence 'pure, clean'), single, unanimous, unicorn, uniform, unify, union, unique, unit, universe; alone, any, lonely, only, none. In French: ensemble, oignon, premier, printemps, sanglier, semblable, sincère. In Spanish: centolla, centollo ('spider-crab', from Celtic **kintuollos*, the largest one < **kĭntu-*, first, and **ollos*, big). Gaulish person names: Cintullus, Cintugnatos, 'first born' (< **kĭntu-*, first one; cognates: Lat. *re-cens* 'new', Gr. *kainos* 'young, new').

is also called *Pythagoras' constant* .

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1.41

is the ratio of diagonal to side length in a square.

≈ 1.4142135623 7309504880 1688724209 6980785696 7187537694 8073176679 7379907324 7846210703 8850387534 3276415727 3501384623 0912297024 9248360558 5073721264 4121497099...


One of the earliest numerical approximation of $\sqrt{2}$ was found on a Babylonian clay tablet (from the Yale Babylonian Collection), dated approximately to between 1800 B.C. and 1600 B.C. The annotations on this tablet give an impressive numerical approximation in four sexagesimal figures:
$1 + 24/60 + 51/60^2 + 10/60^3 = 1.41421296...$

$\approx (P_{n+1} - P_n)/P_n$ (P = Pell numbers)

≈ 17/12
≈ 99/70
$\approx 1.01101010000010011111..._2$

= 2sinus(45°) = 2cosinus(45°)
= 1 + (1 / (2 + (1 / (2 + (1 / (2 + ...))))))
$= (\sqrt{i} + i\sqrt{i}) / i$

If you want to have some fun with $\sqrt{2}$:
start with the very rough approximation 7/5. Then
(7+5+5)/(7+5) = 17/12
(17+12+12)/(17+12) = 41/29
(41+29+29)/(41+29) = 99/70
(99+70+70)/(99+70) = 239/169
...
continuing closer approximations of $\sqrt{2}$
- posted by Larry Bickford -

Writing numbers using only square roots of 2:
$3 = -\log_2\log_2\sqrt{(\sqrt{(\sqrt{2})})}$
$4 = -\log_2\log_2\sqrt{(\sqrt{(\sqrt{(\sqrt{2})})})}$
$5 = -\log_2\log_2\sqrt{(\sqrt{(\sqrt{(\sqrt{(\sqrt{2})})})})}$
$6 = -\log_2\log_2\sqrt{(\sqrt{(\sqrt{(\sqrt{(\sqrt{(\sqrt{2})})})})})}$ ... etc.

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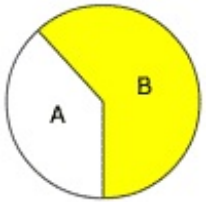
	ISO paper sizes are all based on a single aspect ratio of the square root of two, or approximately 1:1.4142. Basing paper upon this ratio was conceived by Georg Lichtenberg in 1786, and at the beginning of the 20th century, Dr Walter Porstmann turned Lichtenberg's idea into a proper system of different paper sizes.
ϕ **1.62**	is the Golden Number, also called Phi. Golden Number property: (ϕ + 1)/ϕ = ϕ/1 The fraction 1/998999 contains Fibonacci numbers, i.e.: 1/998999=0.000001001002003005008013021034055089... Radii at 0° and approximately 222.49° divide a circle in the golden ratio: B/A = ϕ/1  = (√5 + 1)/2 = 1 + (1 / (1 + (1 / (1 + (1 / (1 + ...)))))) = (√4 + √(4! - 4))/4 = -2sin(666) ≈ F_{n+1} / F_n (F = Fibonacci numbers) ≈ 1.61803 39887 49894 84820 45868 34365 63811... The 3184th Fibonacci number is an apocalypse number (Apocalpyse numbers are numbers having exactly 666 digits).
√3 **1.73**	is also known as *Theodorus' constant* (it is named after Theodorus of Cyrene, who proved that the square roots of the numbers from 3 to 17, excluding 4, 9, and 16, are irrational). is the diagonal of a cube having 1-unit sides. is the height of an equilateral triangle having 2-unit sides. The shape 'Vesica piscis' (fish bladder) has a major axis/minor axis ratio equal to the square root of 3, this can be shown by constructing two equilateral triangles within it. ≈ 1.7320508075 6887729352 7446341505 8723669428 0525381038 0628055806 9794519330 1690880003 7081146186 7572485756 7562614141 5406703029 9699450949 9895247881 1655512094... = 2sinus(60°) = 2sinus(30°) = 1 + (1 / (**1** + (1 / (**2** + (1 / (**1** + (1 / **2** + ...))))))) ≈ 97/56 ≈ $1.101110110110011110 1_2$...

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is the only even prime.
is the first taxicab number (trivial). - posted by Charles Rathbone

there are no integers x, y, and z for which $x^n + y^n = z^n$ is valid, when *n* is greater than **2** (see Fermat's last conjecture).

$n^2 \pm n$ is always divisible by 2.

$2 + 2 = 2 \times 2 = 2^2$
$= 3^3 - 5^2$
$= 4^2 - 3^2 - 2^2 - 1^2$
$= (3^2 + 4^2 + 5^2 + 6^2 + 7^2 + 8^2 + 9^2)/$
$(1^2 + 2^2 + 3^2 + 4^2 + 5^2 + 6^2 + 7^2)$

$= \sqrt{(2+\sqrt{(2+\sqrt{(2+\sqrt{(2 + \ldots))))}}}}$;
Proof: if $N = \sqrt{(2+(\sqrt{2+(\sqrt{2+(\sqrt{\ldots))))}}}}$,
then $N^2 = 2 + \sqrt{(2+\sqrt{(2+\sqrt{(2 + \ldots)))}}} = 2 + N$,
solving $N^2 - N - 2 = 0$, we find the positive solution $N = \mathbf{2}$

$= \sqrt{(3 + 2\sqrt{2})} - \sqrt{(3 - 2\sqrt{2})}$
$= \sqrt[3]{(6\sqrt{3} + 10)} - \sqrt[3]{(6\sqrt{3} - 10)}$
$= \log_a a^2$

$=(1 + i)(1 - i)$

= X/V

$2^7 = \mathbf{7}1^2 - 1\mathbf{7}^3$

is the smallest prime that can grow 7 times by the right:
2 is prime,
29 is prime,
293 is prime,
2939 is prime,
29399 is prime,
293999 is prime,
2939999 is prime.
29399999 is prime.

When you increase the area of a square of 1 unit-square, the side *n* of this square - for $n > 3$ - increases approximately of $1/\mathbf{2}n$. For example:
$\sqrt{(1^2 + 12^2)} \approx 12 + 1/(2 \times 12) \approx 12.0416\ldots$ - G. Sarcone

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Curiosity... An everyday example when 1 + 1 ≠ 2:
1 liter of water + 1 liter of alcohol = 1.926 liters of liquid

"Liangyi" (Number 2), in the Mystical Numbers of Taoism, symbolizes the Twin, the First Division, the Duality of Opposites (Yin/Yang).

In Cantonese the number two is fortunate, because it sounds similar to "easy" in the dialect.

The **two-second rule** is an easy way to make sure you have left enough following distance between your car and the vehicle in front, no matter what speed you're travelling at. To check if you are travelling two seconds behind the vehicle in front:
- watch the vehicle in front of you pass a landmark (such as a sign, tree, or power pole) at the side of the road,
- as it passes the landmark, start counting 'One thousand and one, one thousand and two',
- if you pass the landmark before you finish saying those eight words, you are following too closely. Slow down, pick another landmark and repeat the words to make sure you have increased your following distance. -- *Source* Land Transport NZ.

The most common two-letter words in order of frequency are: of, to, in, it, is, be, as, at, so, we, he, by, or, on, do, if, me, my, up, an, go, no, us, am.

'Skiing' is the only word in the English language with TWO i.

A honey bee must tap TWO million flowers to make ONE pound of honey!

"A man is a person who will pay **two** dollars for a one-dollar item he wants. A woman will pay one dollar for a two-dollar item she doesn't want..." -- *William Binger*

TWO in different languages (© G. Sarcone)
(Old English ***twā***)

Reconstructed proto-language: | ***PAL** |
Indo-european | ***DWI**-, ***DUWO**- |

Sanskrit | द्वि ***DVÎ*** |
द्वौ(m)/ द्वा(f)/ द्वे (n) ***dvai*** (m) / ***dvā*** (f) / ***dve*** (n)

Proto-Hellenic | ***DWO** |, Greek, Attic | **ΔΥΟ** ***DUO*** |
Latin | **DVO**, -**Æ** |, | **BI**- |, Archaic Latin | ***DWO** |, | ***DWI**- |

Italian ***due***; French ***deux***; Spanish and Catalan ***dos***; Provençal ***dous*** (m), ***dos*** (f); Portuguese ***dois*** (m), ***duas*** (f); Romanian ***doi*** (m), ***două*** (f); Romansh ***dus*** (m), ***duas*** (f); Sardinian ***dúos*** (m), ***dúas*** (f).

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Old Celtic | **DO** |

Breton ***daou*** (m), ***div*** (f); Welsh ***dau*** (m), ***dwy*** (f); Irish ***a dó*** (cardinal), ***dhá*** (things), ***beirt*** (persons).

Old Germanic | **TWAIZ** |

Dutch ***twee***; German ***zwei*** (often ***zwo*** is used to avoid confusion with *drei*, 3); Danish and Norwegian ***to***; Swedish ***två***; Icelandic ***tveir***.

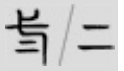
Old Slavic | **DUVA**, **DVE** |

Russian два ***dva***; Czech ***dva***; Slovenian ***dvá***; Polish ***dwa***.

Proto Indo-Iranian | ***DVA:** |

Persian دو ***do***; Hindi दो ***d̪o:***.

Evolution from '[seal script]' to modern sinograph 二 :
Old Chinese (pron.) | **ñzhi** |



Chinese 二 ***èr*** (is used for numbers and in counting) / 兩 ***liǎng*** (is used when counting objects or persons).

Proto-Semitic | ***ThNÂ** |; | **KIL'** |
Semitic root | **Th-N** |, derived verb 'thny', to repeat.
Ancient Egyptian [sn.-] ***sen***; Akkadian 𒊹𒈨 ***shénâ***; Punic 𐤔𐤍𐤉***shnem***.

Arabic اِثنان ***ithna:n***; Hebrew שתיים ***shtayim***; Maltese: ***tnejn***; Amharic ***hulät***.

More languages
Magyar ***kettő***.
Turkish ***iki***.
Mayan ***ca***.
Nahuatl ***ōme***.
Suomi ***kaksi***.
Zulu ***(isi / ku)bili***.

HIDDEN ROOTS
The roots of the word **two** are hidden in the following words: balance, bezel, bicycle, binary, biscuit, combine, diploma, diptych, double, doubt, duel, duet, duplex, duplicate, pinochle; between, twist, twice, twill, twin; Mishnah. In French: bafouiller, berlue, besace, bévue, bigle, binocle, bisquer, brouette (< bis-rouette).

√5
2.24

is an irrational number involved in the formula for the Golden ratio.
is also used in statistics when dealing with 5-business day weeks.
is the hypothenuse of a right triangle having 1 and 2-unit sides.
is the diagonal a rectangular box having 1, √2 and √2-unit sides.

$= e^{i\pi} + 2\phi$

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	≈ 2.2360679774 9978969640 9173668731 2762354406 1835961152 5724270897 2454105209 2563780489 9414414408 3787822749 6950817615 0773783504 2532677244 4707386358 6360121533... ≈ 85/38 ≈ $10.0011110001101111..._2$
e **2.72** 	Discovered by the Scottish mathematician John Napier of Merchistoun. ***e*** stands for *exponens* (in Latin, 'exponential') = 1/0! + 1/1! + 1/2! + 1/3! + 1/4! + 1/5! + 1/6! + ... ***e*** has this mathematical property: $\frac{d(e^x)}{dx} = e^x$ ≈ 2.7182818284 5904523536 0287471352 6624977572 4709369995 9574966967 6277240766 3035354759 4571382178 5251664274 2746639193 2003059921 8174135966 2904357290 0334295260... $\approx \sqrt[6]{(\pi^4 + \pi^5)}$ (mathematical coincidence) $e^{ia} = \cos a + i \sin a$ $\ln x \equiv \log_e x$ $\log x = \log e \cdot \ln x$ Benjamin Peirce suggested the innovative notation, that looked like a paper clip, for ***e*** and π shown below:

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NOTE ON TWO NEW SYMBOLS.

BY BENJAMIN PEIRCE,
Professor of Mathematics in Harvard College, Cambridge, Mass.

The symbols which are now used to denote the Neperian base and the ratio of the circumference of a circle to its diameter are, for many reasons, inconvenient; and the close relation between these two quantities ought to be indicated in their notation. I would propose the following characters, which I have used with success in my lectures: —

[symbol] to denote ratio of circumference to diameter,
[symbol] to denote Neperian base.

It will be seen that the former symbol is a modification of the letter *c* (*circumference*), and the latter of *b* (*base*).

The connection of these quantities is shown by the equation,

$$[\text{symbol}]^{[\text{symbol}]} = (-1)^{-\sqrt{-1}}.$$

From J. D. Runkin's Mathematical Monthly, vol. I, No. 5, Feb. 1859

3 □ □ 三 叁 ٣ ३ ৩ ௩	is the only prime 1 less than a perfect square. - *Robin Regan* is the number of spatial dimensions needed to mathematically describe a solid. are the primary colors. are the geometric constructions you cannot build using just a ruler and compasses: 1. You cannot trisect - divide into three equal parts - a given angle; 2. Double a cube; and 3. Square a circle. A number is divisible by 3 when the sum of its digits can be divided by 3. If the denominator of a rational number is not divisible by **3**, then the repeating part of its decimal expansion is an integer divisible by 9. Example: 1/7 = 0.142857... has a repeating part '142857' divisible by 9. Another example with a larger recurring decimal: 1/23 = 0.0434782608695652173913... has a repeating part '0434782608695652173913' divisible by 9. **3** + **2** = $\log_2$ **32** 3 + 1.5 = 3 x 1.5 $3^2 = 3! + 3$ $3^2 = 5^2 - 4^2$ $3^3 = 6^3 - 5^3 - 4^3$ $3^3 = 3^2 + 3^2 + 3^2$

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= 4! / (4 x $\sqrt{4}$)

= CL/L

= 17,469 / 5,823 (this division contains all digits 1 through 9 once)

3 x 51249876 = 153749628 (the multiplication uses all 9 digits once - and so does its product!)

3^4 x 425 = **3**4425

3 is the minimum colors needed to create camouflage patches, usually used in military compounds and vehicles. - posted by George Pantazis

A 3 x 3 alphamagic square is a magic square for which the number of letters in the word for each number generates another magic square, for instance:

5	22	18
28	15	2
12	8	25

five (4)	twenty-two (9)	eighteen (8)
twenty-eight (11)	fifteen (7)	two (3)
twelve (6)	eight (5)	twenty-five (10)

A **3** x 6 rectangle has an area equal to its perimeter.

In one gram of water the number of molecules is about:
3.3×10^{22} = 33000000000000000000000

The **balanced ternary** base, is a numeral system which uses **3 values** or digits: -1, 0, and 1. It works as follows (in the example, the symbol $\underline{1}$ denotes the digit -1):

Decimal	-6	-5	-4	-3	-2	-1	0	1	2	3	4	5	6	7
Balanced ternary	$1\underline{1}0$	$1\underline{1}1$	$1\underline{1}\underline{1}$	$1\underline{0}\underline{1}$	$1\underline{1}\underline{1}$	$\underline{1}$	0	1	$1\underline{1}$	10	11	$1\underline{1}\underline{1}$	$1\underline{1}0$	$1\underline{1}\underline{1}$

Ternary or **base-3** numbers can be converted to balanced ternary notation by adding 1111... with carry, then subtracting 1111... without borrow. For instance:
$021_3 + 111_3 = 202_3$, $202_3 - 111_3 = 1\underline{1}1_{3(bal)} = 7_{10}$
This non-standard positional numeral system is easily represented as electronic signals, as potential can either be negative, neutral, or positive (comparison logic). The balance ternary system is also useful to solve the classical 2-pan balance puzzle.

The **Shadok's** numbers are a kind of ternary or **base-3** numeration

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system:

0 is Ga  4 is Buga  8 is Zoga  12 is Meuga 

1 is Bu  5 is Bubu  9 is Zobu  13 is Meubu 

2 is Zo  6 is Buzo  10 is Zozo  14 is Meuzo 

3 is Meu  7 is Bumeu  11 is Zomeu  15 is Meumeu 

The letters **A**, **F**, **H**, **K**, **N**, **Y** and **Z** are made up with 3 lines.

In SMS language **<3** means 'I love you', and **<333**, 'I love you so much'.

3 hundred millions of Indians live with less than 1 dollar per day (2004).

An octopus has 3 hearts.

The number 3 symbolizes the principle of growth. In Guangdong province, China, three is associated with living or giving birth.

"Sanqing" (also known as "Sanxing" or "Sancai"), in the Mystical Numbers of Taoism, represents the number 3 and symbolizes the Three Luminaries: Sun, Moon, Stars. It also defines the concept of "Heaven, Mankind, Earth" as well as "Upper, Centre, Lower".

Deep thought: "There are 3 kinds of people: those who can count and those who can't".

Riddle 1: Spell 'mousetrap' in **3 letters**...
Answer: C-A-T.

Riddle 2: Spell 'water' in 3 letters...
Answer: H-2-O.

Joke: Chuck Norris once won a game of Connect Four in **3 moves**!

The French sentence 'un bonhomme haut comme trois pommes' (a **3**-apple-tall fellow) and the German sentence 'ein Kerlchen drei Käse hoch' (a **3**-cheese-tall fellow) mean both *a pint-sized guy/child*.

"*Les fourmis, chacune d'elles ressemble au **chiffre 3**. Et il y en a! Il y en a 333333333333... jusqu'à l'infini*" (Jules Renard, 'Histoires naturelles').
Translation: "*The ants. Each of them resembles a **figure 3**. That's, it. There are 333333333333 to infinity*".

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'Bookkeeper' and 'bookkeeping' are the only words in the English language with **three** consecutive double letters.

The most common three-letter words in order of frequency are: the, and, for, are, but, not, you, all, any, can, had, her, was, one, our, out, day, get, has, him, his, how, man, new, now, old, see, two, way, who, boy, did, its, let, put, say, she, too, use.

THREE in different languages (© G. Sarcone)
(Old English ***thrīe***)

Indo-european | ***TREYES**, ***TISORES**, ***TRI** |

Sanskrit | त्रि ***TRÎ*** |
त्रय: *(m)*/तिस्र: *(f)*/त्रीणि *(n)* ***trayaḥ*** (m) / ***tisraḥ*** (f) / ***trīṇi*** (f)

Greek, Attic | **TPEIΣ**, **TPIA** ***TRÊS***, ***TRIA*** |
Latin | **TRES**, **TRIA** |, Archaic Latin | ***TREIES** |

Italian ***tre***; French ***trois***; Spanish and Catalan ***tres***; Provençal ***trei***, ***tres***; Portuguese ***três***; Romanian ***trei***; Romansh ***trais***; Sardinian ***très***.

Old Celtic | **TRI** |

Breton ***tri*** (m), ***teir*** (f); Welsh ***tri*** (m), ***tair*** (f); Irish ***trí*** (m), ***teoir*** (f, old Irish), ***triúir*** (people).

Old Germanic | **THRIJIZ** |

Dutch ***drie***; German ***drei***; Danish, Norwegian, and Swedish ***tre***; Icelandic ***þrír*** .

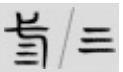
Old Slavic | **TRIJE**, **TRI** |

Russian три ***tri***; Czech ***tři*** ; Slovenian ***trí*** ; Polish ***trzy***.

Proto Indo-Iranian | ***TRAYAS** |

Persian سه ***se***; Hindi तीन ***t̪i:n***.

Evolution from 'seal script' to modern sinograph 三 :
Old Chinese (pron.) | **sâm** |



Chinese 三 ***sān***. The sinograph 叁 is used as a replacement for *sān* on legal and financial documents to prevent fraud.

Proto-Semitic | ***SALATh** |
Semitic root | **Th-L-Th** |
Ancient Egyptian [ḫmt'-] ***khemet***; Akkadian 𒐖𒐖𒐖 ***shalash***; Punic 𐤔𐤋𐤔𐤅 ***shlosht***.

Arabic ثلاثة ***thalathâ***; Hebrew שלושה ***shlôshah***; Maltese: ***tlieta***; Amharic ***sost***.

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More languages
Magyar ***három***.
Turkish ***üç***.
Mayan ***oxi'***.
Nahuatl ***ēyi***.
Suomi ***kolme***.
Zulu ***(ku)thathu***.

HIDDEN ROOTS
The roots of the word **three** are hidden in the following words: contest, detest, obtest, protest, sesterce, sitar, teapoy, tercet, tertian, tern, terpolymer, test, testament, testicle, testify, testimony, trammel, travel, trefoil, trench, trephine, trey, triad, triangle, triathlon, tribe, trio, triple, triplex, trine, trinity, trimurti, trivial, triumvir, trocar, troika; third, thrice. In French: travail, treillis, trémail. In Spanish: terliz, trabajo.

Buy your favorite Number (3) here.

π
3.14

= Perimeter / Diagonal, of any circle.

Pi expanded to 45 decimal places:
3.14159 26535 89793 23846 26433 83279 50288 41971 69399

Pi expanded to 52 binary places:
11.0010010000111 1110110101010 0010001000010 1101000111001

You cannot square a disc using just a ruler and compasses because π is a transcendental number.

= 4(1/1 - 1/3 + 1/5 - 1/7 + 1/9 - 1/11 + ...)
= 2(2/1 x 2/3 x 4/3 x 4/5 x 6/5 x 6/7 x 8/7 x 8/9 x ...)

≈ 355/113 (a real good rational approximation of π)
≈ $(6\phi^2)/5$

In the late 18th century, James Stirling, a Scottish mathematician, developed an approximation for factorials using the transcendental numbers 'Pi' and 'e':
$n! \approx (2\pi n)^{1/2} (n/e)^n$

The most famous formula for calculating Pi is Machin's formula:
$\pi/4 = 4 \arctan(1/5) - \arctan(1/239)$
This formula, and similar ones, were used to push the accuracy of approximations to Pi to over 500 decimal places by the early 18th century (this was all hand

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calculation!).

Interestingly, there are no occurrences of the sequence 123456 in the first million digits of Pi. - posted by George Pantazis

Bamboozlement with Pi

Does Pi equal 3? No? Then have a look on the algebraic equation below:

$x = (\pi + 3)/2$
$2x = \pi + 3$
$2x(\pi - 3) = (\pi + 3)(\pi - 3)$
$2\pi x - 6x = \pi^2 - 9$
$9 - 6x = \pi^2 - 2\pi x$
$9 - 6x + x^2 = \pi^2 - 2\pi x + x^2$
$(3 - x)^2 = (\pi - x)^2$
$3 - x = \pi - x$
$3 = \pi$

We use Pi to:
- describe the DNA double helix,
- determining the distribution of primes - the probability that two randomly selected integers are relatively prime (i.e. have no common factors) is 6 / p2,
- analyzing the ripples on water,
- checking for accuracy - as there are now millions upon millions of known decimal places of Pi, by asking a super computer to compute this many figures its accuracy can be tested,
- in cryptography - the science of coding,
- generate of a random number.

On ***Pi Day*** (March 14 or 3-14) in 1879, a baby was born in Ulm, Germany to a German couple whose name meant "one stone". That baby was Albert Einstein!

π occurs naturally in tables of death, in what is known as a Gaussian distribution of deaths in a population; that is, when a person dies, the event 'feels' Pi.

The symbol for Pi was introduced by the English mathematician William Jones in 1706.

Mathematician John Conway pointed out that if you break down the digits of Pi into blocks of ten, the probability that one of those blocks will contain ten distinct digits is about one in 40,000. Curiously, this first happens in the 7th block of ten digits.

There is the little rhyme to help the memorisation of twenty-one digits of π:

Now, I wish I could recollect pi.
"Eureka," cried the great inventor.

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Christmas Pudding; Christmas Pie
Is the problem's very center.

Joke: A round pizza with radius 'z' and thickness 'a' has the volume **Pi·z·z·a**.

S
3.24

3.246979603717467... is the Silver Number or silver constant given by:
$x^3 - 5x^2 + 6x - 1 = 0$

$\boldsymbol{S} = \sqrt[3]{7 + (7 \cdot \sqrt[3]{7 + (7 \cdot \sqrt[3]{7 + ...})})}$

4
□
□
四
亖
肆
٤
۴
४
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௪

is the smallest number of colors sufficient to color all planar maps with no adjoining countries sharing the same color.
are the number of coordinates needed to describe an event in 'spacetime': t, x, y, z.

Pick any whole number... If the number is even, divide it by 2; if it is odd, multiply it by 3, then add 1. By repeating this procedure, sooner or later you'll arrive at the number **4**, which will give you 2, which in turn gives you 1, and then get a 4 again! No matter what number you choose, you'll always arrive at the **4**-2-1 cycle.

The word 'four' has 4 letters and is the smallest honest number. Honest numbers are numbers *n* that can be described using exactly *n* letters in standard mathematical English.

A 4 x 4 square has an area equal to its perimeter.

The only solution of $x^y = xy$ involving integers is:
$x = y = 2$, and $x^y = xy = \mathbf{4}$

$\mathbf{4}^2 = 2^{\mathbf{4}}$, is the solution to the equation $a^b = b^a$, for $a \neq b$.

$x^2 - y^2$ is divisible by **4** only when $(x - y)$ is even.

Any integer of the form $n^{\mathbf{4}} + \mathbf{4}$ is not a prime, except for n=1, because it can be factorized as follows:
$n^{\mathbf{4}} + \mathbf{4} = (n^2 - 2n + 2)(n^2 + 2n + 2)$ (*Aurifeuillean* factorization)

Any prime of the form $\mathbf{4}k + 1$ is the sum of two square numbers:
$13 = \mathbf{4} \times 3 + 1 = 2^2 + 3^2$;
$73 = \mathbf{4} \times 18 + 1 = 3^2 + 8^2$;

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$137 = \mathbf{4} \times 34 + 1 = 4^2 + 11^2$

$= 3^2 - 2^2 - 1^2$
$= \sqrt{}(20 - \sqrt{}(20 - \sqrt{}(20 - \sqrt{}(20 - \ldots))))$
$= 1(1/2)^0 + 2(1/2)^1 + 3(1/2)^2 + 4(1/2)^3 + 5(1/2)^4 + 6(1/2)^5 + \ldots$

$16/64 = 1\cancel{6}/\cancel{6}4 = 1/4$

If you multiply the number 21978 by 4, it turns backwards!

= 15,768 / 3,942 (contains all digits 1 through 9 once)

= CD/C

The two equalities 4 x 1738 = 6952 and 4 x 1963 = 7852, use the digits 1-9 exactly once!

An intriguing 4 x 4 magic square (fig. 1) that works just as well upside-down (fig. 2):

fig. 1

18	99	86	61
66	81	98	19
91	16	69	88
89	68	11	96

fig. 2

96	11	89	68
88	69	91	16
61	86	18	99
19	98	66	81

4 is the smallest digit that never occurs in any term of the "look-and-say" sequence.

The digit 4 on an LCD calculator is made up of 4 bars.

A famous riddle: Show how one-half of five is four!
Answer: Take off the first and last letters and you have the roman numeral for 4. The Roman numeral for four is **IV** (whose letters are one-half of the four letters in the spelled-out word "five").

Why is the Roman numeral **IIII** used instead of **IV** on clocks and watches?
- using IIII brings more symmetry and balance to the dial. The IIII offsets the heavy VIII that is found on the other side.
- the strict use of IV instead of IIII wasn't common until after the middle ages (the practice of placing smaller digits before large ones to indicate subtraction came into popularity in Europe after the invention of the printing press), the Romans generally used IIII. Clocks and watches are

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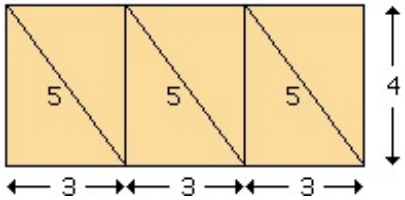
patterned after sundials, which were in use long before the middle ages.

Berger's 4:9 theory



In his book "Bauwerk und Plastik des Parthenon, in Antike Kunst" (Basel, 1980). E. Berger presents a study that investigates the way that the Pythagorean ideas of ratios of small numbers were used in the construction of the Temple of Athena Parthenos. In his opinion the ratio 4 : 9 were fundamental to the construction. A basic rectangle of sides 4 and 9 was constructed from three rectangles of sides 3 and 4 with diagonal 5 (see drawing). This form of construction also meant that the 3-4-5 Pythagorean triangle could be used to good effect to ensure that right angles in the building were accurately determined.
The length of the Temple of Athena Parthenos is 69.5 m, its width is 30.88 m and the height at the cornice is 13.72 m. To a fairly high degree of accuracy this means that the ratio width : length = 4 : 9 while also the ratio height : width = 4 : 9.
- Source: **Article** by J.J. O'Connor and E.F. Robertson.

The **four-second rule** is the amount of time that internet user will wait for a page to load before leaving and going to another site.

Swear number:
The phrase "**four-letter word**" is used to describe most swear words in the English language.
The Pythagorean oath, as quoted by the Renaissance magician Cornelius Agrippa, is as follows:
"*I with pure mind by the **number four** do swear;*
That's holy, and the fountain of nature
Eternal, parent of the mind..."

In Japan and in most Asiatic cultures, the number 4 (sinograph: 四) is considered unlucky because it is prounounced ***shi*** which sounds like the word 'death'. Due to that, many numbered product lines skip the number 4. However, in some cases the word *yon* ('4' in early classical Japanese) is used instead of *shi*: when counting floors in a building, or when you are asked "which floor?" in an elevator... The aversion or fear of the number 4 is called "Tetraphobia".

Math-trick: Four equals three!
Suppose: a + b = c .
This can also be written as:
4a - 3a + 4b - 3b = 4c - 3c .

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After reorganizing:
4a + 4b - 4c = 3a + 3b - 3c .
Take the constants out of the brackets:
4(a + b - c) = 3(a + b - c) .
Remove the same term left and right, then:
4 = 3
Where is the error?

Challenge: using **four 4's** and any operations, try to write equations that have the integers from 1 to 100 as the answer (see example below):
1 = 44/44
2 = 4/4 + 4/4
3 = (4 + 4 + 4)/4
4 = 4(4 - 4) + 4, etc...
(click here to see solutions)

Curiosity:
Think of any number and write it out in WORDS. Count the number of letters it contains and write that down in WORDS. And so on:
• TWENTY-EIGHT (11 letters) ->
• ELEVEN (6 letters) ->
• SIX (3 letters) ->
• THREE (4 letters) ->
• FIVE (4 letters) ->
• FOUR (4 letters) -> etc.
You will always arrive at FOUR!

A dollar bill can be double folded (forward and backwards) **4**x10^3 times before it will tear.

STA**4**NCE = For instance!

In Italian, the expression ***in quattro e quattr'otto*** (in four and four eight) means 'in a trice'.

An amusing Finnish word that contains 4 y: **Yötyöhyöty** (advantage gained from working night shifts with the correspondingly higher salary).
- posted by Juhani Sirkiä

4 rivers are mentioned in the Old Testament, Gen 2, 10:
"And a river went out of Eden ... and parted ... into four heads. The ... first [is] *Pison* ... which compasses the whole land of Havilah ... the second [is] *Gihon* ... that compasses the whole land of Ethiopia ... the third [is] *Hiddekel* ... that goes toward the east of Assyria ... and the fourth [is] *Euphrates* that goes eastward to Assyria".

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The number 4 symbolizes the principle of putting ideas into form. It signifies work and productivity.

1 in **4** people worldwide is Muslim, and 2 out of 3 of the world's Muslims are in Asia (data: 2009).

"Sixiang" (Number 4), in the Mystical Numbers of Taoism, represents the Four Essences: Earth, Water, Air, Fire.

The most common four-letter words in order of frequency are: that, with, have, this, will, your, from, they, know, want, been, good, much, some, time, very, when, come, here, just, like, long, make, many, more, only, over, such, take, than, them, well, were.

There are only **4** words in the English language which end in 'dous': hazardous, horrendous, stupendous and tremendous.

FOUR in different languages (© G. Sarcone)
(from Old English ***feower***)

Indo-european | ***K^WETORES**, ***K^WETESRES** |

Sanskrit | चतुर् **CATÙR** |
चत्वार:*(m)*/चतस्र:*(f)*/चत्वारि*(n)* ***catvāraḥ** / **catasraḥ** / **catvāri***

Proto-Hellenic | ***Q^WET(O)RO-** |
Greek, Attic | **τέτταρες**, **τέτταρα** ***TETTARES**, **TETTARA*** |
Latin | **QUATTUOR** |, Archaic Latin | ***QUATBORO** |

Italian ***quattro***; French, Provençal and Catalan ***quatre***; Spanish ***cuatro***; Portuguese ***quatro***; Romanian ***patru;*** Romansh ***quatter***; Sardinian ***bàtero***.

Old Celtic | **PETOR** |

Breton ***pevar*** (m), ***peder*** (f); Welsh ***pedwar*** (m), ***pedair*** (f); Irish ***a ceathair*** (cardinal), ***ceathre*** (things), ***ceathrar*** (people).

Old Germanic | **FITHWOR** |

Dutch and German ***vier***; Danish, Norwegian, and Swedish ***fire***; Icelandic ***fjórir***.

Old Slavic | **CETYRIJE**, **CETYRI** |

Russian четыре ***chetyrye***; Czech ***čtyři*** ; Slovenian ***štíri***; Polish ***cztery***.

Proto Indo-Iranian | ***K'ATWA:RAS** |

Persian چهار ***chahar***; Hindi चार ***cha:r*** .

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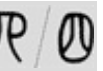
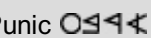
Evolution from '[seal script]' to modern sinograph 四 :
Old Chinese (pron.) | **si** |



Chinese 四 ***sí*** .

Proto-Semitic | ***RABA'*** |
Semitic root | **RB'** |
Ancient Egyptian [ỉfd'-] ***aft'u***; Akkadian  or  ***erbe***; Punic  ***'arbah***.

Arabic أربعة ***arba'â***; Hebrew ארבעה ***ârba'ah***; Maltese: ***erbgħa***; Amharic ***arat***.

More languages
Magyar ***négy***.
Turkish ***dört***.
Mayan ***can***.
Nahuatl ***nāhui***.
Suomi ***neljä***.
Zulu ***(ku)ne***.

HIDDEN ROOTS
The roots of the word **four** are hidden in the following words: cadre, cahier, carillon, carnet, carrefour, casern, czardas, escadrille, petorritum, quadrant, quadriga, quadroon, quarantine, quarrel, quarry, quarter, quartan, quaternay, quatrain, quire, squad, square, tetrad, trapezium, trocar; farthing, filler, firking; rabi, arroba (from Arabic الربع *ar-rub'*, "quarter"). In French: carreau, écarquiller, écarter, Périgord (< **petru-corii*, 'four troops'), Périgueux, arrobase. In Italian: quadrivio, squadra, squartare, tessera. Gaulish person names: Petrullus, Petrogenos, Petrusonia 'fourth born' (< **petuares* / *petru-*, 'four').

Buy your favorite Number (4) here.

5

V

is the only prime number that ends in 5.
is the number of Platonic solids.
is the only prime number that ends in 5.
is a congruent number because it is the area of a 20/3, 3/2, 41/6 triangle (a congruent number is an integer that is the area of a right triangle with three rational number sides).

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五 ٥ ৫ ५ ૫ ๕

The Roman numeral for 5 is **V**, which comes from a representation of an outstretched hand.

Any power of 5 ends in a 5 (except 5^0).

$= 3^2 - 2^2 = 1^2 + 2^2$
$= 2^5 - 3^3$
$5^2 = 2\mathbf{5}$
$5^2 = 3^2 + 4^2 = 13^2 - 12^2$

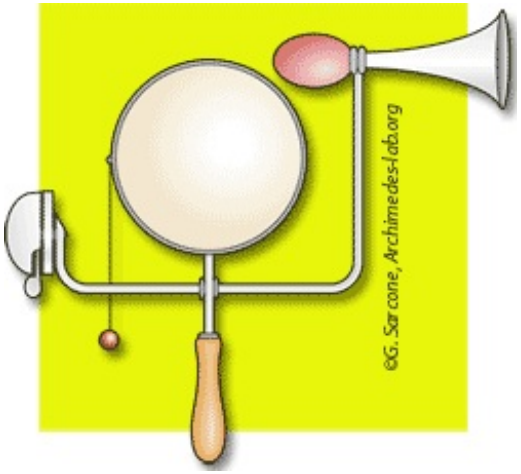
$= (11 \times 11 - 11)/(11 + 11)$
$= D/C$

19/95 = 1~~9~~/~~9~~5 = 1/5
26/65 = 2~~6~~/~~6~~5 = 2/5

$(\mathbf{5} - 1)! + 1 \equiv 0 \pmod{\mathbf{5}^2}$

Any number having a *abc***5***abc***5** pattern is divisible by: 5, 73, 137, and 10001

Can you count in 'ding-bong'?



The inhabitants of 'Fongaponga' use a series of sounds made from this strange device to represent numbers: '**ding**' with the handbell, '**eek**' when squeezing the rubber bulb of the horn, and '**bong**' when beating the tambourine with the small ball. These very special **base-5 numerals** are then strings made from 3 sounds each corresponding to an additive numerical value. Looking at the number list below, we can guess with the help of some logic that 'eek' is actually a 'function' that indicates subtraction and that every 'ding' equals 5, and every 'bong', 7.

1. **ding-ding-ding-eek-bong-bong**
2. **bong-eek-ding**
3. **ding-ding-eek-bong**
4. **bong-bong-eek-ding-ding**

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5. **ding**
6. **ding-ding-ding-ding-eek-bong-bong**
7. **bong**
8. **ding-ding-ding-eek-bong**
9. **bong-bong-eek-ding**
10. **ding-ding**
11. **bong-bong-bong-eek-ding-ding**
12. **ding-bong**
13. **ding-ding-ding-ding-eek-bong**
14. **bong-bong**
15. **ding-ding-ding**
16. **bong-bong-bong-eek-ding**
17. **ding-ding-bong**
18. **bong-bong-bong-bong-eek-ding-ding**
19. **ding-bong-bong**
20. **ding-ding-ding-ding**
21. **bong-bong-bong**
22. **ding-ding-ding-bong**
23. **ding-ding-ding-ding-ding-ding-eek-bong**
24. **ding-ding-bong-bong**

*From number 24 on, all numbers are only combinations of **dings** and/or **bongs**.*

25. **d-d-d-d-d**
26. **d-b-b-b**
27. **d-d-d-d-b**
28. **b-b-b-b**
29. **d-d-d-b-b**
30. **d-d-d-d-d-d**...

Source:
- Sarcone's **"ding-bong numbers"** are sequence A102701 in the 'Encyclopedia of integer sequences'.
- **"Fongaponga"**, Focus BrainTrainer nr. 7, page 51.

A five-sided polygon (pentagon) has 5 diagonals. This is the only shape for which the number of sides and diagonals is the same (which may explain why *pentagrams*, *pentacles*, and *pentangles* are so common and appear so often as iconographic symbols). - by Patrick Vennebush -

Pentagram, *Pentangle* and *Pentacle* are all names for a 5-pointed star. This mystical symbol is supposed to keep away devils and witches.

The number 5 is geometrically represented in the *Quincunx* pattern. This design is arranged by marking four corners of an imaginary quadrilateral and a central axis through a series of dots or objects - as noticed on dice, playing cards, or dominoes. The significance of the quincunx pattern originates in Pythagorean mathematical mysticism.

*Early Greek coin marked with **Quincunx** Pattern*

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• "In this exclamation, there are five ***i***'s!"
(autoreferential sentence)

A famous riddle involving 5s: How can you make the following equation true by drawing only one straight line:
5+5+5=550
Answer:
545+5=550

Another famous riddle: From a word of **5 letters**, take 2 letters and have 1.
Answer: ALONE - AL = ONE.

• What English word contains all **5** vowels ONCE?
Answer: auctioned, authorize, dialogue, discourage, education, housemaid, mensuration, obnubilate, pneumonia, precarious, precaution, regulation, sequoia, tambourine, ultraviolet, uncopyrightable... The words ABSTEMIOUS, ANEMIOUS, ARSENIOUS, CAESIOUS and FACETIOUS contain all 5 vowels appearing in alphabetical order, while in the words SUBCONTINENTAL and UNORIENTAL they appear in reverse alphabetical order! -- *G. Sarcone*.

• What Italian/French/Spanish word uses all **5** vowels once?
Answer: aiuole (flowerbeds) / oiseau (bird) / murciélago (bat).
A list of words that contain all 5 vowels once BOTH in Italian and in Spanish: ADULTERIO, AURIFERO, CAULIFORME, COMUNICANTE, DEPURATIVO, DELUSORIA, EDUCATIVO, EQUIVOCA, ESTUARIO, EUFORIA, FERRUGINOSA, INCESTUOSA, LUTERANISMO, PAUPERISMO, PERUVIANO, SURREALISMO, VITUPEROSA, VOLUMETRIA... -- *G. Sarcone*.
In French, some verbs like 'vouaient' (were dedicating, dedicated), 'jouaient' (were playing, played)... contain 5 different consecutive vowels!

1000 + **5** = 1005 (one thousand five) is the smallest natural number whose name contains the five vowels a, e, i, o, u (in any order).

In French "je te dis un mot de cinq lettres!" (I tell you a word of five letters) is an exclamation of anger against the person for whom the insult is intended.

5th April
At 1:02 AM and 3 seconds on Wednesday, April 5, 2006, it was the 1st hour of the day, the 2nd minute of the hour, the 3rd second of that minute in the 4th month and the 5th day of '06... or just:
01:**02**:**03 04**-**05**-**06** for short!

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For many other places, this coincidental chronological oddity happens at 1:02 AM May 4.

The five rivers of Hades are:
• ***Acheron*** (the river of woe. Etymologically, the name probably means 'marsh-like': cf. Greek word *akherousai*, 'marshlike water'),
• ***Cocytus*** (the river of lamentation; from Greek *kokutos*, 'lamentation'),
• ***Phlegethon*** (the river of fire; from Greek present participle of *phlegethein*, 'to blaze'),
• ***Lethe*** (the river of forgetfulness; from Greek *lethe*, 'forgetfulness')
• ***Styx*** (the river of hate; cognate with Greek words *stygos* 'hatred' and *stygnos* 'gloomy').

Five is a very popular number in Chinese culture since it occupies the central position (one through nine) and also reflects the 'Five Elements Philosophy' (Wuxing) - Wood, Fire, Earth, Metal (or Gold), and Water (in Chinese: 木, mù; 火, huǒ; 土, tǔ; 金, jīn; 水, shǔi).

In Switerland, the banking sector employs about **5**% of the workforce (data: 2005).

According to a research by Commtouch, quoted by NYT, only 5 countries: China, South Korea, Russia, USA and Brazil generate 99% of spams.

The name *Pontius (Pilatus)*, in early Italic language means 'the 5th'. We can find the Indo-european root *penkwro*, the '5th', in the word **finger** (finger, from Germanic *fingwraz*, "one of five").
- by Gianni A. Sarcone -

FIVE in different languages (© G. Sarcone)
(from Old English ***fif***)

Indo-european | ***PENK^{W}E** |
Sanskrit | **पञ्च PAÑCA** |
Greek, Attic | **ΠΕΝΤΕ *PENTE*** |
Latin | **QVINQVE** |, Archaic Latin | ***PENQVE** |
Vulgar Latin | ***CINQUE** |

Italian ***cinque***; French ***cinq***; Spanish and Portuguese ***cinco***; Provençal and Catalan ***cinc***; Romanian ***cinci***; Romansh ***tschintg***; Sardinian ***chímbi***.

Old Celtic | **PEMPE** |

Breton ***pemp***; Welsh ***pump***; Irish ***cúig*** (things), ***ciúigear*** (persons).

Old Germanic | **FIMFI** |

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Dutch *vijf*; German ***fünf***; Danish, Norwegian, and Swedish ***fem***; Icelandic ***fimm***.

Old Slavic | **PE^{n}TI** |

Russian пять ***p'jat'***; Czech ***pět***; Slovenian ***pét***; Polish ***pięć***.

Proto Indo-Iranian | ***PANK'A** |

Persian پنج ***panj***; Hindi पाँच ***panch***.

Evolution from '[seal script]' to modern sinograph 五 :
Old Chinese (pron.) | **nguo** |

Chinese 五 ***wǔ***.

Proto-Semitic | ***KhAMSh** |
Semitic root | **Kh-M-Sh** |
Ancient Egyptian [dǐ'-] ***t'uau***; Akkadian  ***khamish***; Punic ***khamsh***.

Arabic خمسة ***khamsâ***; Hebrew חמשה ***khamishah***; Maltese: ***hamsa***; Amharic ***amist*** (pron. amst).

More languages
Magyar ***öt***.
Turkish ***bes¸***.
Mayan ***ho***.
Nahuatl ***mācuīlli***.
Suomi ***viisi***.
Zulu ***(isi)hlanu***.

HIDDEN ROOTS
The roots of the word **five** are hidden in the following words: cinquain, Cinquecento, cinquefoil, keno, pachisi, Pentecost, pentesmon, pentagon, pentameter, pentathlon, pinkster flower, Pontius, punch, Quentin, quincunx, quinial, quintain, quintessence, quintet, quintuple; femto-, fin, finger, fist, foist; khamsin. In French: esquinter, quinquagénaire. In Spanish: quintar. In German: Pfinztag, Quentchen.

6

六
陆

is a congruent number because it is the area of a 3, 4, 5 triangle (a congruent number is an integer that is the area of a right triangle with three rational number sides).
is the smallest perfect number, that is a number whose divisors add up to itself, e.g.: 1 x 2 x 3 = 1 + 2 + 3 = 6

The probability that a number picked at random from the set of integers will have no repeated prime divisors is $\mathbf{6/\pi^2}$. - *Source: Chartres*

n^3 - *n* is divisible by 6. That is, any product of 3 consecutive integers is

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divisible by 6.
The equation $x^n - y^m = \pm\mathbf{6}$ with $n, m > 1$ has NO solution. In other words, **6** cannot be a difference of two powers!

$= 3(1/1 + 1/2 + 1/3 + 1/6) = 6^2(1/1 - 1/2 - 1/3)$
$= 1/2^0 + 3/2^1 + 5/2^2 + 7/2^3 + 9/2^4 + 11/2^5 + 13/2^6 + \ldots$ (sum of consecutive odd numbers with reciprocal powers of 2)
$= 4! / 2^2 = 4! / 2!^2$
$= (\sqrt{}(10 - 10/10))!$
$= (\sqrt{}(1 + \sqrt{}-3) + \sqrt{}(1 - \sqrt{}-3))^2$
$= (\text{Log}(10 \times 10 \times 10))!$
$= 10_2 + 10_2 + 10_2 = 110_2$

= DC/C

$6^2 = 3\mathbf{6}$
$6^2 = 1^3 + 2^3 + 3^3$
$6^3 = 3^3 + 4^3 + 5^3$

6 is the smallest number of colors needed to color the regions on a map on a Möbius strip. A Möbius strip is a continuous closed surface with only one side; formed from a rectangular strip by rotating one end 180 degrees and joining it with the other end.

6 circles of the same size (try this with 6 coins of the same denomination) will always perfectly surround, all touching, without gaps, 1 circle of that same size. - *Posted by Aaron Pyle*

The probability to get **one 6** with 6 dice is 0.665...
The probability to get **two 6's** with 2 x 6 = 12 dice is 0.619...
The probability to get **three 6's** with 3 x 6 = 18 dice is 0.597...

Arithmetical nut with **6**: "From six take nine; from nine take ten; from forty take fifty, and have six left" (see below)

SIX	IX	XL
IX	X	L
S	I	X

A base-6 (senary or heximal) numeral system is used by the Ndom people of the Frederik Hendrik Island, near New Guinea. For example,

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in Ndom language the number 7 is *mer abo sas* (6 + 1), and the number 17, *mer an thef abo meregh* (6 x 2 + 5).

"This exclamation has unexpectedly six '***s***', six '***i***' and six '***x***'!"
(autoreferential sentence) - *G. Sarcone*.

Any one of us is only about 6 acquaintances away from anyone else in the world.

Brazilians have two different names for six: **seis** or **meia** (short for *meia duzia*, 'half dozen').

In old French, the word 'hasart' meant **6** at the game of dice. The earliest meaning of HAZARD (<hasart) was, however, 'stroke of luck (or bad luck)'. In the past, the dice featured on one face a flower pattern. Thus the Arabs called gaming dice "flowers", in Arabic 'az-zahr'.

the "**sixth sick sheik's sixth sheep's sick**" is said to be the hardest tongue twister in English.

Riddle: can you transform the Roman number IX into **6** by drawing only one line?
Answer: **S**IX (yes, the line is curvilinear...).

Joke. Solving the equation by one dumbo:

$$\frac{1}{n}\sin x = ?$$
$$\frac{1}{n}\sin x =$$
$$six = 6$$

Chinese people like the number 6. One possible reason is because it is the largest number on a dice, and when gambling, one wins if the number six is thrown. When playing mah-jong, the host is the most likely to be the one who throws the number six, and who therefore has a better chance of winning. Reflecting this, the Chinese have a saying, "double six makes you the happiest". For Chinese businessmen the number six means "a smooth business".

"Liùhe" (六和), in the Mystical Numbers of Taoism, represents the number 6 and symbolizes the **Six Harmonies**:
體 合 於 心 (Body in harmony with Heart),
心 合 於 意 (Heart in harmony with Intent),
意 合 於 氣 (Intent in harmony with *Qi*),
氣 合 於 神 (*Qi* in harmony with Spirit),

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神合於動 (Spirit in harmony with Motion),
動合於空 (Motion in harmony with Nothing).

When a Yoruban man in Nigeria get really attracted to a woman, he sends **six** shells to her. In fact, the Yoruban word *efa* means both '**six**' and 'attracted'. If this chat up line works, the girl replies with eight shells - *ejo* meaning both 'eight' and 'I agree'!

6 persons
Whenever two people meet, there are really **six** people present. There is each man as he sees himself, each man as the other person sees him, and each man as he really is.
-- William James.

Italian natural ambigram
9 , 111 111 = ***6 un-o dop-o un 9*** (this Italian sentence means "***6*** *ones after a 9*" and can be read the same upside down).

• English words which contain strings of **6** consonants: "be**rgschr**und", "bo**rschts**", "e**schsch**oltzia", "la**tchstr**ing", "we**ltschm**erz".

6 x 10^5 is the number of engineers China produced in 2005. In comparison, India produces nearly 5 x 10^5 technical graduates annually! (data 2008)

SIX in different languages (© *G. Sarcone*)
(Old English ***siex***)

Indo-european | ***SEKS** | | ***SWEKS** |
Sanskrit | षष् **S'AS'** |
Greek, Attic | **'ΕΞ *HEX*** |
Latin | **SEX** |

Italian ***sei***; French ***six***; Spanish and Portuguese ***seis***; Provençal ***sièis***; Catalan and Romansh ***sis***; Romanian ***şase***; Sardinian ***ses***.

Old Celtic | **SUEK(O)S** |, | **SVEK(O)S** |

Breton ***c'hwec'h***; Welsh ***chwech***; Irish ***sé*** (things), ***seisear*** (persons).

Old Germanic | **SEKS** |

Dutch ***zes***; German ***sechs***; Danish and Norwegian ***seks***; Swedish and Icelandic ***sex***.

Old Slavic | **S^{h}ESTI** |

Russian шесть ***shest'***; Czech ***šest***; Slovenian ***šést***; Polish ***sześć***.

Proto Indo-Iranian | ***(K)SWACSH** |

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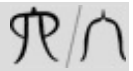
Persian شش ***shesh***; Hindi छः ***ch'eh***.

Evolution from '[seal script]' to modern sinograph 六 :
Old Chinese (pron.) | **lyuk** |



Chinese 六 ***liù***.

Proto-Semitic | ***ShIDTh** |
Semitic root | **Sh-Sh** |, | **Sh-T** |
Ancient Egyptian [sỉs'- or ỉs'- (?)] ***sas***; Akkadian  ***shishshu***; Punic ***shish***.

Arabic ستة ***sittâ***; Hebrew ששה ***shishah***; Maltese: ***sitta***; Amharic ***sidist*** (pron. sədəsətə).

More languages
Magyar ***hat***.
Turkish ***altı***.
Mayan ***uac***.
Nahuatl ***chicuacē***.
Suomi ***kuusi***.
Zulu ***isithupha***.

HIDDEN ROOTS
The roots of the word **six** are hidden in the following words: bisextil, hexad, hexagon, Seicento, semester, senary, sestet, sestina, sext, sextant, sextile, sextuple, siesta, Sistine. In French: setier, sexagénaire, sextuor, sizain. In Italian: sciamito [< Greek *(he)xámiton*], seienne, staio.

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Number list: *lista dei numeri* (it), *liste des nombres* (fr), *lista de números* (es, por), *Liste besonderer Zahlen* (ger), *getallen en getalverzamelingen* (du), *seznam čísel* (cz), 數表 (ch), 数の一覧 (jap), *список чисел* (ru), *שמות מספרים* (he).
➔ **0-6** | ➔ **7-12** | ➔ **13-23** | ➔ **24-69** | ➔ **70-200** | ➔ **201-684** | ➔ **5H0P**

7

□□

七

is a congruent number because it is the area of a 35/12, 24/5, 337/60 triangle (a congruent number is an integer that is the area of a right triangle with three rational number sides).

is the minimum number of distinct integer-sided rectangles needed to tile a rectangle such that no 2 rectangles share a common side-length (see: uncomparable rectangles).

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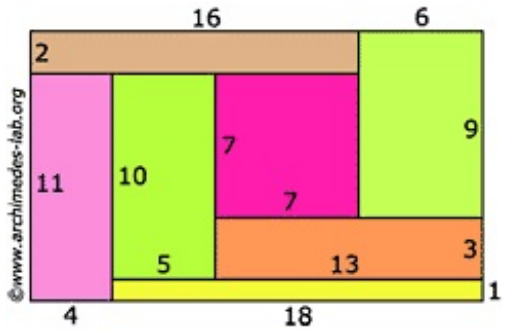
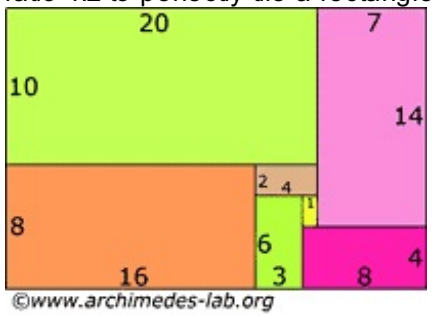


is also the minimum number of distinct rectangles with sides in the ratio 1:2 to perfectly tile a rectangle:



is a Mersenne prime ($2^3 - 1$).
is the unity digit of the number 3^{31}.
is the positive solution to: $3x^2 = 16x + 35$

is probably the smallest prime whose 4^{th} power is of the form $a^4 + b^4 - c^4$:
$7^4 = 157^4 + 227^4 - 239^4$
- posted by Morten Risager

$= 4 + 3 = 4^2 - 3^2$
$= 1^2 + 1^2 + 1^2 + 2^2$ (sum of 4 squares)
$= 2^5 - 5^2$

$1^7 + 4^7 + 4^7 + 5^7 + 9^7 + 9^7 + 2^7 + 9^7 = 14459929$

$7^1 + 1 = 2 \times 2^2$
$7^2 + 1 = 2 \times 5^2$ (this property is used in the **magic Tangram**)

$7^2 = 13 + 17 + 19$ (sum of consecutive primes)
$7^2 = 3^4 - 2^5$

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$7^3 = 2^9 - 13^2$
$7^3 = 18^0 + 18^1 + 18^2$ (sum of consecutive powers of 18)

Is the only solution to the following equations:
$x = 2a^2 - 1$
and $x^2 = 2b^2 - 1$
(x = **7**, a = 2, and b = 5)

The factorial **7!** = 5**0**4**0** contains 50% zeroes. It seems that it is the unique factorial with this property.

= 16,758/2,394
= 18,459/2,637
= 31,689/4,527
= 36,918/5,274
= 37,926/5,418
= 41,832/5,976
= 53,298/7,614
(every ratio of the equalities above uses the digits 1 to 9 once)

= 98,532/14,076 (is the unique pandigital ratio that includes 0)

To multiply the number 1,014,492,753,623,188,405,797 by **seven**, you just have to move the last digit **7** to the beginning of the number: 7,101,449,275,362,318,840,579. Numbers with such properties are called **parasitic numbers**.

No perfect square ends in a **7** (perfect squares can only end in a 0, 1, 4, 5, 6, or 9).

The only single digit prime number to produce a square when its cube and the cube's proper divisors are added:
$7^1 + 7^2 + 7^3 + 1 = 20^2$

Some multiples of 7 are palindromic, such as:
77, 161, 252, 343,434, 525, 595, 616, 686, 707, 777, 868, 959, 1001, 1771, 2002, 2772, 3003, 3773, 4004, 4774, 5005, ...

The smallest positive integer whose reciprocal (1/7) has a pattern of more than one repeating digit:
1/7 = 0.142857**142857**142857...
It is also the smallest number for which the periodic sequence of 1/n is of length n-1. The next such numbers are 17, 19, 23, 29, 47, 59, 61, 97, ...

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Other notable properties:
by multiplying the cyclic number **142857** by 2, 3, 4, 5, or 6, the answer will be a cyclic permutation of itself...
142857 x 2 = **285714**
142857 x 3 = **428571**
142857 x 4 = **571428**
142857 x 5 = **714285**
142857 x 6 = **857142**
- posted by Larry Bickford

Interestingly, if we square the last three digits of **142857** and subtract the square of the first three digits, we also get back a cyclic permutation of the number!
$857^2 - 142^2 = 714285$

999,999 / 7 = **142857**

Adding 3 to the reciprocal of 7 gives a rough approximation of Pi π (**3.14**2857...).

(987'654'321 - (123'456'789 + 9)) / 123'456'789 = **7**
- by Gianni A. Sarcone in '*Il Mio Computer*', nr. 101 -
$(493827161^2 - 493827160^2 - 61728395^2 + 61728394^2 - 3^2) / (61728395^2 - 61728394^2) = 7$

Divisibility by Seven: take the digits of the number in reverse order, from right to left, multiplying them successively by the digits **1**, **3**, **2**, **6**, **4**, **5**, ... (repeating with this sequence of 6 multipliers as long as necessary). Add the products.
For example: is **1708** divisible by 7? Well, reverse the number, **8071**, multiply and add its digits as explained, **8**x**1**+**0**x**3**+**7**x**2**+**1**x**6** = 28. The sum is divisible by 7, so **1708** is.

Divisibility by Seven (2): for numbers having 3 digits...
154 > (**2**)+**1**+5+**4**+(**2**) = 14 is divisible by 7, so 154 is.
245 > (**4**)+**2**+4+**5**+(**6**) = 21 is divisible by 7, so 245 is.
862 > (**2**)+**8**+6+**2**+(**1**) = 19 and 862 are not multiple of 7.
366 > (**6**)+**3**+6+**6**+(**3**) = 24 and 366 are not multiple of 7.
The numbers in brackets are added in order to form with their neighbors a 2-digit number multiple of 7. If the sum of all digits is a multiple of 7, then the related number is divisible by 7.
- posted by Silvio Moura Velho -

is a prime number
7 is a prime number

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73 is a prime number
739 is a prime number
7393 is a prime number
73939 is a prime number
739391 is a prime number
7393913 is a prime number
73939133 is a prime number
(**73939133** is the largest right-truncatable prime)

7 is the smallest number of colors needed to color the regions on a map on a torus (donut shape).

The opposite sides of a die cube always add up to **7**.

A square piece of paper cannot be folded in half more than **7** times... However, Britney Gallivan (of Pomona, California) found a formula that tells us to successfully fold paper 12 times, we would need about 1.2 km of paper... and she proved it! - posted by Chris Glbbons

The Bolans of West Africa used for reckoning a kind of heptal (base-7) positional notation system.

Curiously, '**letters**' contains seven times itself (selfreferential word). - *G. Sarcone*

In Germany, a spiteful or quarrelsome woman is called ***eine böse Sieben***, 'an evil Seven'.
Böse Sieben ('evil Seven') is also a stream located in the Sachsen-Anhalt Area of the Country of Germany.

In Japan, the word *shi* means 'death'. In some cases *nana* ('7' in early classical Japanese) replaces the word *shichi* ('7', in modern Japanese) because it contains *shi*.

The symbol of the **Judaic Faith** is the **menorah**, a 7-branch candlestick (see opposite). According to **Kabbalah** (Judaic Mysticism), God created the world with **7** divine attributes. They are: Kindness (*Chesed*), Severity (*Gevurah*), Harmony (*Tiferet*), Perseverance (*Netzach*), Splendor (*Hod*), Attachment (*Yesod*) and Royalty (*Malchut*). Accordingly, the entire creation is a reflection of these seven attributes.

"Qixing" (七顆星), in the Mystical Numbers of Taoism, represents the number 7 and symbolizes the Seven Stars – The Big Dipper.

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"Sju sjösjuka sjömän på det sjunkande skeppet Shanghai" (*seven seasick seamen on the sinking ship Shanghai*), is a Swedish tongue twister.

Find the **7** five-letter English words that use only letters from the Roman numeral alphabet. [Solution]

The word LUCK requires **7** penstrokes.

7 ± 2 is a cognitive numeric limit (cf. 'The Magical Number Seven, Plus or Minus Two: Some Limits on Our Capacity for Processing Information' by the cognitive psychologist George A. Miller, *The Psychological Review*, 1956, vol. 63, pp. 81-97)

Even the formula of the Coca-Cola soft-drink is related to number **7**. In fact, **Merchandise 7X** is the "secret ingredient" in Coca-Cola and has apparently remained a secret since its invention in 1886.

The '**Olf**' is a unit used to measure the strength of the smell from a standard person defined as an average adult working in an office (or similar non–industrial workplace), with a hygienic standard equivalent of 0.**7** baths per day!

MAGIC SEVEN
7 is the Holy number. There are 7 days in creation, 7 days in the week, 7 phases of the moon, every 7th year was sabbatical, and 7 times 7 years was the jubilee. There are 7 ages in the life of man, 7 divisions in the Lord's Prayer, 7 bibles, 7 churches of Asia, 7 Graces, 7 Deadly Sins, 7 Senses, 7 Sorrows of the Virgin, 7 Virtues, 7 joys of the Virgin, 7 Precious Things of the Buddhas, 7 Sleepers of Ephesus, 7 Lamps of Architecture. The apostles chose 7 deacons, Enoch, who was translated, was 7th from Adam; Jesus Christ was the 77th in a direct line. The vision of Daniel was 70 weeks; and the elders of Israel were 70. There were also 7 heavens, 7 planets, 7 stars, 7 wise men, 7 champions of Christendom, 7 notes in music, 7 primary colors, 7 sacraments of the Catholic Church, and 7 wonders of the world (see below). 7 gateways were traversed by Inanna, the most important goddess of the Sumerian pantheon, during her descent into the underworld. The 7th son was considered endowed with pre-eminent wisdom; and the 7th son of a 7th son is still thought to possess the power of healing diseases spontaneously.

The 7 wonders of the ancient world are:
- Great Pyramid of Giza,
- Hanging Gardens of Babylon,
- Temple of Artemis at Ephesus,
- Statue of Zeus at Olympia,
- Mausoleum of Maussollos at Halicarnassus,
- Colossus of Rhodes,
- Lighthouse of Alexandria.

The '**Seven Blunders of the World**' according to Mahatma Gandhi are:

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- Wealth without work,
- Pleasure without conscience,
- Knowledge without character,
- Commerce without morality,
- Science without humanity,
- Worship without sacrifice,
- Politics without principle

SEVEN in different languages (© G. Sarcone)
(Old English ***seofon***)

Indo-european | ***SEPTM** |
Sanskrit | सप्त **SAPTA** |
Greek, Attic | **'ΕΠΤΑ *HEPTA*** |
Latin | **SEPTEM** |

Italian ***sette***; French ***sept***; Spanish ***siete***; Catalan and Provençal ***set***; Portuguese ***setes***; Romanian ***şapte*** (sometimes pronounced as '***şepte***', when communicating telephone numbers in order to avoid a possible confusion between 6 and 7); Rumansh ***siat***; Sardinian ***sète***.

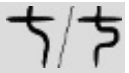
Old Germanic | **SIBUM** |

Dutch ***zeven***; German ***sieben***; Danish ***syv***; Norwegian ***sju***; Swedish ***sju***; Icelandic ***sjö***.

Old Slavic | **SEDMI** |

Russian семь ***syem'***; Czech ***sedm***; Slovenian ***sedem***; Polish ***siedem***.

Evolution from 'seal script' to modern sinograph 七 :
Old Chinese (pron.) | **ts'yet** |



Chinese 七 ***qī***. The sinograph 柒 is used as a replacement for *qī* on legal and financial documents.

Semitic root | **Sh-B-^{c}** |
Ancient Egyptian [sfḫ-] ***sefekh***; Akkadian  ***sebe***.

Arabic سبعة ***sab'a***; Hebrew שבעה ***sheh-vah***; Maltese: ***sebgha***; Amharic ***sebat***.

HIDDEN ROOTS
The roots of the word **seven** are hidden in the following words: hebdomadal, heptagon, heptahedron, september, septennial, septentrion, septuple; Bathsheba, Elizabeth. In French: semaine, septuor.

Buy your favorite Number (7) here.

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8

□□

八

is the second honest number, because 8 = "two cubed".
is the largest cube (2^3) in the Fibonacci sequence.
is the smallest sum of two factorials of distinct primes: 2! + 3!
is also the lowest number which is both a sum of prime squares and a prime cube: $8 = 2^2 + 2^2 = 2^3$
is the only cube that is 1 less than a square ($3^2 - 1$).
is the 3rd number that stays the same when written upside down.

$= 2^4 - 2^3$
$= 312^2 - 46^3$
= (7 + 7/7)! / 7!
= (3 - 1)(3 + 1)
= (1 x 2 x 3 x 4 x 5) / (1 + 2 + 3 + 4 + 5)

= CD/L

8 = 5 + 1 + **2** and 5**12** = 8^3
8 + 8 + 8 + 88 + 888 = 1000

If you divide any square integer by 8 you get a remainder of 0, 1 or 4.

$(2n - 1)^2 \equiv 1 \ (mod\ \mathbf{8})$
(... any squared odd number is a multiple of **8** plus 1)

Digital sums of prime pair products:
5 x 7 = 35 and 3+5 = 8
11 x 13 = 143 and 1+4+3 = 8
17 x 19 = 323 and 3+2+3 = 8
29 x 31 = 899 and 8+9+9 = 26 and 2+6 = 8
41 x 43 = 1763 and 1+7+6+3 = 17 and 1+7 = 8
59 x 61 = 3599 and 3+5+9+9 = 26 and 2+6 = 8 ... etc.

A base-8 (octal) numeral system was devised by the Yuki of Northern California, who used the spaces between the fingers to count.

Zenzizenzizenzic was a term coined by earlier mathematicians to indicate the **8** power of a number. The root word is the German *zenzic* from the medieval Italian word *censo*. The Italians used *censo* to translate the Arabic word *mál* (literally "possessions, property") meaning 'squared' in the context of mathematics.

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You can split a pie into **8** pieces with three straight cuts.
You can also chop a big lump of cheese into a maximum of 93 bits with just **8** straight cuts!

There are **8** furlongs in a mile and **8** pints in a gallon.

1 human being out of **8** is a Chinese farmer.
Inhabitants of the world (2004): 6.2 billions.
Inhabitants of China (2004): 1.3 billions, 60% of them living in a rural area.
The proportion is then: (1.3 · 60%)/6.2 = approx. 1 Chinese farmer / 8 human beings.
--- Is this article still topical? Please send us your comments!

Magic 8-Ball is a toy made by Tyco Toys used for fortune-telling. It was invented by Abe Bookman of the Alabe Crafts Company in Cincinnati in 1946. Mattel holds the rights after purchasing Tyco in 1997. A 20-sided icosahedron floats inside a murky blue liquid inside the ball, and when you turn the ball upside down, one of the 20 'oracles' appears.

In numerology, **8** is the number of building, and in some theories, also the number of destruction.

Eight are the main directions shown on any compass: north, northeast, east, southeast, south, southwest, west, and northwest.

"**Bagua**", in the Mystical Numbers of Taoism, represents the number 8 and symbolizes the Eight Signs of Change and Combinations.

Eight is considered a lucky number in Chinese culture because it sounds like the word "prosper". In Northern China, people often say: "If you want to be rich you must stick to the **number eight**". Dates and times with either a 6 or an 8 have been predominantly chosen as auspicious for important events. So, it's no coincidence that the **Beijing Olympic Games** started at **08:08:08** pm! When Chinese businessmen stay in a hotel, they would rather choose rooms with numbers such as: 6, 8, 58, 168, 518, 588, 868, and so on.

The **Eight Immortals** of the Chinese Mythology are:
Li TieGuai 李鐵拐 , Zhongli Quan 鐘離權, Lan CaiHe 藍采和 , Zhang GuoLao 張果老 , He XianGu 何仙姑 , Lu DongBin 呂洞賓 , Han XiangZi

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韓湘子 , Cao GuoJiu 曹國舅 .

The Buddha's **Eightfold Path** to Enlightenment (Ārya 'ṣṭāṅga mārgaḥ) is declared to be the way that leads to the cessation of suffering:
Right View, Right Intention, Right Speech, Right Action, Right Livelihood, Right Effort, Right Concentration, Right Mindfulness.

Hanukkah is an eight day Jewish holiday that starts on the 25th day of December.

Joke. What did 0 say to **8**? Answer: "Nice belt!".

The word '**buffalo**' repeated **8** times: "Buffalo buffalo Buffalo buffalo buffalo buffalo Buffalo buffalo" forms a grammatically correct English sentence meaning *bison from Buffalo, New York, who are intimidated by other bison in their community also happen to intimidate other bison in their community*.

"*Cats are smarter than dogs. You cannot get **eight** cats to pull a sled through snow*" *-- Jeff Valdez*

EIGHT in different languages (*© G. Sarcone*)
(Old English ***eahta***)

Indo-european | ***OKTÔ(U)** |
[*oktô(u)* is grammatically a dual and meant originally '2 groups of 4 fingers']
Sanskrit | अष्ट **ASHTA** |
Greek, Attic | **OKTΩ *OKTÔ*** |
Latin | **OCTO** |

Italian ***otto***; French ***huit***; Spanish ***ocho***; Portuguese ***oito***; Catalan ***vuit***; Provençal ***oit***; Romanian ***opt***; Rumansh ***otg***; Sardinian ***òto***.

Old Germanic | **AHTÔ** |

Dutch and German ***acht***; Danish ***otte***; Norwegian ***åtte***; Swedish ***åtta***; Icelandic ***átta***.

Old Slavic | **OS(T)MI** |

Russian восемь ***vósyem'***; Czech ***osm***; Slovenian ***ósem***; Polish ***osiem***.

Evolution from 'seal script' to modern sinograph 八 :
Old Chinese (pron.) | **pwat** |

Chinese 八 ***bā***. The sinograph 捌 is used as a replacement for *bā* on legal and financial documents.

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Semitic root | **Th-M-Ny** |

Ancient Egyptian [ḫmn-] ***khemennu***; Akkadian  ***samane***.

Arabic ثمانيه ***thamâniya***; Hebrew שמונה ***sh^{e}mônah***; Maltese: ***tmienja***; Amharic ***semmint*** (pron. səmənətə).

HIDDEN ROOTS
The roots of the word **eight** are hidden in the following words: OCTANS, OCTANT, OCTAVE, OCTAVO, OCTET, OCTOBER, OCTONARY; OCTODECIMO, OCTOGENARIAN; OCTAD, OCTAGON, OCTAHEDRON, OCTANDRY, OCTOPUS; SHEMINI ATZERETH, HESHVAN (from Akkadian *(w)aran-samnu*, name of the eighth month of the Babylonian calendar). In French: OCTANE. In Italian: OTTOCENTESCO, OTTONARIO, OTTUPLICARE.

Buy your favorite Number (**8**) here.

9

□□

九

is the largest number of cubes needed to sum to positive integers (in 1939, the mathematician L.E. Dickson proved that the only integers requiring exactly **9** positive cubes are 23 and 239).

$= 3^2$
$= 5 + 4 = 5^2 - 4^2$
$= 0^4 + 1^3 + 2^2 + 3^1 + 4^0$
$= \sqrt{}(1^2 + 4^2 + 8^2) = \sqrt[3]{}(1^3 + 6^3 + 8^3)$
$= 1^3 + 2^3$
$= 1! + 2! + 3!$ (sum of consecutive factorials)
$= !4 = 4!\,(1 - 1/1! + 1/2! - 1/3! + 1/4!)$
$= 4 + 4 + 4/4 = (4/.4)(4 - 4)!$ - *G. Sarcone* (four 4's diversion)
= MC/C = (MD - DC)/C = CV/V - DC/L - *G. Sarcone*

$\mathbf{2^5 \times 9^2 = 2592}$

0 1 2 3 4 5 6 7 8 9
9 8 7 6 5 4 3 2 1 0 is a mnemonic trick to remember your 9x table.

(**9** x 123'456'789) - 123'456'789 = 987'654'321 - **9**

= 97524/10836
= 95823/10647
= 95742/10638
= 75249/08361
= 58239/06471
= 57429/06381
(in each fraction above all digits from 0 to 9 were used once)

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Curious arrangements with 9's:
1 x 9 + 2 = 11
12 x 9 + 3 = 111
123 x 9 + 4 = 1 111
1234 x 9 + 5 = 11 111
12345 x 9 + 6 = 111 111
123456 x 9 + 7 = 1 111 111
1234567 x 9 + 8 = 11 111 111
12345678 x 9 + 9 = 111 111 111
The results above are all triangular numbers in base-9.

$1/9 = 1/10 + 1/10^2 + 1/10^3 + 1/10^4 + 1/10^5 + \ldots = \sum_{i=1} 10^{-i}$

Notably, the recurrent number 0.999999... denotes a real number which is equal to 1:
9 x 1/9 = 9 x 0.111111...
Thus, 1 = 0.999999...

$9^{9^9} = 1.9662705 \times 10^{77}$

but $9^{(9^9)}$ = a number containing 369,000,000 of digits!

To multiply 10,112,359,550,561,797,752,808,988,764,044,943,820,224,719 by **9** you just have to move the 9 at the very end up to the front. Apparently, it is the only number that does this!

1/1089 = 0,000**9**18**27**36**45**54**63**72**81**... (the decimal expansion is a sequence of numbers of the **9** times table: 9, 18, 27, 36, ...)

$[(n - 1)^3 + n^3 + (n + 1)^3] \equiv 0 \ (mod\ \mathbf{9})$
(... any sum of cubes of 3 consecutive integers is a multiple of **9**)

Intriguing sums:
9 = nine + zero = eight + one = seven + two = six + three = five + four
(the sums above contain all precisely **9 alphanumeric symbols**)

Water expands by about 9% as it freezes.

9.81 meters per second squared is *g*, the gravity constant on earth.

In probability, the '**nine**' is a logarithmic measure of reliability or probability of an event, defined as the negative of the base-10 logarithm of the probability of the event's complement. For instance, an event that is 99% likely to occur has an unlikelihood of 1% or 0.01,

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which amounts to $-\log_{10} 0.01 = 2$ **nines** of probability.

0**9**:F**9**:11:02:9D:74:E3:5B:D8:41:56:C5:63:56:88:C0... This string of hexadecimal numbers appears to be the HD-DVD processing key useful to decrypt and play most HD-DVD movies in Linux.

NUNDINAE ("9th day", the Roman market day): from earliest times, a market day occurred every eight days - every 9th day, according to the Roman method of inclusive reckoning. It was a day of rest from agricultural labor and a time to take produce to market.

Being the number of fingers or toes, 10 became the base of the decimal number system. It is the number of completeness or finality. With ten as complete, **9** comes into prominence as almost complete. Troy was besieged for **9** days and fell on the tenth. Odysseus (Lat. *Ulysses*) wandered for **9** years and arrived home on the tenth.

The 16th-century Catholic theologian Peter Bungus pointed out that the 9th Psalm predicts the coming of the Antichrist. In Islamic cosmology the universe is made from 9 spheres - the traditional 8 of Ptolemy, plus a ninth added by the Arab astronomer Thābit ibn Qurra to explain the precession of the equinoxes.

In Guangdong province, China, nine is associated with eternity or power.

"Jiugong" (also known as "Jiuxuan"), in the Mystical Numbers of Taoism, represents the number 9 and symbolizes the Nine Chambers. It is the last number of order before returning back to chaos. After that, the cycle repeats...

Bart Simpson has **9 spikes** of hair (at least, since season 2).

The symbol of the Bahai Faith is a 9-pointed star (see opposite).

A full moon is nine times brighter than a half moon.

The standard dimensions of a play card are: 6.35 x **9** cm.

The first **nine letters** of the Maldivian alphabet (h, sh, n, r, b, lh, k, ', and v) are graphically derived from the Arabic numerals from 1 to 9: ٩ ,٨ ,٧ ,٦ ,٥ ,٤ ,٣ ,٢ ,١.

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The longest one-syllable word in the English language is **9-letter** long: "screeched".

NINE in different languages (© G. Sarcone)
(Old English ***nigon***)

Indo-european | ***NEWN** |
Sanskrit | नव **NAVA** |
Greek, Attic | **ENNEA** ***hennea*** |
Latin | **NOVEM** |, Archaic Latin | **NEVEN** |

Italian and Portuguese ***nove***; French ***neuf***; Spanish ***nueve***; Catalan ***nou***; Provençal ***nòu***; Romanian ***nouă***; Rumansh ***nov***; Sardinian ***nòbe***.

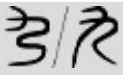
Old Germanic | **NIWUN** |

Dutch ***negen***; German ***neun***; Danish and Norwegian ***ni***; Swedish ***nio***; Icelandic ***níu*** .

Old Slavic | **DEVETI** (< *neveti*) |

Russian девять ***devyat'***; Czech ***devět*** ; Slovenian ***devét*** ; Polish ***dziewięć*** .

Evolution from 'seal script' to modern sinograph 九 :
Old Chinese (pron.) | **kyeu** |



Chinese 九 ***jiǔ*** . The sinograph 玖 is used as a replacement for 九 to prevent forgery on legal and financial documents.

Semitic root | **T-Sh-'** |

Ancient Egyptian [psḏ-] ***pest.***; Akkadian  ***tishe***.

Arabic تِسْعة ***tisha***; Hebrew תשע ***tésha***; Maltese: ***disgħa***; Amharic ***zethain*** (pron. zäṭäñ).

HIDDEN ROOTS
The roots of the word **nine** are hidden in the following words: NOVEMBER, NOVENA; NONAGENARIAN; NONES, NOON; NONAGON, NONANOIC ACID; ENNEAD, ENNEAGON.

10

□□□

X

+

is the base of our numerical system.
is a triangular number: 1 + 2 + 3 + 4 = 10
is the only triangular number which is also the sum of 2 consecutive square odd numbers: $1^2 + 3^2 = 10$
cannot be the difference of 2 squares, because 10 is of the form $4n + 2$

$= (5 + \sqrt{-15}) + (5 - \sqrt{-15}) = (5 + \sqrt{-15})(5 - \sqrt{-15})/4$

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$= 13^3 - 3^7$
$= 4^2 - 3^2 + 2^2 - 1^2$
$= 2 + 3 + 5$ (sum of the first 3 primes)
$= 1 / (1 - (3 / (3 + 1/3)))$
$= \sqrt[googol]{googolplex}$

$\approx \pi^{3^2} / e^{2^3}$

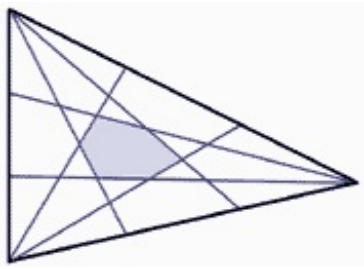
$\approx (e^{\pi} - \pi)/2$

$10! = 6! \times 7! = 3! \times 5! \times 7!$ (Unique solution to the factorial equation $n! = a! \times b! \times c!$ with consecutive prime factors)

$(10!)^2 + 1$ is prime...

There seems to be only 11 powers of ten that are products of two integers without any zero digits:

10^0 =	1 x 1
10^1 =	2 x 5
10^2 =	4 x 25
10^3 =	8 x 125
10^4 =	16 x 625
10^5 =	32 x 3125
10^6 =	64 x 15625
10^7 =	128 x 78125
10^9 =	512 x 1953125
10^{18} =	262144 x 3814697265625
10^{33} =	8589934592 x 116415321826934814453125



Marion's theorem states that the area of the central hexagonal region determined by trisection of each side of any triangle ABC and connecting the corresponding points with the opposite vertex is exactly **one tenth** (1/10) the area of the whole triangle ABC.

Some people argue that we only use 10% of our brains... No, this is wrong: while the majority of the brain may not be active at any one moment, all of it is essential for normal

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function. See **mythical numbers**.

In most advertisements, including newspapers, the time displayed on a watch is approximately 10:10.
The reason for this is to "frame" the logo of the watch maker. The hands at that number cause the eyes to look right at the logo! - *posted by Shaun Hussey, Graphic Designer*
The hands on the dial indicating 10:10 also represent a smiling face, sells better than watches indicating e.g. 08:20. - *posted by Pander*
The actual reason for this is that during the second world war, Japan was the main manufacturer of clocks and watches, and when the US bombed Hiroshima islands, the impact of the explosion was so much that all the clocks and watches stopped at that particular time, and that time was 10 minutes past 10. So, in order to mark the gruesome bombings and remember the same, all over the world the clocks and watches at any shop show this time. - *Posted by Saurabh Gulati*

"One father is better at caring for **ten** children than ten children are for one father".

Top ten lists are very recurrent. The first top ten to do and to not do list was perhaps the "Ten Commandments of God" given to Moses. The Top-Ten lists usually are: Top Ten To Do, Top Ten Jokes, Top Ten Reasons, Top Ten Links/Websites, Top Ten Music/Songs, Top Ten Movies, Top Ten Headlines, Top Ten Mistakes, Late Show Top Ten, Top Ten Reviews/Lists, Tot Ten Inventions of the Century, and... Top Ten Numbers!

10/10/10 represents Sunday, October 10, 2010. This occurrence is special because the first two numbers added together equal the first two digits of the year: **10**/**10**/**20**10 > 10 + 10 = 20. Such dates occur every 201 years, the previous one was 09/09/1809 and the next one will be 11/11/2211. In China, the number ten has a special place as it symbolises 'perfection' in almost everything. Hence 10/10/10 becomes a special day for the Chinese. In fact, many people in China are planning their wedding on this auspicious day...

The **10th hexagram** of the **I-Ching**: **Lü** (履)/ Treading (Conduct)
THE IMAGE
Heaven above, the lake below:
The image of TREADING.
Thus the superior man discriminates

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between high and low,
And thereby fortifies the thinking of the people.

TEN in different languages (© G. Sarcone)
(Old English ***tēn***, ***tīen***)

Indo-european | ***DEKM(T)** |
Sanskrit | दश **DASA** |
Greek, Attic | **ΔEKA *deka*** |
Latin | **DECEM** |

Italian ***dieci***; French ***dix***; Spanish ***diez***; Portuguese ***dez***; Catalan ***déu***; Provençal ***dètz***; Romanian ***zese***; Rumansh ***diesch***; Sardinian ***dèche***.

Old Germanic | **TEHUN** |

Dutch ***tien***; German ***zehn***; Danish and Norwegian ***ti***; Swedish ***tio***; Icelandic ***tíu*** .

Old Slavic | **DESETI** |

Russian десять ***desyat'***; Czech and Slovenian ***deset***; Polish ***dziesięć***.

Evolution from 'seal script' to modern sinograph 十 :
Old Chinese (pron.) | **zhyep** |

Chinese 十 ***shí***. The sinograph 拾 is used as a replacement for 十 to prevent forgery on legal and financial documents.

Semitic root | **'-S-R** |
Ancient Egyptian [mḏ-] ***met***; Akkadian 𒅆 ***esher***.

Arabic عَشَرة ***'ashra***; Hebrew עשר ***éser***; Maltese: ***għaxra***; Amharic ***asir*** (pron. asər).

HIDDEN ROOTS
The roots of the word **ten** are hidden in the following words: DECI-, DECIMAL, DECIMATE, DECUPLE, DECURION, DICKER, DIME; DECEMBER, DECEMVIR, DECENNARY, DECENNIUM, DECUSSATE; DENARIUS, DENARY, DENIER; DEAN, DECA-, DECADE, DOYEN; DECAGON, DECALOGUE, DECAMERON, DECAPOD; TENTH, TITHE. German: DECHANT, DEKAN, -ZIG. French: DENIER, DENRÉE, DÎME. Italian: DANAIO. DERRATA (< *denarata*).

11

is the third honest number, because 11 = "two plus nine".
is the only palindromic prime with an even number of digits.
is the smallest prime with multiplicative and additive persistence of 1.

$= 6 + 5 = 6^2 - 5^2$
$= \sqrt{}(5! + 1)$

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= LV/V = MC/C

Any power of 11 ends in a 1.

11^{11} contains two embedded elevens.

Any large number is divisible by 11 if the difference between the sum of its odd digits (units, hundreds, etc.) and the sum of its even digits (tens, thousands, etc.) is 0 or a number divisible by 11.

Displayed on a calculator, it reads the same whether the calculator is turned upside down or reflected on a mirror, or both.

'Eleven plus two' is the anagram of 'twelve plus one'.

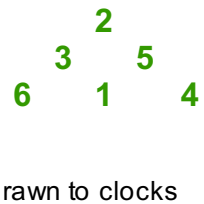
The Maoris, the initial inhabitants of New Zealand, used for reckoning or accounting purposes the undecimal (base-11) positional notation system.

11 x 11 = 65 + 56 (palindromic equality)
11^2 x 918273645**54637281**91 = 11111111111111111111
- posted by Yosuke Ikeda, Yasuji Kondo, Yasuhiko Sakaitani, Ken Hirotomi, Hiroyuki Ozaki, Atushi Tanaka, Ryohei Miyadera (Kwansei Gakuin High School)
$11^2 = 3^0 + 3^1 + 3^2 + 3^3 + 3^4$ (sum of consecutive powers of 3)
$11^3 = 3^2 + 19^2 + 31^2$

1 / 11 = 0.**09** 09 ...
2 / 11 = 0.**18** 18 ...
3 / 11 = 0.**27** 27 ...
4 / 11 = 0.**36** 36 ...
5 / 11 = 0.**45** 45 ...
6 / 11 = 0.**54** 54 ...
etc.

11 + 1.1 = 11 x 1.1

Magic triangle with a constant of 11;
2 + 3 + 6 = 2 + 5 + 4 = 6 + 1 + 4 = 11



11:11 Phenomenon
If your attention has been drawn to clocks

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and watches at exactly 11:11, 12:12, 10:10, 22:22, 12:34, 2:22, 3:33, 4:44 or 5:55, then you are a 11:11-phenomenon addict... In fact, some people believe that when they notice the number pattern 1111 or the digits 11:11 on digital time pieces, time/temperature signs, and so on, that there is an underlying reason besides mere chance or coincidence. A belief of this nature is related to the idea of synchronicity.

November 11
On November 11, 2011, at 48 minutes and 47 8/9 seconds before Noon the time will be:
11/11/11 11:11:11.1111111111111... *– Bob Morris*

Air is heavy...
An average room holds **11** x 100 pounds of air!

11 Dimensions
According to Dr Michio Kaku our universe is a four-dimensional ball floating in eleven dimensions.

According to a survey of Graham Waters, Tuesday morning at **11:45** AM is the most stressful time of the working week.

Statistically, the most boring day of the 20th century was **11** April 1954. The date was discovered after 300 million facts were fed into a new computer search engine in Cambridge called "True Knowledge".

Interchangeability is the word in the English language that contains the letters to form the most numbers. With its letters it is possible to spell **11 numbers**: three, eight, nine, ten, thirteen, thirty, thirty-nine, eighty, eighty-nine, ninety, and ninety-eight.

The French numeral ***onze*** (= eleven) was also an old French slang term meaning 'a pair of legs' (1833).

ELEVEN in different languages (*© G. Sarcone*)
(Old English ***endleofon***)

Indo-european | ***OINDEKM(T)** |
Sanskrit | एकादश ***ekādaśa*** |
Greek, Attic | **'ΕΝΔΕΚΑ** ***héndéka*** |
Latin | **VNDECIM** |

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Italian ***undici***; French, Portuguese, Catalan, and Provençal ***onze***; Spanish ***once***; Romanian ***un-spre-zese*** ; Rumansh ***endisch***; Sardinian ***úndagi***.

Old Germanic | **AINLIF** (means 'one left over') |

Dutch and German ***elf***; Danish and Norwegian ***elleve***; Swedish ***elva***; Icelandic ***ellefu***.

Old Slavic | **JEDINU NA DESETJE** |

Russian оди́ннадцать ***odinnadtsat'***; Czech ***jedenáct***; Slovenian ***enajst***; Polish ***jedenaście***.

Chinese 十一 ***shíyī*** .

Ancient Egyptian ***metwie***; Akkadian 𒌋𒐕 ***ishteshsheret***.

Arabic إحدى عشر ***ahada'ashar***; Hebrew אחד עשר ***ahat'esrei***; Maltese: ***ħdax***; Amharic ***asra-and***.

HIDDEN ROOTS
The roots of the word **eleven** are hidden in the following words: UNDECUMANI, Roman soldiers from the eleventh Legion; UNDECIREMIS, an ancient Greek or Roman war galley with eleven banks of oars; UNDECAGON, UNDECILLION. Italian: UNDICENNE.

12

is a pentagonal number.
is the smallest number with exactly six divisors, and the smallest abundant number.
is the largest known even number expressible as the sum of two primes in one way (5 + 7).

= 22 / (1 + (1 / (1 + 1/5)))
= (0! + 0! + 0!)! x (0! + 0!)
= $(-3i^5)(4i)$
= DC/L

= $2^4 - 2^2$
= $3^1 + 3^2$
= $4^2 - 4^1$

12^2 x 1122334455667789 = 161616161616161616 (periodic number) - posted by Yosuke Ikeda, Yasuji Kondo, Yasuhiko Sakaitani, Ken Hirotomi, Hiroyuki Ozaki, Atushi Tanaka, Ryohei Miyadera (Kwansei Gakuin High School) -

$12 = 7^3 + 10^3 - 11^3$
$12^2 = 10^3 - 8^3 - 7^3 - 1^3$

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$12^3 = 9^3 + 10^3 - 1^3$
$12^5 = 4^5 + 5^5 + 6^5 + 7^5 + 9^5 + 11^5$

$1/12^2 = 1/15^2 + 1/20^2$ (smallest integers of the reciprocal pythagorean equation)

12 x 12 = 144 is palindromic to 441 = 21 x 21
12 x 12 + 21 x 21 = 585 is also palindromic
other curious palindromic equalities involving 12:
12 x 42 = 24 x 21
12 x 63 = 36 x 21
12 x 84 = 48 x 21

12 + **21** = 3 + 4 + 5 + 6 + 7 + 8

12! + 34567 is prime.

$12 \times 3^2 + 3 = 111$
400/33 = 12.**12**12121212...

There are 12 primary ways of arranging 8 queens on a chessboard so that no queen can capture any other queen.

Two + eleven = twoeleven, tw**O**el**E**ve**N** - **ONE** = twelve.

are the symbols of the phone dial.

Telephone Number Mnemonics
American visitors are familiar with an ingenious method of making telephone numbers more memorable. In the US many companies advertise their telephone numbers with words. For example "Call 1800-DOG-HELP" might be the advertising slogan for a dog rescue center. This is much easier to remember than "Call 1800-364-4357".
To aid this system, the buttons on telephones are marked with letters, as shown on the right. This method has been used in Britain too, although it is now far less popular.

Which is correct: **12 Midnight A.M.** or **12 Midnight P.M.**? Neither!
12 midnight A.M. and 12 midnight P.M., or 00:00 A.M. and 00:00 P.M., mean nothing at all. They are simply the midpoints that divide the day into two equal halves. Each and every day begins exactly at midnight, and each A.M. begins precisely thereafter. Similarly, each P.M. begins immediately after noon. No meaning can be assigned to 12:00 A.M. (00:00 A.M.), or to 12:00 P.M. (00:00 P.M.). They are merely reference points meant to simplify timetables for us.

A **dozen** is a group or set of **12**: a *dozen* bottles of sherry.

A **shock** is a group of **12** sheaves of grain stacked upright in a field

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for drying. The word shock means also a lot consisting of 60 pieces; -- a term applied in some Baltic ports to loose goods.

A jury consists of **twelve** persons chosen to decide who has the better lawyer. -- *Robert Frost*

Doomsday? 21 | 12 | 2012
20**12** is claimed by some to be a great year of spiritual transformation (or apocalypse). Many esoteric sources interpret the completion of the 13th B'ak'tun cycle in the 'Long Count' of the Maya calendar (which occurs on December 21 by the most widely held correlation) to mean there will be a major change in world order.

TWELVE in different languages (*© G. Sarcone*)
(Old English ***twelfe***)

Indo-european | ***DWÔDEKM(T)** |
Sanskrit | द्वादश ***dvādaśa*** |
Greek, Attic | **ΔΩΔΕΚΑ *dódéka*** |
Latin | **DVODECIM** |

Italian ***dodici***; French ***douze***; Spanish ***doce***; Portuguese ***doze***; Catalan and Provençal ***dotze***; Romanian ***doi-spre-zese*** ; Rumansh ***dudisch***; Sardinian ***dóghi***.

Old Germanic | **TWALIF** (means 'two left over') |

Dutch ***twaalf*** ; German ***zwölf*** ; Danish, Norwegian, and Swedish ***tolv*** ; Icelandic ***tólf*** .

Old Slavic | **DVANADESETJE** |

Russian двенадцать ***dvënadtsat'***; Czech ***dvanáct***; Slovenian ***dvanajst***; Polish ***dwanaście***.

Chinese 十二 ***shí'èr*** .

Ancient Egyptian ***metsn'wse***; Akkadian 𒌋𒐊 ***shinsher(et)***.

Arabic إثنا عشر ***ithna'ashar***; Hebrew שנים-עשר ***shteim'esrei***; Maltese: ***tnax***; Amharic ***asra-hulet*** .

HIDDEN ROOTS
The roots of the word **twelve** are hidden in the following words: DUODECILLION, DUODECIMAL, DUODENAL, DUODENARY, DUODENUM; DODECAGON, DODECAHEDRON, DODECANESE, DODECAPHONIC; DOZEN; TWELVEMO. French: DOUZAINE. Italian: DODICENNE, DOZZINA.

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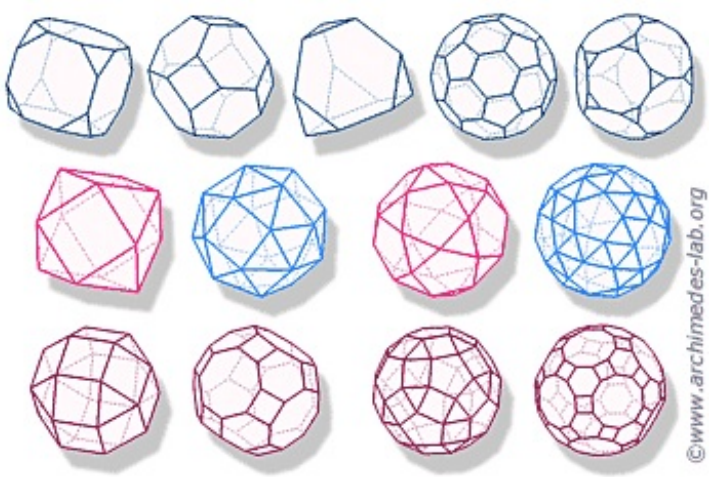
13

is a **Devil's dozen**, or a **baker's dozen**, also known as a **long dozen** (one more than a proper dozen).
is the only integer that is, along with its fourth power, the sum of two consecutive squares:
$13 = 2^2 + 3^2$ and $13^4 = 120^2 + 121^2$

appears for the first time at **111**th place in decimal expansion of π (Pi):
3.14159265358979323846264338327950288419716939937510582097494459230781640628620899862803482534211706798214808651**3**...

is the number of Archimedian solids:



is the sum and the difference of 2 consecutive squares:
$13 = 2^2 + 3^2 = 7^2 - 6^2$

$13 = (-1^3 + 3^3)/2$

$13^2 = 5^2 + 12^2 = 85^2 - 84^2$ (Pythagorean triple)
$13^2 = 8^3 - 7^3$ (Diophantine equation)
$13^2 = 7 + 8 + 9 + ... + 17 + 18 + 19$ (sum of consecutive numbers)

13^2 divides 12! + 1

$1 + 2 + 3 + 4 + ... + 10 + 11 + 12 + \mathbf{13} = 1^2 + 2^2 + 3^2 + 4^2 + 5^2 + 6^2$

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If we subtract the sum of its digits, we get a perfect square:
$13 - (1 + 3) = 9 = 3^2$
If we add the product of its digits, we get another perfect square:
$13 + (1 \times 3) = 16 = 4^2$

$(10^6 - 1)/\mathbf{13} = 27 \times 37 \times 77$ and $77 - 37 - 27 = \mathbf{13}$
- by Gianni A. Sarcone -

1/13 = 0.**076923**076923076923... (rational periodic infinite decimal)
On multiplying the periodic number **76923** by successive multiples of 13, this curious numerical pattern is obtained:

76923 x 13 = **0**999999
76923 x 26 = **1**999998
76923 x 39 = **2**999997
76923 x 52 = **3**999996
76923 x 65 = **4**999995
76923 x 78 = **5**999994
76923 x 91 = **6**999993
76923 x 104 = **7**999992
76923 x 117 = **8**999991
76923 x 130 = **9**999990

A scalene triangle having sides **13**, 14 and 15 (consecutive integers) has an area that is also an integer (84 units^2). Such triangles whose sidelengths and area are all integers are called Heronian triangles.
- For more info on the Heronian triangles read the interesting article by M. P. Cohen "Generating Heronian Triangles with consecutive Integer Sides" in *Journal of Recreational Mathematics*, Vol. 30(2) 121-124.

is the smallest prime that can grow 6 times by the right:
13 is prime,
139 is prime,
1399 is prime,
13999 is prime,
139991 is prime,
1399913 is prime,
13999133 is prime.

13,333,333,333,333 / **13** = 1,025,641,025,641 (prime number!)

Palindromic equalities involving 13:
13 x 62 = 26 x 31
13 x 93 = 39 x 31
13 x 13 = 169 and 961 = 31 x 31

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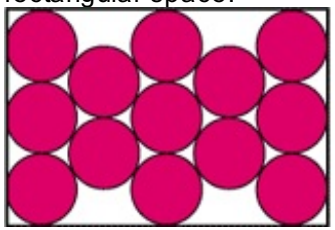
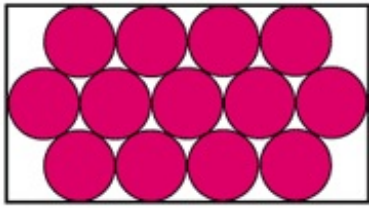
$(\mathbf{13} - 1)! + 1 \equiv 0 \pmod{\mathbf{13}^2}$

There are two ways to pack neatly thirteen (**13**) circular or spherical items in a rectangular space:

The numerical pattern ***abcabc*** is divisible by 13.

$\boldsymbol{p^{12} - q^{12}}$ is divisible by 13 only when p and q are not divisible by 13.

The sum $S(n) = 1^{4n+2} + 2^{4n+2} + 3^{4n+2} + 4^{4n+2} + 5^{4n+2} + 6^{4n+2}$ is divisible by 13 for any positive integer.

A torus (kind of donut) can be sliced into **13** pieces with just 3 plane cuts.

Number anagram: ELEVEN + TWO = TWELVE + ONE

While the Earth revolves once, the Moon revolves 13 times.

A million seconds is 13 days.

The US flag displays 13 stripes - for the original 13 states.

The average human bladder can hold 13 ounces of liquid.

'Magicicada' life cycles
Periodical cicadas spend five juvenile stages in their underground burrows, and during their **13** or **17** years underground they grow from approximately the size of a small ant to nearly the size of an adult. In the spring of their 13th or 17th year, a few weeks before emerging, the nymphs construct exit tunnels to the surface. These exits are visible as approximately 1/2 inch diameter holes, or as chimney-like mud "turrets" the nymphs construct over their holes. Sometimes a large proportion of the cicada population emerges in one night!

Probability
There is always at least one Friday 13^{th} in each year.
The probability of being born on a Friday the 13th is about 1/214... OK, but which day of the week (Sunday, Monday, etc.) is the probability largest to fall

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on the 13th of a random month, in a random year? (Or is this probability the same for each day of the week?)
No, the probability that the 13th of a certain month in a certain year is a Friday, is slightly higher (at 688/4800). The probability that the 13th of a certain month in a certain year is a Thursday or a Saturday, is the lowest (at 684/4800).
- posted by Patrick Freymond -

Any month that starts on a Sunday will have a Friday the 13th.
Any non leap year February that starts with a Sunday, there will be a Friday the 13th in February and March...

According to historians, there were 13 people at Christ's Last Supper and Christ was crucified on Friday 13th. So, Friday 13th is considered as unlucky... But thirteen may be considered a 'bad' number simply because it is one more than 12, which is a popularly used number in many cultures (due to it being a highly composite number). When a group of 13 objects is divided into two, three, four or six equal groups, there is always one object leftover.

The fear of the number 13 is called '***Triskaidekaphobia***'. A specific fear of Friday the 13th is called *Paraskavedekatriaphobia* (from Greek Παρασκευή Friday + δεκατρείς thirteen + phobia) or *Friggatriskaidekaphobia*. In the Spanish-speaking world, it is Tuesday the 13th that brings bad luck... A proverb runs "En martes, ni te cases ni te embarques" (*on Tuesday, neither get married nor start a journey*).

"13bis, est-ce un nombre pair ou impair?" (13bis - French road numbering scheme - is an even or an odd number?) -- R.Queneau, 'Le Vol d'Icare'

"Tirè el trédas" (*to draw the thirteen*) means to die in Piedmontese.

THIRTEEN in different languages (*© G. Sarcone*)
(Old English ***thrêotêne***)

Indo-european | ***TRÍDEKM(T)** |
Sanskrit | त्रयोदश ***trayodaśa*** |
Greek, Attic | **τρεισκαίδεκα *TRESKAIDEKA*** |
Latin | **TREDECIM** |

Italian ***tredici***; French ***treize***; Spanish ***trece***; Portuguese ***treze***; Catalan and Provençal ***tretze***; Romanian ***treisprezece*** (***treişpe***, informal); Rumansh ***tredisch***; Sardinian ***tréchi***.

Old Germanic | **THRI(S)TEHUN** |

Dutch ***dertien***; German ***dreizehn***; Danish and Norwegian ***tretten***; Swedish ***tretton***; Icelandic ***þrettán***.

Old Slavic | **TRINADESETJE** |

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Russian тринадцать ***trinadtsat'***; Czech ***třináct***; Slovenian ***trinajst***; Polish ***trzynaście***.

Chinese 十三 (complex form 拾参) ***shísān***.

Ancient Egyptian ***met'khemte***; Akkadian 𒌋𒐗𒐗 ***shalash-sher(et)***.

Arabic ثلاثة عشر ***thalatha'ashar***; Hebrew שלוש עשרה ***shlosh'esrei***; Maltese: ***tlettax***; Amharic ***asra-sost***.

More languages
Magyar ***tizenhárom***.
Mayan ***oxlahun***.
Nahuatl ***mahtlāctli onēyi***.
Suomi ***kolmetoista***.
Zulu ***ishumi na tatu***.

Buy your favorite Number (13) here.

14

is a product of 2 primes (2x7) and a repfigit number.
is a Catalan number. Catalan numbers are generated by the formula $C_n = [(2n)!/n!(n+1)!]$
is a square pyramidal number:
$= 1 + 4 + 9 = 1^2 + 2^2 + 3^2$
is the integer solution to: $x^2 - y^2 - x - y = 30$ [$x = 16$, and $y =$ **14**]

$10^{14} - (2 \times 14 - 1)$ and $10^{14} - (2 \times 14 + 1)$ are **14**-digit twin primes.

There are only 14 prime knots ≤ order 7:

The cuboctahedron, the truncated cube, and the truncated octahedron each have 14 faces.

$= 13^2 + 3^3$
$= 2 + 3 + 4 + 5$ (summ of consecutive integers)
$= 2^1 + 2^2 + 2^3$ (summ of consecutive powers of 2)
$= 7(16^2 - 14^2)/(16 + 14)$

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= $(\log_2 128)(\log_7 49)$

1/14 = 0.0**7**1**4**2**8**5714285714285... Curiously **7**, **14**, and **28** are factors and multiples of 14. The digit **5** tells you how many digits **7**1**4**2**8** has before they repeat!

Arithmetic curiosity: $\mathbf{14}^2 - \mathbf{7}^2 = (\mathbf{14} + \mathbf{7}) \times \mathbf{7}$

The squares of 13, **14** and 31 share the same digits:
13^2 = 1**6**9; 14^2 = 1**9**6; 31^2 = **9**6**1**

A **fortnight** has 14 days (i. e. two weeks, from Old English: *feowertiene niht*, fourteen nights).

Most people fart 14 times a day on average... ;-)

February 14 is St Valentine's day.

CALENDAR REFORM IN ENGLAND
In September 1752, Great Britain switched from the Julian Calendar to the Gregorian Calendar. In order to achieve the change, 11 days were 'omitted' from the calendar: the day after 2 September 1752 was **14** September 1752.

It takes 14 days (one fortnight) for the Moon to wax from new to full or to wane from full to new.

In ancient Egypt, Osiris - the god of the afterlife - was cut into 14 parts. Each part represented one of the 14 full moons (each year has in fact 12 to 14 full moons).

There is a Finnish word that contains a continuous sequence of **14** dots: **Pääjääjää** ('the main stayer' in Finnish, partitive case).

The French expression: "chercher midi à **quatorze** heures" (to look for noon at **14**:00 - i.e. 2 pm) is a quirky way of telling someone that he is making an issue more difficult than it needs to be - that is, turning something simple into something complicated.

The '**Fourteen Words**' is a phrase used by white nationalists. It refers to the 14-word slogan: "we must secure the existence of our people and a future for white children". Often found in combination with 88 (14/88, 8814...).

FOURTEEN in different languages (© G. Sarcone)

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(Old English ***fêowertêne***)

Indo-european | ***K^WETWORDEKM(T)*** |
Sanskrit | चतुर्दश ***catúrdaśa*** |
Greek, Attic | ***τέτταρες καὶ δέκα TETTARES KAI DEKA*** |
Latin | **QVATTVORDECIM** |, Archaic Latin | ***QVATBORDECEM** |

Italian ***quattordici***; French, Portuguese ***quatorze***; Spanish ***catorce***; Catalan and Provençal ***catorze***; Romanian ***paisprezece*** (< *patru-spre-zece)*; Rumansh ***quitordisch***; Sardinian ***batódighi***.

Old Germanic | **FITHWORTEHUN** |

Dutch ***veertien***; German ***vierzehn***; Danish and Norwegian ***fjorten***; Swedish ***fjorton***; Icelandic ***fjórtján***.

Old Slavic | **CETYR(I)NADESETJE** |

Russian четырнадцать ***chetyrnadtsat'***; Czech ***čtrnáct***; Slovenian ***štirinajst***; Polish ***czternaście***.

Chinese 十四 ***shísi***.

Ancient Egyptian ***met'efte***; Akkadian  ***erbesher(et)***.

Arabic أربعة عشر ***arba'a'ashar***; Hebrew ארבע עשרה ***arba'esrei***; Maltese: ***erbatax***; Amharic ***asra-arat***.

More languages
Magyar ***tizennégy***.
Mayan ***canlahun***.
Nahuatl ***mahtlāctlinnāhui***.
Suomi ***neljätoista***.
Zulu ***ishumi na ne***.

15

All prime quadruplets - with only two exceptions - enclose a multiple of 15, with 15 itself being enclosed by the quadruplet, e.g.: 11, 13, 17, 19.

is the number of 3-digit palindromic primes: 101, 131, 151, 181, 191, 313, 353, 373, 383, 727, 757, 787, 797, 919, and 929.

is a triangular number: 1 + 2 + 3 + 4 + 5
is the positive solution to: $2x^2 - 27x = 45$

15 and 21 are the smallest pair of triangular numbers whose difference and sum are also triangular: 21 - 15 = 6, and 21 + 15 = 36

$= 3\log_2 32$

= 4! - !4 (substraction of factorial and subfactorial)

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$2^{4n} - 1$ is divisible by 15.
$3n^5 + 5n^3 + 7n$ is divisible by 15.

$= 8^2 - 7^2$
$= 4^2 - 1^2$

$15^2 = (1 + 2)(3 + 4 + 5 + 6 + 7 + 8 + 9 + 10 + 11 + 12)$
$15^4 = 4^4 + 6^4 + 8^4 + 9^4 + 14^4$

$15{,}15 \approx e^e$

The simpliest magic square having a 'magic constant' of 15:

2	7	6
9	5	1
4	3	8

is the name of a famous slide puzzle: the **15 puzzle**.

is the number of 'The Devil' in the major arcana of Tarot cards.

A penguin swims at a speed of approximately 15 miles per hour.

In 2007, Danish sperm donors have helped to engender an estimated **15**,000 children around the world!

15.23 is the hour of temptation. In fact, experts say it is the time when it is most likely person to encroach on sweets... ➔ More info at dietplanfortoday.com.

The only 15-letter word that can be spelled without repeating a letter is "uncopyrightable".

In the Hebrew numeral system, the numbers **15** and **16** are represented as טו (9+6) and טז (9+7) respectively, instead of יה (10+5) and יו (10+6). This is done in order to refrain from using the sacred combinations, called *tretragrammaton*, that are a part of the name of God in Judaism.

Huli, a Papuan language spoken by the Huli people of the Southern Highlands province of Papua New Guinea, is known to have a quindecimal or pentadecimal (base-15) numeral system. For instance, the Huly people say "93" with *ngui waraga, ngui kane-gonaga tebira*, which means "(15 x 6) + (3

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objects of the seventh 15)". → The number system of Huli.

FIFTEEN in different languages (© G. Sarcone)
(Old English ***fiftêne***)

Indo-european | ***PENK^{W}EDEKM(T)** |
Sanskrit | पञ्चदश ***pañcadaśa*** |
Greek, Attic | **πεντεκαίδεκα *PENTEKAIDEKA*** |
Latin | **QVINDECIM** |

Italian ***quindici***; French, Portuguese, Catalan, and Provençal ***quinze***; Spanish ***quince***; Romanian ***cincisprezece*** (***cinşpe***, informal); Rumansh ***quendisch***; Sardinian ***bíndhichi***.

Old Germanic | **FIMFITEHUN** |

Dutch ***vijftien***; German ***fünfzehn***; Danish and Norwegian ***femten***; Swedish ***femton***; Icelandic ***fimmtán***.

Old Slavic | **PE^{n}TINADESETJE** |

Russian пятнадцать ***pyatnadtsat'*** ; Czech ***patnáct***; Slovenian ***petnajst***; Polish ***piętnaście***.

Chinese 十五 (complex form 拾伍) ***shíwǔ***.

Ancient Egyptian ***metti'ue***; Akkadian 𒄑𒌋𒐈 ***hamish-sher(et)***.

Arabic خمسة عشر ***khamsa'ashar***; Hebrew חמש עשרה ***khamesh'esrei***; Maltese: ***ħmistax***; Amharic ***asra-amist***.

More languages
Magyar ***tizenöt***.
Mayan ***holahun***.
Nahuatl ***caxtōlli***.
Suomi ***viisitoista***.
Zulu ***ishumi na nhlanu***.

Buy your favorite Number (15) here.

16

is the only integer of the form $x^y=y^x$ with $x \neq y$ ($2^4=4^2$).
is the smallest number with exactly five divisors.

= 1 + 3 + 5 + 7 (sum of the four first odd numbers)
= $128^{4/7}$

16 + 9 = 25 = 5^2
16 x 9 = 144 = 12^2

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The **base 16** notational system for representing real numbers, called hexadecimal, is particularly important and used extensively in computer science, since four bits (each consisting of a 'one' or 'zero') can be succinctly expressed with just a single hexadecimal digit. The 16 distinct digits used to represent numbers in hexadecimal notation are: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, A, B, C, D, E, and F.

The human eye sees continuous motion at between **16** and 20 frames per second.

There are 16 orders of mammals.

Romanian constructs the names of the numbers 11 to 19 by a regular pattern which could be translated as 'one-over-ten', 'two-over-ten', etc. All the other Romance languages use a pattern like 'one-ten', 'two-ten', etc. for 11 to 15; and the pattern 'ten-and-seven', 'ten-and-eight', 'ten-and-nine' for 17 to 19. For **16**, however, they split into two groups: some use 'six-ten', while others use 'ten-and-six':
• 'Sixteen': French *seize*, Italian *sedici*, Catalan and Occitan *setze*, Sardinian *sédichi*.
• 'Ten and six': Portuguese *dezasseis* or *dezesseis*, Spanish *dieciséis*.
• 'Six over ten': Romanian *şaisprezece* (where *spre* derives from Latin 'super').

SIXTEEN in different languages (© G. Sarcone)
(Old English ***siextiêne***)

Indo-european | ***SEKSDEKM(T)** |
Sanskrit | षोडश ***ṣoḍaśa*** |
Greek, Attic | **ἑκκαίδεκα *HEKKAIDEKA*** |
Latin | **SEDECIM** |

Italian ***sedici***; French ***seize***; Catalan, and Provençal ***setze***; Spanish ***dieciséis*** (< diez y seis); Portuguese ***dezasseis*** or ***dezesseis***; Romanian ***şaisprezece*** (***saişpe***, informal); Rumansh ***sedisch***; Sardinian ***sédichi***.

Old Germanic | **SEKSTEHUN** |

Dutch ***zestien***; German ***sechzehn***; Danish and Norwegian ***seksten***; Swedish ***sexton***; Icelandic ***sextán***.

Old Slavic | **S^{h}ESTINADESETJE** |

Russian шестнадцать ***shestnadtsat'*** ; Czech ***šestnáct***; Slovenian ***šéstnajst***; Polish ***szesnaście***.

Chinese 十六 (complex form 拾陆) ***shíliù***.

Ancient Egyptian ***mettise***; Akkadian 𒐼𒐼 ***shesh-sher(et)***.

Arabic ستة عشر ***sitta'ashar***; Hebrew שש עשרה ***shesh'esrei***; Maltese: ***sittax***;

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Amharic ***asra-sidist***.

More languages
Magyar ***tizenhat***.
Mayan ***uaclahun***.
Nahuatl ***caxtōloncē***.
Suomi ***kuusitoista***.
Zulu ***ishumi ne situpa***.

17

is the 7th prime number and the only prime of the form $p^q + q^p$, where p and q are prime: $17 = 2^3 + 3^2$
is also the only prime number which is the sum of 4 consecutive primes:
$17 = 2 + 3 + 5 + 7$
is the lowest number that can be written as $A^3 + B^2$ in 2 distinct ways:
$17 = 2^3 + 3^2$ and $17 = 1^3 + 4^2$

is a 'cult number' - a number which has an unusually large number of fans. Cult numbers are related to 'psychologically random numbers', i.e. numbers which are chosen more often when someone is asked to pick a random number.

seems to be the lowest possible number of givens for a sudoku puzzle with a unique solution (this has yet to be proven).

***abcdefgh*abcdefgh** is divisible by 17 (replace each letter with a digit. E.g. 12345678**1**2345678). The reason is that any number of that form is a multiple of 100,000,001 - which is divisible by 17. - David Grossberg

The multiplicative inverse of **17** gives a decimal expansion with a 16-digit repeating decimal:
1/17=0,**0588235294117647**0588235294117647...

$= 9^2 - 8^2 = 3^4 - 4^3$

$n^2 + n + 17$ = Prime, for n = 0 to 15

17 x 65,359,477,124,183 = 1,111,111,111,111,111

17^2 can be expressed as the sum of 1, 2, 3, 4, 5, 6, 7, 8 distinct squares.

$17^2 = 8^2 + 15^2$ (Pythagorean triple)
$17^2 = 1^3 + 2^3 + 4^3 + 6^3$
$17^2 = 0^0 + 1^1 + 2^2 + 3^3 + 4^4$
$17^3 = 4{,}913$ and $4 + 9 + 1 + 3 = 17$

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$17^3 = 4{,}913 = (4 + 9 + 1 + 3)^3$
$17^4 = 83{,}521 = (8 + 3 + 5 + 2 - 1)^4$
$17^6 = 24{,}137{,}569 = (24 - 13 + 75 - 69)^6$

$= 2^{2^2} + 1$

There are almost **17** ounces in a pound.

The Alhambra, a Moorish castle in Spain contains **17 different tiling patterns**, which is actually the total number of possible tilings by translating and rotating geometric patterns. These 17 possible plane symmetry groups are better known as wallpaper groups (see diagram below).

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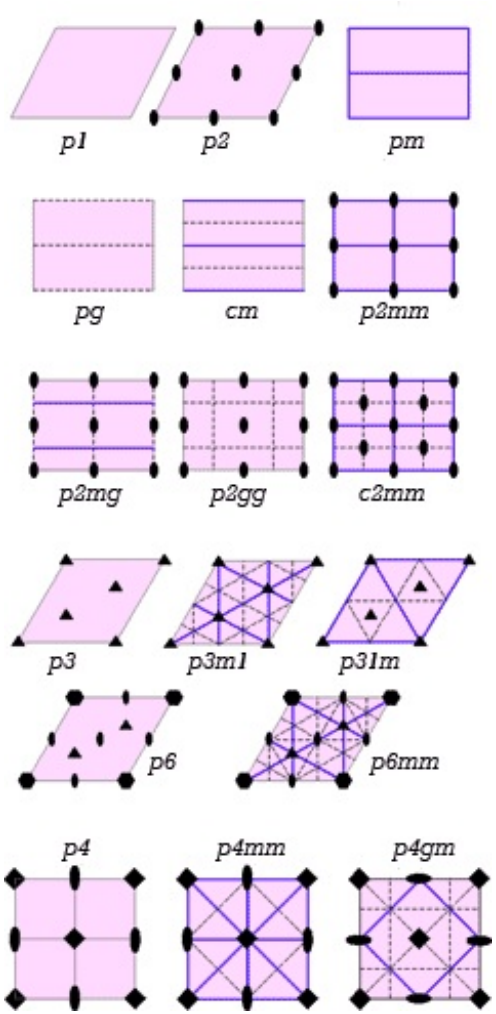

There are seventeen **17** in the first thousand digits of pi's decimal expansion.

A hypercube must be cut along 17 faces to unfold into a three-dimensional cross.

Plutarch (*Greek: Πλούταρχος*), the most famous biographer of the ancient world, records "The Pythagoreans also have a horror for the number 17, for 17 lies exactly halfway between 16, which is a square, and the number 18, which is the double of a square, these two, 16 and 18, being the only two numbers representing areas for which the perimeter equals the area (16 = 4 + 4 + 4 + 4 = 4 x 4 and 18 = 3 + 3 + 6 + 6 = 3 x 6)".

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The famous problem of the **17 camels**: a sheik has 3 children and owns 17 camels. His will stipulates that the eldest is to receive half his property; the second son is to receive the third of his property; and the third one, the ninth of his property. On his death, how would the sons share out the inheritance? Solution: They borrow a camel, share out, and give back the camel: (17+1)/2 + (17+1)/3 + (17+1)/9 = 17 camels
(ref. Gaston Boucheny, "*Curiosités et Récréations Mathématiques*". Paris, 1939)

Another well-known problem involving 17: x and y are integers between 2 and 100. Alex knows S = x+y, and Pat knows P = xy, but they do not know x and y. "I can't calculate them" Pat says, "I knew" Alex says. "So I know these two numbers" Pat says, "In this case, so do I" Alex concludes. Solution: S = 17 = 13 + 4

Autoreferential growth rate: an enterprise growing at the rate of exactly **17**.65717% per year will become exactly 17.65717 times larger in exactly **17** years, seven months, 29 days, and 21 hours... Which is exactly 17.65717 years! - *Source: niquette.com*.

On 'Yellow Pigs Day' (July 17) in 1717, Handel's *Water Music* was first performed.

is the average brain weight of a marmot (in grams).

A day on Uranus lasts for 17 hours.

17 is the number of syllables in a haiku.

Most Italians believe that **17** is unlucky, and they are very superstitious concerning it! For instance, Alitalia airplanes have no 17th row *[editor's note: are you sure?]*, Italian buildings do not have a seventeenth floor (in some hotels and apartment buildings the room number '17' is replaced with '16bis'), and when the Renault R17 went to Italy, it's name was changed to R117. Part of the reason that Italians do not like 17 comes from their Latin heritage. In fact, XVII rearranged spells VIXI, which means "I am defunct (dead)" in Latin. The fear of the number 17 is called '**heptadecaphobia**' or '**heptakaidekaphobia**' (see below).

17 is a swear word in Swedish. The origin is still debated, and is commonly used as "sjutton också!" (*seventeen, too!*).

SEVENTEEN in different languages (*© G. Sarcone*)
(Old English ***seofontîêne***)

Indo-european | ***SEPT^{E}MDEKM(T)** |

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Sanskrit | सप्तदश ***saptadaśa*** |
Greek, Attic | **ἑπτακαίδεκα *HEPTAKAIDEKA*** |
Latin | **SEPTEMDECIM** (or **SEPTENDECIM**) |

Italian ***diciassette*** (< dece ac septe); French ***dix-sept*** ; Spanish ***diecisiete*** (< diez y siete); Portuguese ***dezassete*** or ***dezessette***; Catalan ***disset***; Provençal ***dètz-e-sèt*** ; Romanian ***şaptesprezece*** (***şapteşpe***, informal); Rumansh ***gissiat*** (*siat* = 7); Sardinian ***decassète***.

Old Germanic | **SIBUNTEHUN** |

Dutch ***zeventien***; German ***siebzehn***; Danish and Norwegian ***sytten***; Swedish ***sjutton***; Icelandic ***sautján***.

Old Slavic | **SEDMINADESETJE** |

Russian семнадцать ***semnadtsat'*** ; Czech ***sedmnáct***; Slovenian ***sédemnajst***; Polish ***siedemnaście***.

Chinese 十七 (complex form 拾柒) ***shíqî*** .

Ancient Egyptian ***metsafkhe***; Akkadian  ***shebe-sher(et)***.

Arabic تسعة عشر ***sab'a'ashar***; Hebrew שבע עשרה ***shva'esrei***; Maltese: ***sbatax***; Amharic ***asra-sebat*** .

More languages
Magyar ***tizenhét*** .
Mayan ***uuclahun***.
Nahuatl ***caxtōlomōme***.
Suomi ***seitsemäntoista***.
Zulu ***ishumi ne sikhombisa*** .

Buy your favorite Number (17) here.

18

is the area and also the perimeter of a rectangle with 6 and 3-unit sides.
is the only number that is twice the sum of its digits.

= 3 + 4 + 5 + 6 (sum of consecutive numbers)
= $3^3 - 3^2$
= $(\sqrt{2} + \sqrt{8})^2$
= CM/L

18 = 9 + 9
81 9 x 9

$18^2 = 6^2 + 22^2 - 14^2 = 7^2 + 30^2 - 25^2$

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$18^3 = 5832$ and $5 + 8 + 3 + 2 = 18$

$18^3 =$ **5832**
$18^4 =$ **104976** (both results together include all digits once)

18 equilateral triangles make a hexagon ring.

is the solution to the classic puzzle: "my age today is three times what it will be three years from now minus three times what my age was three years ago. How old am I?" [x = 3(x + 3) - 3(x - 3)].

is the number of people it takes to consume the amount of oxygen created by an acre of trees each year.

is approximately the numbers of years of one **Saros cycle**. The Saros cycle is an eclipse cycle with a period of 223 synodic months (near **18 years** + 11 1/3 days), useful to predict eclipses of the Sun and Moon. One cycle after an eclipse, the Sun, Earth, and Moon return to the same relative geometry, and a nearly identical eclipse will occur. The coincidence of the Saros cycle was discovered by the Babylonian.

is a hate number symbol. The first letter of the alphabet is 'A'; the eighth letter of the alphabet is 'H'. Thus, 1 plus 8, or 18, equals 'AH', an abbreviation for Adolf Hitler. Neo-Nazis use **18** in tattoos. The number is also used by "Combat 18", a violent British neo-Nazi group that chose its name in honor of Adolf Hitler. The number 18 is also considered a number of the devil due to the fact that 6+6+6=18, and 666 is the **Number of the Beast**.

On Earth, the length of a day 900 million years ago was only about **18** hours. - *Science magazine*

Another interesting Finnish word that contains a sequence of **18** dots: **Pääjäävääjää** ('the main waiver' in Finnish, partitive case). - posted by Juhani Sirkiä -

DIECIOCHO (= 18), is the largest Spanish number written in capital letters that has horizontal symmetry (i.e. the top is a mirror image of the bottom).

The 18-letter words 'conservationalists' and 'conversationalists' are anagrams of each other. They are the longest pair of anagrams with such properties.

There are 18 chapters in the Hindu epic tale Bhagavad Gita.

A fetus develops fingerprints at 18 weeks.

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	According to the system of 'gematria', the word for "life" in Hebrew (see *chai*) is composed of two letters whose numerical value is 18. For this reason, 18 is a lucky number in Judaism, and many Jews give gifts of money in multiples of 18 for good luck.  **EIGHTEEN** in different languages (*© G. Sarcone*) (Old English ***e(a)htatêne***) Indo-european | ***OKTODEKM(T)*** | Sanskrit | अष्टदश ***aṣtadaśa*** | Greek, Attic | ***ὀκτωκαίδεκα OKTÔKAIDEKA*** | Latin | **OCTODECIM** or **DVODEVIGINTI** | Italian ***diciotto*** (< dece ac octo); French ***dix-huit*** ; Spanish ***dieciocho*** (< diez y ocho); Portuguese ***dezoito***; Catalan ***divuit***; Provençal ***dètz-e-uèch***; Romanian ***optsprezece*** (***optişpe***, ***optîşpe***, or ***opşpe***, informal); Rumansh ***schotg*** (*otg* = 8); Sardinian ***decheòto***. Old Germanic | **AHTÔTEHUN** | Dutch ***achttien***; German ***achtzehn***; Danish and Norwegian ***atten***; Swedish ***arton*** or ***aderton***; Icelandic ***átján***. Old Slavic | **OS(T)MINADESETJE** | Russian восемнадцать ***vosemnadtsat'*** ; Czech ***osmnáct***; Slovenian ***ósemnajst***; Polish ***osiemnaście***. Chinese 十八 (complex form 拾捌) ***shíbā***. Ancient Egyptian ***metkhmune***; Akkadian  ***saman-sher(et)***. Arabic ثمانية عشر ***thamaniya 'ashar***; Hebrew שמונה עשרה ***shmone'esrei***; Maltese: ***tmintax***; Amharic ***asra-semment*** . More languages Magyar ***tizennyolc***. Mayan ***uaxaclahun***. Nahuatl ***caxtōlonēyi***. Suomi ***kahdeksantoista***. Zulu ***ishumi ne sishiyagalombili*** .
19	is a prime and a repfigit number. is the maximum number of 4th powers needed to sum to any number. With respect to divisibility, nineteen has a very simple test: 19 divides 100*a* + *b* if, and only if, it divides *a* + 4*b.* 19 = 1~~9~~ = 1 95 ~~9~~5 5

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19/7 is a good rational approximation of the constant **e** (Euler's number, or Napier's constant).

The multiplicative inverse of **19** gives a decimal expansion with a 18-digit repeating decimal:
1/19=0,**052631578947368421**052631578947368421...
This repeating decimal has also an interesting property: in fact, to multiply the number 105,263,157,894,736,842 by **two**, you just have to move the last digit **2** to the beginning of the number: **2**10,526,315,789,473,684. Numbers having such properties are called **parasitic numbers**.

$1 + 2 + 3 + ... + 17 + 18 + \mathbf{19} = \mathbf{19} \times 10$

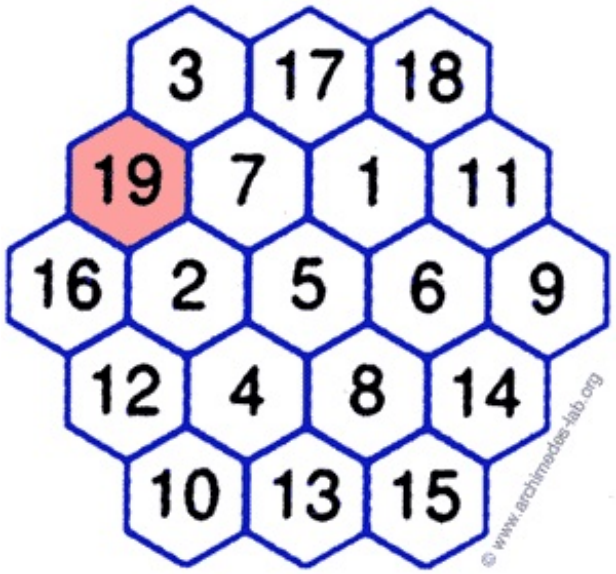
$= 3^3 - 2^3$ (difference of consecutive cubes)

$= 32 - 3^2 - 2^2$
$= 53 - 5^2 - 3^2$
$= 72 - 7^2 - 2^2$

$= - (1!) + 2! - (3!) + 4!$

$= F + 4$ (base 16)

The unique possible Magic Hexagon contains consecutive integers from 1 to **19** (see image below). The numbers in each row, and in all three directions, sum to the same magic constant: 38.



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is the smallest prime that can grow 8 times by the right:
19 is prime,
197 is prime,
1979 is prime,
19793 is prime,
197933 is prime,
1979339 is prime,
19793393 is prime,
197933933 is prime,
1979339339 is prime.

NINETEEN in different languages (© G. Sarcone)
(Old English ***nigontȳne***)

Indo-european | ***NEWNDEKM(T)** |
Sanskrit |नवदश ***navadaśa*** or एकोनविम्शति ***ekonavimśati*** (20 less 1) |
Greek, Attic | **ἐννεακαίδεκα *ENNEAKAIDEKA*** |
Latin | **UNDEVIGINTI** (20 less 1) |

Italian ***diciannove*** (< dece ac nove); French ***dix-neuf*** ; Spanish ***diecinueve*** (< diez y nueve); Portuguese ***dezanove*** or ***dezenove***; Catalan ***dinou***; Provençal ***dètz-e-nòu*** ; Romanian ***nouăsprezece*** (***nouăşpe***, informal); Rumansh ***scheniv*** (*niv* = 9); Sardinian ***decannòbe***.

Old Germanic | **NIWUNTEHUN** |

Dutch ***negentien***; German ***neunzehn***; Danish and Norwegian ***nitten***; Swedish ***nitton***; Icelandic ***nítján***.

Old Slavic | **DEVETINADESETJE** |

Russian девятнадцать ***devyatnadtsat'*** ; Czech ***devatenáct***; Slovenian ***devétnajst***; Polish ***dziewiętnaście***.

Chinese 十九 (complex form 拾玖) ***shíjiŭ***.

Ancient Egyptian ***metp'site***; Akkadian  or  ***tishêret***.

Arabic تسعة عشر ***tisha 'ashar***; Hebrew תשעה עשרה ***tsha'esrei***; Maltese: ***dsatax***; Amharic ***asra-zethain***.

More languages
Magyar ***tizenkilenc***.
Mayan ***bolonlahun***.
Nahuatl ***caxtōlonnāhui***.
Suomi ***yhdeksäntoista***.
Zulu ***ishumi ne sishiyagalolunye***.

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20
廿
念
XX

is a tetrahedral number and a composite number (its proper divisors being 1, 2, 4, 5 and 10).
is also the number of rooted trees with 6 vertices.

is the base of the **ancient Mayan** numeral system. The vigesimal or 20-base numeral system is also present in some number names in many different languages, such as:
French, *quatre-vingts*, "four twenty" = 80; Danish, *tres* (short for *tresindstyve*), "three times twenty" = 60; Albanian, *dyzet*, "two twenties" = 40; Georgian, *samotsdashvidi*, "three-twenty-and-seven" = 67; Basque, *hirurogeita hamabost*, "three-score-and-ten-five" = 75; Ainu, *tu hotnep*, "two twenties" = 40; Yoruba (Nigerian language), *métadinlaaadota*, "three from ten from twenty three", i.e. "3 from [10 from (20 x 3)]" = 47; English, *four score* = 80. – *G. Sarcone*

= 1 + 1 + 2 + 3 + 5 + 8 (sum of the first 6 Fibonacci numbers)
= 2 + 4 + 6 + 8 (sum of the first 4 even numbers)
= 1 + 3 + 6 + 10 (sum of the first 4 triangular numbers)

$= 2^2 + 2^{2x2}$
$= 4(4/4 + 4)$
$= 6! / 6^2$

$\approx e^{\pi} - \pi$ (very very close to 20)

$20 = 6^2 - 4^2$
$20^2 = 29^2 - 21^2 = 7^0 + 7^1 + 7^2 + 7^3$
$20^3 = 7^3 + 14^3 + 17^3 = 11^3 + 12^3 + 13^3 + 14^3$ (consecutive cubes)

In geometry, a **regular icosahedron** is a solid with an equilateral triangle on each of its 20 faces. It is not possible to make a regular polyhedron with more than 20 faces.

Magic triangle with a constant of **20**. 126 is the sum of the squared numbers on any side.

8
7 1
3 6
2 9 4 5

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20 is the number of pharmacist's drops in one milliliter.

The bamboo flowers at the end if its life cycle - which for bamboo is about every **20** to 120 years!

20 = 8 PM

1 meter corresponds approximately to 1/(**20** x 10^6) of the Earth Meridian. - posted by Hassan Taifour

20th April
At 20:02 on Wednesday, April 20, 2002, it was **20:02 20/02 2002**, (palindromic date) in most European countries. 20:02 20/02 2002 is a palindromic date because it is the same read from left to right as it is read from right to left!

'**20**/**20** vision' is a term used to express normal visual acuity (the clarity or sharpness of vision) measured at a distance of 20 feet. If you have 20/20 vision, you can see clearly at 20 feet what should normally be seen at that distance.

A set of 20 units may also be referred to as a **score.**

'**Nebuchadnezzar**' is a huge wine bottle holding the equivalent of **20** normal bottles of wine.

The word 'hussar' (obsolete; horseman of the Hungarian light cavalry) meant originally "**twenty**-worth". In fact, in the 16th century, the Hungarian King Mathias Corvinus decreed that each group of 20 households in a town was to furnish a horse soldier, properly a *huszár* ('twentieth', from Magyar *húsz*, 20)...

Read carefully the **20-word long** sentence below:
"I do not know where family doctors acquired illegibly perplexing handwriting nevertheless, extraordinary pharmaceutical intellectuality counterbalancing indecipherability, transcendentalizes intercommunications incomprehensibleness".
This is a special sentence where the *N*th word is *N* letters long!
e.g. the 4rd word is 4 letters long, the 13th word is 13 letters long, and so on.

In any population, there are always nearly **20 percent** of people that are “contrary Mary”, that is persons marked by a disposition to oppose and contradict, who are always in contrast to any opinion taken by the majority or to opinions that are largely accepted.

There are **20 perfect interlingual homographs** (words that share the same spelling and meaning in French, English, German, Italian, Spanish, etc...):

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album, diesel, embargo, gangster, hotel, jazz, jockey, karate, laser, libido, mafia, matador, motel, paranoia, radar, radio, revolver, sauna, taxi, telex, virus, yoga. - *G. Sarcone*

TWENTY in different languages (© *G. Sarcone*)
(Old English ***twentig***)

Indo-european | ***WIK'MT(I)** |
Sanskrit |विंशति ***vimśati*** |
Greek, Attic | **εἴκοσι(ν)** ***ÊKOSI(N)*** (< *wikati*, cf. Doric **ϝίκατι**) |
Latin | **VIGINTI** |, Archaic Latin | ***DVICINTI** |

Italian ***venti***; French ***vingt***; Spanish ***veinte***; Portuguese ***vinte***; Catalan, and Provençal ***vint***; Romanian ***douăzeci***; Rumansh ***vegn***; Sardinian ***bínti***.

Old Germanic | ***TWAI(GEN)TIGUS** |

Dutch ***twintig***; German ***zwanzig***; Danish and Norwegian ***tyve***; Swedish ***tjugo***; Icelandic ***tuttugu***.

Old Slavic | **D(U)VADESETI** |

Russian двадцать ***dvadtsat'*** ; Czech ***dvacet***; Slovenian ***dvajset***; Polish ***dwadzieścia***.

Chinese 二十 ***èrshi*** or 廿 ***niàn*** (complex form 貳拾 or 念).

Ancient Egyptian [ḏbꜥ.ty] ***ḏubāʕatay***; Akkadian 𒌋𒐼 ***eshra***.

Arabic عشرون ***'ishrun***; Hebrew עשרים ***esreem***; Maltese: ***għoxrin***; Amharic ***haya***.

More languages
Magyar ***húsz***.
Mayan ***hunkal***.
Nahuatl ***cempōhualli***.
Suomi ***kaksikymmentä***.
Zulu ***amashumi amabili***.

Buy your favorite Number (20) here.

21

is the 3rd star number (3 x 3 + 4 x 3).
is a Fibonacci number, and the smallest number of differently sized squares that are needed to tile a square (see below).
is the number of spots on a standard cubical die (1+2+3+4+5+6).
is the number of ways of choosing a set of 5 elements from a set of 7 elements.
is x for: y=2x-22 and 3x-4y+17=0

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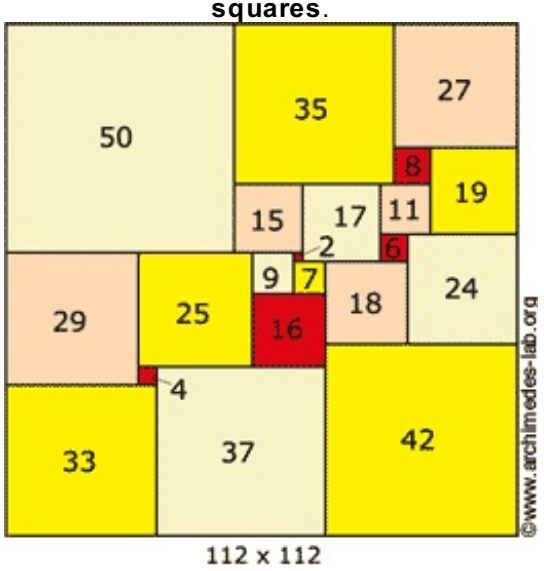
$= 11^2 - 10^2 = 5^2 - 2^2$
$= 4^0 + 4^1 + 4^2$
$= 6^2 - 5^2 + 4^2 - 3^2 + 2^2 - 1^2$
= CV/V

If a square number ends with ***xy****xy****xy****xy****xy***, then ***xy*** = 21, 29, 61, 69 or 84.
For instance: $508{,}853{,}989^2 = 258932382121212121$

$2^{21} - 21$ is prime.

The smallest simple perfect squared square (discovered by A. J. W. Duijvestijn in 1976 - *Journal of Combination Theory*) is tiled using **21 different squares**.



"When I Was One-and-Twenty" is a dramatical verse by Alfred Edward Housman about the futility of love, youth, experience, and the irony in living life.

'Twenty-one' is the name of a card game (also called '**blackjack**').

the German 'Twenty-One Club' (Zwanzigeins e. V.) is dedicated to the promotion of a new way to spell numbers in order to make mental arithmetic easier. The supporters of the club want Germans to say ***zwanzigeins*** (twenty-one) instead of the current ***einundzwanzig*** (one-and-twenty).

TWENTY-ONE in different languages (© G. Sarcone)
(Old English ***ān and twentig***)

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Indo-european | ***WIK'MTI OINOS(K^{W}E)*** |
Sanskrit |एकविंशति ***ekavimśati*** (1 + 20) |
Greek, Attic | **εἷς καὶ εἴκοσι(ν)** ***HES KAI EKOSI(N)*** (1 + 20) |,
or | **εἴκοσι (καὶ) εἷς** ***EKOSI (KAI) HES*** (20 + 1) |
Latin | **UNUS (-A, -UM) ET VIGINTI** (1 & 20) |,
or | **VIGINTI UNUS, -A, -UM** (20 + 1) |

Italian ***ventuno***; French ***vingt-et-un***; Spanish ***veintiuno***; Portuguese ***vinte e um***; Catalan ***vint-i-u***; Provençal ***vint-e-un***; Romanian ***douăzeci şi unu*** (***douăzeşunu***, informal); Rumansh ***ventgin***; Sardinian ***bintúnu***.

Old Germanic | ***AINAZ (UNTA) TWAI(GEN)TIGUS*** (1 & 20) |

Dutch ***eenentwintig***; German ***einundzwanzig***; Danish and Norwegian ***enogtyve***; Swedish ***tjugoett***; Icelandic ***tuttugu og einn***.

Old Slavic | **D(U)VADESETI I JEDINU** |

Russian двадцать один ***dvadtsat' odin***; Czech ***jedenadvacet***, or ***dvacet jeden***; Slovenian ***ênaindvajset***; Polish ***dwadzieścia jeden***.

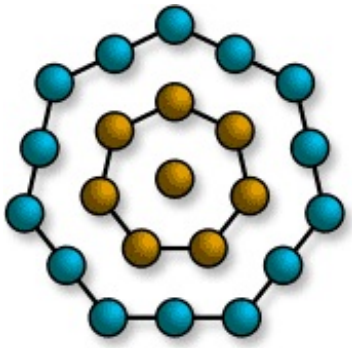
Chinese 二十一 ***èrshíyī*** (complex form 貳拾壹).

Ancient Egyptian ***ḏubā'ataywie***; Akkadian 𒌋𒐕𒋾 ***ishten (u) eshra*** (1 & 20).

Arabic واحد و عشرون ***wahed wa-'ishrun*** (1 & 20); Hebrew עשרים ואחת ***esreem ve'akhat*** (20 & 1); Maltese: ***wieħed u għoxrin***; Amharic ***haya and***.

More languages
Magyar ***huszonegy***.
Mayan ***hunkal catac hun***.
Nahuatl ***cēmpōhualoncē***.
Suomi ***kaksikymmentäyksi***.
Zulu ***amashumi amabili na nye***.

22



is a pentagonal number (22 = 1 + 4 + 7 + 10) and a centered heptagonal number.
is the number of partitions of 8. There are, in fact, precisely **22** ways to express 8 as a sum of positive integers: 8, 7+1, 6+2, 6+1+1, 5+3, 5+2+1, 5+1+1+1, 4+4, 4+3+1, 4+2+2, 4+2+1+1, 4+1+1+1+1, 3+3+2, 3+3+1+1, 3+2+2+1, 3+2+1+1+1, 3+1+1+1+1+1, 2+2+2+2, 2+2+2+1+1, 2+2+1+1+1+1, 2+1+1+1+1+1+1, and 1+1+1+1+1+1+1+1

is the smallest number which can be expressed as the sum of 2 primes in 3 ways: 3 + 19, 5 + 17, and 11 + 11
is the smallest number of differently sized squares that are needed to tile a '2*a* x 1*a*' rectangle.

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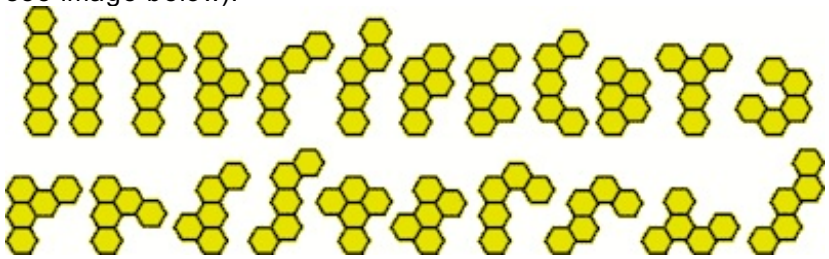
is the number of different ways of linking 5 hexagons together (pentahexes, see image below).



22/7 = 3.142... Honest approximation of π.
22 = κβ (in Ionic Greek numeration)

= 4 + 5 + 6 + 7
= $1^4 + 2^3 + 3^2 + 4^1$
= MC/L

22 x 22 = 4 x 11 x 11 = 484 is a palindromic equality!

"22 v'là les flics" is a French popular expression used to warn of the coming of the police.

The Olivetti "**Lettera 22**" is a portable mechanical typewriter designed by Marcello Nizzoli in 1949. It is in the permenant collection of the MOMA.

In numerology, 22 is considered a significant number, sometimes called the Master Builder or Spiritual Master in Form. Number-22 persons are said to find themselves feeling as if they live in 2 worlds, one which is overwhelmed by the mundane, and the other by the fantastic; they find the most fulfillment working on a higher plane to help people.

23

23 is the smallest odd prime which is not a twin prime.

is one of only two positive integers which CANNOT be written as the sum of 8 positive cubes (239 is the other one).
— *Christopher Carl Heckmann* (23 letters!)

is the smallest prime number with consecutive digits.
is the lowest prime whose reversal is a power: 32 = 2^5 - *Trigg*
is the lowest number of integer-sided parallelepipeds you can fit in a box so

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that no two parallelepipeds share a common length.
occurs twice in the list of the fortunate numbers.

Palindromic equalities involving 23:
23 x 64 = 46 x 32
23 x 96 = 69 x 32

23! is 23 digits long.
= 5 + 7 + 11 (smallest prime that is a sum of 3 consecutive primes)
= (3 x 5) + (3 + 5)
= $3 \times 2^3 + (-1)^3$ (sum of 4 cubes)
= $2 \times 2^3 + 7 \times 1^3$ (sum of 9 positive cubes)
= $12^2 - 11^2$
= $-(2^2 - 3^3)$
= $1^4 + 2^3 + 3^2 + 4^1 + 5^0$

$10^{23} - 23$ = 99,999,999,999,999,999,999,977 is the largest 23 digit prime.

23 x 2**23**9 x **23**93 = 1**23**23**23**21 (palindromic prime)

Repeat the digit 1, 23 times like this: 11,111,111,111,111,111,111,111 and you obtain a prime number.

23.140692632779269005... is e^{π}, also known as the Gelfond's constant.

The 'Birthday Paradox' states that a group of 23 randomly-selected persons is the lowest number where there will be a probability higher than 50 per cent that two people will share the same birthday. For 60 or more people, the probability is greater than 99 per cent!

In telegraphers code 23 means "break the line".

Each parent contributes 23 chromosomes to the start of human life. The nuclei of cells in human bodies have 46 chromosomes made out of 23 pairs.

Twenty-three is the Sacred Number (along with 5) of **Eris**, goddess of discord, according to the *Principia Discordia*; it is the number of the 'Illuminati'.

Twenty-three is one of the most commonly cited prime numbers... Numerous people have claimed to see 23's everywhere (the '23 curse') prior to enormous success and fruitfulness. **23rdians** are a group of persons who subscribe to the mystical power of 23 and see it in multiple combinations throughout daily life.

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The 23rd letter of the alphabet is 'W'. Therefore, *white supremacists* and racist skinheads use **23** in tattoos to represent 'W', as an abbreviation for the word "white".

The Earth is tilted at an angle of **23**.44 degrees (at the moment!).

Buy your favorite Number (23) here.

Number list: *lista dei numeri* (it), *liste des nombres* (fr), *lista de números* (es, por), *Liste besonderer Zahlen* (ger), *getallen en getalverzamelingen* (du), *seznam čísel* (cz), 數表 (ch), 数の一覧 (jap), *список чисел* (ru), *שמות מספרים* (he).

→ 0-6 | → 7-12 | → 13-23 | → **24-69** | → 70-200 | → 201-684 | → 5H0P

24

is smallest number with exactly eight divisors (1, 2, 3, 4, 6, 8, 12, 24), and the largest number with the following property: subtracting one from each of its divisors produces a prime number.

is the number of different ways in which the letters of 'STOP' may be arranged. Only 6 arrangements produce words, though.

Sotp? Oops... ->

$= 2^{10} - 10^3$
$= 7^2 - 5^2$ (difference of squares)
$= 4!$
$= 3 + 5 + 7 + 9$ (sum of consecutive odd numbers)
$= 2^5 - 2^3$
$= 3^3 - 3^1$
$= (D/C)!/(D/C)$

24 = (**2** + $\sqrt{}$**4**)!

Select any prime number equal or greater than 5, square it, subtract 1 from that, then the result is always divisible by 24. For instance, $37^2 - 1 = 1368$ is divisible by 24. However, this works just as well with any odd number not divisible by 3. For instance, $125^2 - 1 = 15624$ is divisible by 24. In fact, any number of the form $p^2 - q^2$ can be divisible by 24, for p and q primes > 3.

The product of 4 consecutive numbers $n(n+1)(n+2)(n+3)$ is divisible by 24.

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24 is the largest number of Knights you can place on a chessboard such that none of them can capture any other using the standard chess Knight's moves.

There are 24 hours in a day.

The phrase HOURS IN A DAY requires 24 penstrokes!

25

is a centered octagonal number.
is the smallest square number that can be written as a sum of 2 (consecutive) squares: $5^2 = 4^2 + 3^2$
is an automorphic cubic number: $\mathbf{25}^3 = 6\mathbf{25}$

= 1 + 3 + 5 + 7 + 9 (sum of the first five odd numbers)
= 3 + 4 + 5 + 6 + 7 (sum of consecutive numbers)

$= 1^2 + 2^2 + 2^2 + 4^2$
$= (1^2 + 2^2)^2$
$= 13^2 - 12^2$

$\mathbf{25}^2 = 7^2 + 24^2$ (Pythagorean triple)

4! + 1 = 25

The powers of 25 (or any other number ending by 25) end with 25: $725^2 = 5256\mathbf{25}$

When you add the digit 6 to 25 you obtain two squares:
$\mathbf{6}\mathbf{25} = 25^2$, and $\mathbf{25}\mathbf{6} = 16^2$

We can readily test for divisibility by 25 by seeing if the last two digits of the number match 25, 50, 75 or 00.

In the Western Occult Tradition, each planet has traditionally been associated with a particular organizations of numbers. One such method of numerological arrangement is the "Magic Square".

Magic Square of Mars has 25 squares:
(magic constant: 65)

17	24	1	8	15
23	5	7	14	16

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		4	6	13	20	22
		10	12	19	21	3
		11	18	25	2	9

(The Magic Square of Mars is associated with the Sator Square)

25 percent (25%) means one quarter (1/4).
25 percent of gold mass in a material is equivalent to 6 carats.

It seems that **25** and 27 are the only case of a square and a cube separated by 2 (can you prove it?), in fact: $5^2 + 2 = 3^3$

The Sun revolves once in **25 days** near the Poles and about 30 days near its Equator.

"**World Pasta Day**" is celebrated on **25th** October worldwide.

The **25th Hour** is a 2002 Spike Lee urban drama based on David Benioff's novel.

A "pony" is a British slang for **£25**.

A chiastic saying: "The two greatest highway menaces are drivers under **25** going over 65 and drivers over 65 going under **25**".

26

is the only number sandwiched between a square (5^2) and a cube (3^3).
is the difference of the second pair of amicable numbers:
1210 - 1184 = 26
is the smallest number which is not a palindrome, but has a square which is: $26^2 = 676$
is the sum of the following series (*J. Bernoulli*):

$$\sum_{1}^{\infty} \frac{n^3}{2^n}$$

The 26 letters of the alphabet can make $40{,}329 \times 10^{22}$ different combinations.

$\frac{26}{65} = \frac{2\cancel{6}}{\cancel{6}5} = \frac{2}{5}$

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	26 = 1 + 7 + 5 + 7 + 6 and 26^3 = 17576 = 5 + 8 + 13 (sum of consecutive Fibonacci numbers) = 1210 - 1184 (difference of pair of amicable numbers) "God's Number" is the minimum number of moves needed to solve any disordered Rubik's cube. It is so named because God would only need the smallest number of moves to solve a cube! The research has proved that God's number is **26**. Nevertheless, theoretical work suggests that God's Number could be in the 'low 20s'. 26 has also a special divine significance in Gematria because it is the sum of the letter-values of the 'Tetragrammaton', the Hebrew biblical name of God (יהוה Yahweh): Yod + Heh + Wau + Heh = 10 + 5 + 6 + 5 = 26 The diagram above shows the 'Tetragrammaton' written in Phoenician (blue script), Aramaic (red script) and modern Hebrew (black script). The 26-letter word *precipitevolissimevolmente* ('as fast as possible'), created in 1677, is one of the longest words in the Italian language. More info on "A collection of word oddities and trivia". There are 26 letters in the English alphabet.
27	is the first odd or **masculine cube** (odd numbers were considered masculine by the Pythagoreans; even numbers feminine... Because they were supposed to be weaker than the odd: in fact odd + even always give odd, and two evens can never produce an odd, while two odds produce an even). is the number of integer partitions of 15 into distinct parts. is the smallest 2-digit number in which the sum of digits is equal to the sum of prime factors, e.g.: 27 = 3 x 3 x 3 and 2 + 7 = 3 + 3 + 3 = 9 is the smallest integer which is the sum of 3 squares in two different ways: $1^2 + 1^2 + 5^2 = 27$ and $3^2 + 3^2 + 3^2 = 27$ is the largest integer which is the sum of the digits of its cube: 27^3 = 19,683 and 27 = 1 + 9 + 6 + 8 + 3 $27^3 = 3^3 + 18^3 + 24^3$

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$27 = 3^3$
$27 = 6^2 - 3^2$ (difference of squares)
$27 = 14^2 - 13^2$ (difference of consecutive squares)
$27 = 2 + 3 + 4 + 5 + 6 + 7$ (sum of consecutive natural numbers)

27 appears in the resolution of equations of third degree:
$D = 4p^3 + \mathbf{27}q^2$

The 27th lucky number is 1**27**.

$27 \times 198 = 5346$ (this equality contains all digits 1 to 9 once)

27! + 1 is prime.

$(\mathbf{27}/8)^{9/4} = (9/4)^{\mathbf{27}/8}$

is the magic constant of a prime reciprocal magic square of the multiples of 1/7:

1	4	2	8	5	7
2	8	5	7	1	4
4	2	8	5	7	1
5	7	1	4	2	8
7	1	4	2	8	5
8	5	7	1	4	2


The 27th hexagram of the *I-Ching* reveals:
THE JUDGMENT
THE CORNERS OF THE MOUTH.
Perseverance brings good fortune.
Pay heed to the providing of nourishment and to what a man seeks to fill his own mouth with.

Twenty-seven is the highest number of the Platonic Lambda series: 1, 2, 3, 4, 9, 8, and **27**.

is the number of bones in the human hand.
is the number of "cubies" in a Rubik's cube.

The musician/humorist 'Weird Al' Yankovic often includes the number 27 somewhere in his songs, videos, album art, and memorabilia. For example, he wears a 27 on the cover of the *Running with Scissors* album, and 27 photos are included in the photo

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	gallery on the *'Weird Al' Yankovic Live!* DVD. This trademark began as several coincidental appearances of the number, but Yankovic began intentionally using it after the original incidents were pointed out to him. The Twenty-Seven Club: Kurt Cobain, Jimi Hendrix, Janis Joplin and Jim Morrison all died at **age 27**. The importance of number 27 in Roman rituals In 17 AD, to celebrate the *Secular Games*, the emperor Augustus commissioned a hymn ('Carmen Saeculare') from the poet Horace which was sung by twenty-seven boys and twenty-seven girls. Every March 16th and 17th, a solemn procession made a circuit of twenty-seven chapels called "Argei" located in various parts of the city of Rome. The 27-letter word *sovramagnificentissimamente* ('in a very very very magnificent way'), used by Dante in "De vulgari eloquentia" in the 14th century, was one of the longest words in the Italian language. More info on "A collection of word oddities and trivia". Buy your favorite Number (27) here.
28	is an hexagonal number: 28 = 1 + 5 + 9 + 13 is the 2nd number whose divisors add up to itself (perfect number), e.g.: $1 + 2 + 4 + 7 + 14 = 2^2(2^3 - 1)$ [Euclid formula] = 28 is a repfigit number. is the number of dominoes in standard domino sets. the string 28 is at position 33 counting from the first digit after the decimal point in Pi. $= 2 + 3 + 5 + 7 + 11$ (sum of the first five consecutive primes) $= 1 + 2 + 3 + \ldots + 7$ (sum of the first 7 consecutive numbers) $= 10! / 360^2$ $= 8^2 - 6^2$ (difference of squares) $= 2^5 - 2^2$ (difference of powers of 2) $28 \times 157 = 4396$ (this equality contains all digits 1 to 9 once) A 28-sided polygon is called an **icosikaioctagon**. 28 digits = 7 palms = 1 royal cubit or "meh" (= 524 mm). It takes the Moon approximately 28 Earth days to orbit around the Earth.

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The lunar day is actually a little less than 28 Earth days.

The 28-letter word *anticostituzionalissimamente* ('in very anticostitutional way') is the longest word in the Italian language. More info on "A collection of word oddities and trivia"

The "Twenty Eight" parrot is an Australian bird, so named because it sounds like the words "28" when it calls.

Recycling: even an old calendar becomes new again every **28 years**!

29

successive primes up to 29 are separated at most by 3 integers (the mean gap being 2).
is the smallest prime of the form $7n + 1$.
is the 7^{th} Lucas number.
is a Perrin number. In mathematics, the Perrin sequence is defined by the recurrence relation: P(0) = 3, P(1) = 0, P(2) = 2;
and $P(n) = P(n - 2) + P(n - 3)$, for n > 2.
is the 3rd number n (following 1 and 5) such that $2n^2 - 1$ is a square, in fact: $2 \times 29^2 - 1 = 41^2$ -- Source: 'Dictionary of Curious and Interesting Numbers' by David Wells
is the exponent of the largest power of 2 whose digits are all distinct:
$2^{29} = 536\ 870\ 912$

$= 2^2 + 3^2 + 4^2$ (sum of 3 consecutive squares)
$= 3 + 5 + 7 + 11 + 13$ (sum of consecutive primes)

$= \sqrt{(6! + (6! + 6)/6)}$

$= (2 \times 9) + (2 + 9)$

$\mathbf{29}^2 = 21^2 + 20^2$ (Pythagorean triple)

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TWENTY NINE is the only number written with as many strokes as its numerical value.

The probability of being born on **29th February** is 1/1,461.
Bob Morris wrote:
Is really 1/1,461 the probability of being born on February 29? If leap years occurred once every four years, it would be, but there are a couple of additional rules for determining if a year is a leap year. If it is divisible by 100, it is not a leap year, but if it is divisible by 400, then it is a leap year (for example, 1900 was NOT a leap year because it is divisible by 100. The year 2000 IS a leap year because it is evenly divisible by 100 and by 400). This means that in any 400 year period, there are 365 x 400, or 146,000, non-leap days. Leap days number 100 (one every four years) - 4 (one every hundred years) + 1 (one every four hundred years), so there are 97 leap days every 400 years. The probability of being born on February 29 is therefore **97/146,097**.

Leap Year Checker

Is the year: 0000 a leap year? Check Answer:

29.783 km/s is the average orbital speed of the Earth around the Sun.

29.53 days is the amount of time for the Moon to complete one orbit around the Earth (synodic month).

The planet Saturn requires over **29** years to orbit the Sun (solar revolution).

is the number of bones in a normal human skull.
is the number of days February has on leap years.

In numerology, 29 is a very unlucky number and indicates uncertainties, treachery and deception from others. It also stands for dangers, unreliable friends, grief and deception from the opposite sex.
In the Tarot, the 29 is represented by the 3 of Wands. It infers spiritual power, introspection, reflection and receptivity.

30

is a pyramidal number - the sum of the first 4 square numbers:
$1^2 + 2^2 + 3^2 + 4^2$
is the largest number such that every smaller coprime to it is prime.

$1^1 + 2^2 + 3^3 \ldots + 28^{28} + 29^{29} + 30^{30}$ is prime!
- Crespi de Valldaura

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= 4 + 5 + 6 + 7 + 8

30 + **25** = 55 and 55 x 55 = **3025**

$n^5 - n$ is divisible by 30.

A polygon with 30 sides is called a *tricontagon*. Both an *icosahedron* and a *dodecahedron* have 30 edges.

Used to indicate the end of a wire service story (possibly a corruption of German *fertig* - "finished, ready" or in journalistic context "end of story"?).

Emile Coué, a physician who formulated the Laws of Suggestion, was known for encouraging his patients to say to themselves **30 times** a night before going to sleep: "Everyday in every way, I am getting better and better".

THIRTY in different languages (© G. Sarcone)
(Old English ***thrîtig***)

Indo-european | ***TRIKOMT(A)** |
Sanskrit |त्रिंशत् ***trimsat*** |
Greek, Attic | **τριάκοντα *TRIAKONTA*** |
Latin | **TRIGINTA** |

Italian, Catalan, Provençal and Rumansh ***trenta***; French ***trente***; Spanish ***treinta***; Portuguese ***trinta***; Romanian ***treizeci***; Sardinian ***trínta.***

Old Germanic | ***THREJIZTIGUS** |

Dutch ***dertig***; German ***dreißig***; Danish ***tredive*** or ***tredve;*** Norwegian ***tretti*** or ***tredve***; Swedish ***trettio***; Icelandic ***þrjátíu*** .

Old Slavic | **TRIJEDESETI** |

Russian тридцать ***tridtsat'*** ; Czech ***třicet***; Slovenian ***trídeset***; Polish ***trzydzieści***.

Chinese 三十 ***sānshí*** or 卅 ***sà*** (complex form 叁拾).

Ancient Egyptian [mˁbȝ] ***me^{o}be***; Akkadian 𒋗𒇽𒊭 ***šalāšā***.

Arabic ثلاثون ***thalathun***; Hebrew שלושים ***shlosheem***; Maltese: ***tletin***; Amharic ***sélasa***.

More languages
Magyar ***harminc***.
Mayan ***lahuncakal***.
Nahuatl ***cēmpōhualmahtlāctli***.

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	Suomi ***kolmekymmentä*** . Zulu ***amashumi amatatu*** .
31	is the first lucky prime, and the 3rd Mersenne prime (2^5 - 1). is very close to π^3. = 2^5 - 1 = 2^2 + 3^3 = 1 + 5 + 5^2 = 2^0 + 2^1 + 2^2 + 2^3 + 2^4 = 1 + 2 + 4 + 8 + 16 = 3^3 + 3 + 3/3 **31**^{2} x 325 = **31**2325 the sum of the first 31 odd primes is a perfect square: 3 + 5 + 7 + 11 + ... + 83 + 87 + 89 = 31^2 **31** 3**31** 33**31** 333**31** 3333**31** 33333**31** 333333**31** are all primes. A billion (1,000,000,000) seconds is 31 years. Strangely enough, the French expression "être sur son trente-et-un (31)" means 'to be dressed to the nines' in English, and "anar de vint-i-un (21) botó" in Catalan. Joke: Why do mathematicians (or programmers) always confuse Halloween and Christmas? - Because **31** Oct = 25 Dec ("oct" = October, but also = octal; and "dec" = December, but also = decimal...)
32	is the lowest number *n* with exactly 7 solutions to the equation: Phi(x) = *n* is the smallest 5^{th} power (besides 1), and the largest known power with all decimal digits being prime: 2^5 = 2^4 + 4^2 (Leyland number) = 5 + 7 + 9 + 11 32! - 1 is prime (32 + 1)! - 1 is also prime

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	$\log_2 32 = 3 + 2$ $163 / \ln 163 \approx 32$ (= 31.9999987...) The size of a full set of adult teeth in humans, including wisdom teeth. 32° Fahrenheit is the melting point of ice.
33	is a 12-gonal number. is the largest positive integer that is not a sum of distinct triangular numbers. $= 0^0 + 1^1 + 2^2 + 3^3$ $= \mathbf{1}^{\mathbf{5}} + 3^3 + \mathbf{5}^{\mathbf{1}}$ $= 17^2 - 16^2$ and $17 + 16 = 33$ $= 7^2 - 4^2$ $= 1^5 + 5^5$ $= 1! + 2! + 3! + 4!$ (The sum of the first 4 factorials) 3 x 37 = 111 **33** x 3367 = 111,111 333 x 333667 = 111,111,111 3333 x 33336667 = 111,111,111,111 33333 x 3333366667 = 111,111,111,111,111 There are 33 vertebrae in human spine. In the ASCII code, 33 represents an exclamation mark. **L33t** (sometimes rendered **LEET**, **1337**, or **31337**) is an alphabet used primarily on the Internet, which uses various combinations of ASCII characters to replace Latinate letters. It was initially developed as an exclusionary language: a way to encode text so that messages could only be read by the initiated... Example sentence: *L337 15 n07 4 c0mm0n 1n73rn37 5p34k 4m0n9 r34l h4x0r*. English rendering: 'Leet is not a common internet speak among real hackers'. **33** is a significant number in modern numerology, as it is one of the master numbers along with 11 and 22. is the word a Romance language speaking patient is usually asked to say when a doctor is listening to his/her lungs with a stethoscope (fr: *trente-trois*, it: *trentatrè*, ro: *treizeci şi trei*, sp: *treinta y tres*, and por: *trinta e três*). In fact, the sound *TRR...TRR...* makes the lungs vibrate making easier to detect a possible respiratory anomaly.

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	In Spanish, is the smile-to-the-camera word, as is 'cheese' in English. "**Diga treinta y tres**" ('say thirty-three') is the same as 'say cheese'.
34	is a Fibonacci and an heptagonal number. is the smallest number which can be expressed as the sum of two primes in four ways, and also the smallest number to be surrounded by numbers with the same number of divisors: 33 = 3 x 11; **34** = 2 x 17; 35 = 5 x 7 34 x 86 = 68 x 43 (palindromic equality) = 7 + 8 + 9 + 10 (sum of consecutive integers) = (1 + 2 + 3 + ... + 14 + 15 + 16) / 4 4x4 Magic squares with a 'magic constant' of 34 One of the 86 magic squares having a 'magic constant' of 34: 1 14 4 15 12 7 9 6 13 2 16 3 8 11 5 10 Can you spot why this panmagic square is particularly special? 15 10 3 6 4 5 16 9 14 11 2 7 1 8 13 12
35	is a tetrahedral number - the sum of the first five triangular numbers: 1 + 3 + 6 +10 + 15 = (10 – **3**)(10 – **5**) (multiplication of its 10-complement digits) There are almost 35 hexominoes, the polyominos made from 6 squares.
36	is the smallest number which is the sum of pairs of distinct odd primes in four ways: 36 = 5 + 31 = 7 + 29 = 13 + 23 = 17 + 19 is the smallest integer (besides 1) being both a square and a triangular number. 2 dice can fall in 36 different manners. = 3! x 6 = $1^3 + 2^3 + 3^3$ In our Millenium occur **36 palindromic dates** in the mm-dd-yyyy format. Palindromic dates are the same when read backward and forward; the first ones are: 10/02/2001, 01/02/2010, 11/02/2011, 02/02/2020, etc.

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37 is a hexagonal number because it can be arranged in a pattern of nested hexagons: 37 = 1 + 6 + 12 + 18.
is the maximum number of 5th powers needed to sum to any integer (Hilbert-Waring's problem).

If you ask someone to think of any number from 1 to 50, one people out of three answers **37**. Strangely, if you ask someone else to think of any number from 1 to 5, the probability that he/she will answer **3** is one out of three; and if you ask to think of any number from 5 to 10 instead, the probability that he/she will answer **7** is also one out of three! – G. Sarcone

is a 'psychologically random number' - that is a number which is chosen more often when someone is asked to pick a number (usually this kind of number is odd and doesn't end in 5, because there is a natural psychological bias to think of even numbers and numbers that end in 5 are 'less random'). 37 appears disproportionately in television and movies.

On a calculator, any row, column or diagonal typed forwards and then backwards is divisible by 37. For example:
147741 divided by 37 = 3993
852258 divided by 37 = 23034
753357 divided by 37 = 20361
- Posted by Tim Barss -

A 6-digit number in which the first 3 digits are consecutively-increasing numbers; and the last 3 digits, consecutively-decreasing numbers, is divisible by 37. For instance, the numbers 123987, 234765 and 567543 are all divisible by 37.

$= 2^2 + 2^2 + 2^2 + 5^2$
$= 4^3 - 3^3$
$37^2 = 12^2 + 35^2 = 19^2 - 18^2$ (Pythagorean triple)

37! + 1 is prime.

1/37 = 0.0**27**027027..., and 1/27 = 0.0**37**037037... (This is related to the fact that 37 x 27=999).

$3.703703703703... \times 10^{\mathbf{37}} = 3\ 333\ 333\ 333\ 333^3$

$2^{\mathbf{37}} = 1\mathbf{37}438953472$
37! = 1**37**6375309122634504631597958158090240000000

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$3^2 + 7^2 - 3 \times 7 = 37$
$3 \times (3 + 7) + 7 = 37$
$(3^3 + 7^3)/(3 + 7) = (4^3 - 3^3)/(4 - 3) = 37$
$333/(3 \times 3) = 37$
$33 + 3 + 3/3 = 37$

3 x 37 = 111 and 1 + 1 + 1 = 3
6 x 37 = 222 and 2 + 2 + 2 = 6
9 x 37 = 333 and 3 + 3 + 3 = 9
12 x 37 = 444 and 4 + 4 + 4 = 12
15 x 37 = 555 and 5 + 5 + 5 = 15
18 x 37 = 666 and 6 + 6 + 6 = 18
21 x 37 = 777 and 7 + 7 + 7 = 21
24 x 37 = 888 and 8 + 8 + 8 = 24
27 x 37 = 999 and 9 + 9 + 9 = 27

If a 3-digit number of the form "*ABC*" is a multiple of 37, then so are numbers "*BCA*" and "*CAB*":

37 x 1 = 037	37 x 4 = 148	37 x 7 = 259
37 x 10 = 370	37 x 13 = 481	37 x 16 = 592
37 x 19 = 703	37 x 22 = 814	37 x 25 = 925
37 x 2 = 074	37 x 5 = 185	37 x 8 = 296
37 x 11 = 407	37 x 14 = 518	37 x 17 = 629
37 x 20 = 740	37 x 23 = 851	37 x 26 = 962

(multiplication with multiples of 3 see previous note)

37 uniform counters may be arranged on a flat surface to form any one of three symmetrical patterns shown opposite: hexagon, hexagram and octagon.

37 minutes (and 5 seconds) is about a Golden Section of an hour!

Dudeney's prime magic square

67	1	43
13	**37**	61
31	73	7

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'Normal' human body temperature is approx. 37 degrees Celsius.

The Carthaginian general Hannibal Barca began his trip across the Alps with 37 war elephants: "Annibal relicto in Hispania fratre Hasdrubale, Pyrenaeum transiit; Alpes, adhuc ea parte invias, sibi patefecit. Traditur ad Italiam LXXX milia peditum et XX millia equitum, **septem et XXX elephantos** adduxisse" (Flavius Eutropius).

Buy your favorite Number (37) here.

38

is the last Roman numeral when written lexicographically (XXXVIII).
is the largest known even number which can be represented as sum of two distinct primes in only one way: 38 = 31 + 7
is the sum of the squares of the first three primes:
$38 = 2^2 + 3^2 + 5^2$

37 and 38 are the first pair of consecutive positive integers not divisible by any of their digits (the second one being 46 and 47...).

= 8 + 9 + 10 + 11 (sum of consecutive numbers)
= 3 + 5 + 6 + 7 + 8 + 9 (unique possible partition with 6 different integers)
= 1 + 2 + 3 + 4 + 5 + 6 + 8 + 9 (unique possible partition with 8 different integers)

There is only one possible magic hexagon (with **magic constant 38**)

		3			
	17		19		
18		7		16	
	1		2		
11		5		12	
	6		4		
9		8		10	
	14		13		
		15			

is the last Roman numeral alphabetically: **XXXVIII** (38)

The number 38 in Mandarin Chinese (三八 - Sanba - *Silly*) is an insult referring to someone who acts in a 'girly way'.

In Hong Kong 38 is a lucky number and car registrations like 3838 are much in demand from business people.

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39	is the smallest number which has 3 different partitions into 3 parts which all give the same product when multiplied. = 3 x 13 = 3 + 5 + 7 + 11 + 13 (the sum of a sequence of consecutive primes and the product of the first and last primes in that sequence) 39 x 186 = 7254 (this equality contains all digits 1 to 9 once) Barbie's measurements if she were life size: 39-23-33.
40 	is a 8-gonal number, and as the sum of the first four pentagonal numbers (1, 5, 12, 22), it is also a pentagonal pyramidal number. = 2^3 x 5 = 6 + 7 + 8 + 9 + 10 (sum of consecutive numbers) = $3^0 + 3^1 + 3^2 + 3^3$ (sum of powers of 3) = $2^3 + 2^3 + 2^3 + 2^3 + 2^3$ (sum of cubes) = $\sqrt{(41^2 - 9^2)}$ = $(3^4 - 1)/2$ (number of the form $(3^n - 1)/2$) 40^{40} - 999 is prime. -40° Celsius = -40° Fahrenheit is the only number whose letters are in alphabetical order (forty). It needs approximately **40** grams of petrol to manufacture 1 kg of strawberry yogurt. The so-called 'environmental' products are not environmental at all if the distances covered by freight transports are included! symbolizes the number of trial and privation, possibly starting when the Babylonians observed the forty-day disappearance of the Pleiades (aka *7 Sisters*) which coincided with the rainy season, storms and floods, trial, danger. The Pleiades' return marked the start of the New Year Festival. Other negative associations for forty are: - 40 years of Hebrew wandering in the desert, - 40 days and nights of the great flood, - 40 days of Moses on Sinai, - 40 days of Elijah's journey, - 40 days of mourning for Jacob, - 40 days of Lent, the period of fasting, self-denial, and penitence traditionally observed by Christians in preparation for Easter, - 40 day period of isolation in the Roman port, which survives in the word *quarantine*. **WD-40** is the trademark of a widely used penetrating oil spray. It was developed in

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1953 by the chimist, Norm Larsen to eliminate water and prevent corrosion on electrical circuitry. WD-40 stands for 'Water Displacement, 40th attempt'. The name was coined by Norm Larsen itself, while he was attempting to concoct the formula to prevent corrosion by displacing water. Norm's persistence paid off when he perfected the formula on his 40th try.

The French expression "**s'en ficher (moquer, foutre) comme de l'an quarante**" (literally '**not to care like the year forty**') means *not to care*, *not to give a damn*. This expression is a distortion of an old French saying "s'en moquer comme de l'Alcoran" (literally 'not to care like the coran', XVIIIth century).

FORTY in different languages (© G. Sarcone)
(Old English ***fêowertig***)

Indo-european | ***K^{W}ETURKOMT(A)*** |
Sanskrit |चत्वारिंशत् ***catvârimsat*** |
Greek, Attic | **τετταράκοντα *TETTARAKONTA*** |
Latin | **QUADRIGINTA** |

Italian, Catalan, and Provençal ***quaranta***; French ***quarante***; Spanish ***cuarenta***; Portuguese ***quarenta***; Romanian ***patruzeci***; Rumansh ***curonta***; Sardinian ***baranta.***

Old Germanic | ***FITHWORTIGUS** |

Dutch ***veertig***; German ***vierzig***; Danish ***fyrre*** (***fyrretyve*** archaic); Norwegian ***førti***; Swedish ***fyrtio***; Icelandic ***fjörutíu*** .

Old Slavic | **CETYRIDESETI** |

Russian сорок ***sorok***; Czech ***čtyřicet***; Slovenian ***štírideset***; Polish ***czterdzieści***.

Chinese 四十 ***sìshí*** or 卌 ***xì*** (complex form 肆拾).

Ancient Egyptian [ḥm.w] ***Hme***; Akkadian  ***erbeā***.

Arabic أربعون ***arba'un***; Hebrew ארבעים ***arba'eem***; Maltese: ***erbgħin***; Amharic ***arba***.

More languages
Magyar ***negyven***.
Mayan ***cakal***.
Nahuatl ***ōmpōhualli***.
Suomi ***neljäkymmentä*** .
Zulu ***amashumi amane***.

41

is a sum of two consecutive squares: $4^2 + 5^2$

is the lowest number whose cube is the sum of 3 cube numbers in 2

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	different ways: $41^3 = 2^3 + 17^3 + 40^3 = 6^3 + 32^3 + 33^3 = 68{,}921$ is the smallest non-palindromic prime which on subtracting its reverse gives a perfect cube ($41 - 14 = 3^3$), and is also the smallest number that is not of the form $\|2^x - 3^y\|$. $n^2 - n + \mathbf{41}$ produces prime numbers for all integers n, from n=0 to n=40 (see below). is the first number of a prime number sequence that is 41 numbers long: 41 + **2** = 43 43 + **4** = 47 47 + **6** = 53 53 + **8** = 61 61 + **10** = 71 71 + **12** = 83, and so on... - posted by Ryan Bartling -
42	is a 'cult number', whose cult status originated with Douglas Adams' use of 42 as 'The Answer' to the ultimate question of life, the universe and everything in his "Hitchhiker's Guide to the Galaxy" series. is the area of a scalene triangle having integer sides, with a=7, b=15 and c=20 (Heronian triangle). is the 5^{th} Catalan number. Catalan numbers are generated by the formula $C_n = [(2n)!/n!(n+1)!]$ lies between a twin prime pair: 41, 43 is the he smallest perfect square that is the mean of two cubed twin primes: $42^2 = (11^3 + 13^3)/2$ $= 9 + 10 + 11 + 12 = 13 + 14 + 15$ (2 consecutive sums of consecutive integers) $= 0!^2 + 1!^2 + 2!^2 + 3!^2$ $= 2(1 + 2 + 3 + 4 + 5 + 6)$ $= 2^2 + 2^2 + 3^2 + 5^2$ (sum of four prime squares) $= 6^1 + 6^2 = 7^2 - 7^1$ (sum and difference of successive powers of the same number) $42 \times 138 = 5796$ (this equality contains all digits 1 to 9 once)

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42 and **27** are arithmetically related:
3(**2**x**7**)=**42** but 3(**2**+**7**)=**27**; and (**42** + **4**x**2** + **4**)/**2** = **27**

The reciprocal of 42 is the smallest fraction in a sum of 4 fractions to add up to 1: 1/2 + 1/3 + 1/7 + 1/42 = 1

The expression $n^7 - n$ is divisible by 42.

The expression xy + x + y can never equal 42.

A 'gravity train' - also referred to as the 'Gravity Sled' or 'Gravity Express' - is a theoretical means of transportation intended to go between two points on the surface of a planet, following a straight tunnel that goes directly from one point to the other through the interior of the planet. All possible gravity trains on a given planet would take exactly the same amount of time to complete a journey (the length of a trip depends only on the density of the planet and the gravitational constant). For Earth, this time would approximatively equal **42** minutes.

Buy your favorite Number (42) here.

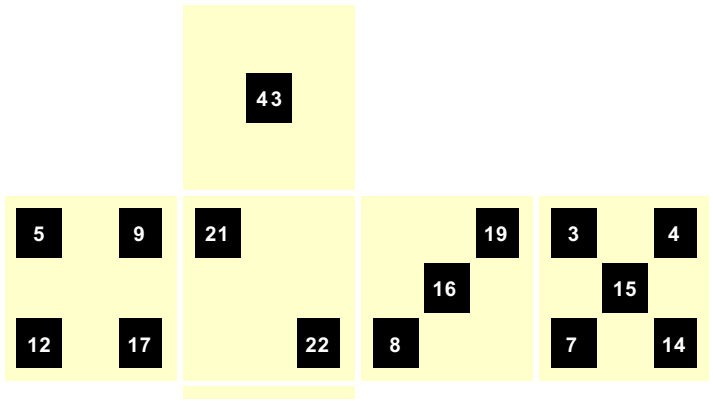
43

is the smallest non-palindromic prime which on subtracting its reverse gives a perfect square:
$43 - 34 = 3^2$

is the number of sided 7-iamonds (heptagonal number).

is the minimal sum on each face of Honaker's Magic Die - a die with pips (dots) numbered with distinct integers to sum up to the same sum on each face.

G. L. Honaker's die



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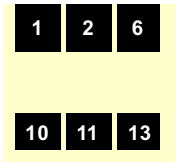

is the smallest number, which draws up as sum of two, three, four, or even five different primes:
= 2 + 41
= 3 + 17 + 23
= 11 + 13 + 19
= 2 + 5 + 7 + 29
= 2 + 11 + 13 + 17
= 3 + 5 + 7 + 11 + 17 ...

= $\mathbf{4}^2 + \mathbf{3}^3$
= $22^2 - 21^2$ (difference of two consecutive squares)
= $2^3 + 2^3 + 3^3$
= $6^0 + 6^1 + 6^2$ (sum of powers of 6)

$43^7 = 271818611107 = (2+7+1+8+1+8+6+1+1+1+0+7)^7$

$43^{7/23} = 3.141539853...$ (a real accurate approximation of π)

$43 + 4^3$ is prime.

is the smallest prime that can grow 5 times by the right:
43 is prime,
439 is prime,
4391 is prime,
43913 is prime,
439133 is prime,
4391339 is prime.
...and the smallest prime that can grow 14 times by the left:
4**43** is prime,
84**43** is prime,
184**43** is prime,
9184**43** is prime,
39184**43** is prime,
539184**43** is prime,
6539184**43** is prime,
76539184**43** is prime,
276539184**43** is prime,
4276539184**43** is prime,
34276539184**43** is prime,
334276539184**43** is prime,
9334276539184**43** is prime,
69334276539184**43** is prime.

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	The 43th term of the Fibonacci's sequence is **43**3494437 and is prime! 43 is the 4th term of the Sylvester's sequence: 2, 3, 7, **43**, 1807, 3263443, 10650056950807, 113423713055421844361000443, ... This sequence is generated by taking the product of the first *n* terms and adding 1 (for instance: 2 x 3 x 7 + 1 = 43). Because of the way each term is calculated, no two terms in the sequence have a common factor. Then, no two terms have a common prime factor, and thus there are an infinite number of primes! ***Licor 43***, also known as "Cuarenta Y Tres" (meaning 'forty-three' in Spanish), is a liquor made in Spain for over a thousand years dating back to the time of the Carthaginians (?). It is a bright yellow color liquor that has a sweet citrus-vanilla flavor. 'Licor 43' derives its name from the fact that it is a mixture of 43 basic elements, principally fruit and fragant herbs. The number 43 symbolically represents the principle of deliverance or change. 43th I-Ching hexagram: ䷪ is named 夬, *guài* ('parting') and means *resolution*, *break-through*. *Londinium* (now London) was founded by the Romans in AD 43. It requires 43 muscles to frown. "This morning, I wrote a cheque for € **43**-million. That's what I paid for the last fiscal year" - Silvio Berlusconi, former Italian prime minister. June 15, 2007.
44	is the number of derangements of 5 objects, or said in another manner, the number of different ways in which 5 people with 5 hats can each take the wrong hat... $= 12^2 - 10^2$ $= !5 = 5!\ (1 - 1/1! + 1/2! - 1/3! + 1/4! - 1/5!)$ In the following equations x=44: $x^2 + y^2 = a^2$ $y^2 + z^2 = b^2$ $z^2 + x^2 = c^2$
45	is a Kaprekar number.

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45	is a triangular number: 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 is a graphical self-reference number in French: **QU4R4NTE+C1NQ**
46	is the number of different possible arrangements of 9 non-attacking Queens on a 9 by 9 chessboard (that means no two Queens should be orthogonally or diagonally aligned on the chessboard). Human beings have 46 chromosomes in every cell of their body.
47	is a prime and a Lucas number. represents the highest number of cubes that cannot tile a cube. is a repfigit number. There are 47 occurrences of '47' in the first thousand prime numbers. $= 2^5 + 5^2 - 2 \times 5$ is *self-conscious* (it refers to itself): 4 + 7 = 11, 7 + 11 = 18, 11 + 18 = 29, and 18 + 29 = 47 47 + 2 = 49 and 47 x 2 = 94 $= 24^2 - 23^2 = 24 + 23$ $4^3 + 7^3 = \mathbf{4}07$ 666^{47} has a digit sum of 666. 99999999999999999999999999999999999999999999999 = 47 212765957446808510638297872340425531914893617 is a *cult number*; some people claim that the number forty-seven occurs in nature with noticeably higher frequency than other natural numbers. is the number of samurai involved in the famous historical *Ako vendetta*; sometimes referred to as the '47 Ronin'. The number 47 mysteriously appears in many episodes of Star Trek: 'The Next Generation', 'Voyager', and 'Deep Space Nine'. A person uses approximately fifty-seven sheets of toilet paper each day. Buy your favorite Number (47) here.
48	is the smallest number with 10 proper divisors. Actually, $48 = 2^4 \times 3$ and thus is divisible by 2, 3, 4, 6, 8, 12, 16, and 24. is also the smallest even number that can be expressed as a sum of two primes in 5 different ways:

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	5 + 43, 7 + 41, 11 + 37, 17 + 31, and 19 + 29 is the double factorial of 6, four dozens, a 17-gonal number, and a Harshad number. is an arc-cotangent irreducible number, that is a positive integer *n* for which the greatest prime factor of $n^2 + 1$ meets or exceeds $2n$: $48^2 + 1 = 5 \times 461$ and $461 > 2 \times 48$ The product of all 10 divisors of 48 equals 48^4. $= 13^2 - 11^2 = 8^2 - 4^2 = 7^2 - 1^2$ $= (4^3 + 8^3) / (4 + 8)$ = 3 + 5 + 7 + 9 + 11 + 13 (sum of consecutive odd numbers) **48** x 159 = 7632 (this equality contains all digits 1 to 9 once) $48^2 = 2^2 + 5^2 + 8^2 + 11^2 + 14^2 + 17^2 + 20^2 + 23^2 + 26^2$ (sum of squares of 9 terms of an arithmetic progression of common difference 3) is the number of hours in two days. In Italian "succede un quarantotto" (*it's going to turn into a forty-eight*) means all hell breaks - or will break - loose. While "mandare qualcuno a carte quarantotto" (*to send someone to cards forty-eight*), means to send someone to hell. Siddhartha Gautama, the founder of Buddhism, sat under a bo tree for 48 days attempting to figure life out. Buddhism was the result. With 48 matchsticks you can make a triangle in 48 different ways. - *Source: Richard Phillips, "Numbers, facts, figures & fiction"*
49	is the smallest number with the property that it and its bordering numbers are squareful: $48 = 4^2 \times 3$, $49 = 7^2 \times 1$, $50 = 5^2 \times 2$ is the smallest number which is the concatenation of two prime squares (2^2 and 3^2) creating another prime square. is a 'lucky numbers'. Stanislaw Ulam, a polish mathematician, devised a sequence of numbers called **lucky numbers** which are generated by a simple algorithm called 'sieve' similar to the 'Sieve of Eratosthenes'. The lucky numbers are: 1, 3, 7, 9, 13, 15, 21, 25, 31, 33, 37, 43, **49**, 51, 63, 67, 69, 73, 75, 79, 87, 93, 99, 105, 111, 115, 127, 129, 133, 135, 141, 151, 159, 163, etc.

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	Its cube ends in the same digits: $49^3 = 117,649$ 49 = 4 x 9 + 4 + 9 This also works for 19, 29, 39, 59, 69, 79, 89 and 99, for instance: 79 = 7 x 9 + 7 + 9 = 1 + 3 + 5 + 7 + 9 + 11 + 13 (sum of the first seven odd numbers) = 13 + 17 + 19 (sum of consecutive primes) $= 7^2 = 25^2 - 24^2 = 25 + 24$ $= (11 - 4)^{(11 - 9)}$ $= 3^2 + 5^2 + 3 \times 5$ $= 3^2 + 10 \times 2^2$ $= 5^2 + 6 \times 2^2$ $\sqrt{49} = 4 + \sqrt{9}$ 1/49 = 0,020408163264... $\frac{49}{98} = \frac{49}{98} = \frac{4}{8}$ $2^{3n+3} - 7n - 8$ (this algebraic expression is divisible by 49) XLIX or IL? Rules regarding Roman numerals often state that L cannot be preceded by I or V, only by X. Thus, one should represent the number 'forty-nine' as XLIX, not as the 'shortcut' IL. *Lasca* is an unusual checkers game played on a 7x7 board having 49 squares. The "Nagari" or "Devanagari" (also called 'writing of the gods') is a writing system employed for the traditional Sanskrit language and has 49 elementary signs.
50 L	is the smallest number that can be written as the sum of 2 squares in 2 distinct ways: $1^2 + 7^2$ and $5^2 + 5^2$ is also the sum of 3 squares: $3^2 + 4^2 + 5^2$ and the product of complex numbers: $(7 + i)(7 - i) =$ $= 49 + 7i - 7i - i^2 = 49 - (-1) = 50$ = 2(1 + 3 + 5 + 7 + 9) = 8 + 9 + 10 + 11 + 12 (sum of consecutive integers) = 3 + 11 + 13 + 23 = 2 + 5 + 7 + 17 + 19 (sum of two different sets of consecutive prime numbers)

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50 = 19 + 43/2 + 76/8
50 = 23 + 84/6 + 91/7
50 = 28 + 36/4 + 91/7
50 = 37 + 24/6 + 81/9
50 = 39 + 21/7 + 64/8
(the 5 equalities above are **pandigital** that is all digits from 0 to 9 were used once)

The 50-50/90 rule: Anytime you have a 50-50 chance of getting something right, there's a 90% probability you'll get it wrong.

FIFTY in different languages (© G. Sarcone)
(Old English ***fiftig***)

Indo-european | ***PENK^{W}EKOMT(A)** |
Sanskrit |पंचाशत् ***pancâsat*** |
Greek, Attic | **πεντήκοντα *PENTEKONTA*** |
Latin | **QUINQUAGINTA** |

Italian, Catalan, and Provençal ***cinquanta***; French ***cinquante***; Spanish ***cincuenta***; Portuguese ***cinqüenta***; Romanian ***cincizeci***; Rumansh ***tschunconta***; Sardinian ***chimbànta.***

Old Germanic | ***FIMFITIGUS** |

Dutch ***vijftig***; German ***fünfzig***; Danish ***halvtreds*** (***halvtredsindstyve*** archaic = 2 ½ x 20); Norwegian ***femti***; Swedish ***femtio***; Icelandic ***fimmtíu*** .

Old Slavic | **PE^{n}TIDESETJ** |

Russian пятьдесят ***pyat'desyat***; Czech ***padesát*** ; Slovenian ***pétdeset***; Polish ***pięćdziesiąt***.

Chinese 五十 ***wǔshí*** (complex form 伍拾).

Ancient Egyptian [dy.w] ***diywe***; Akkadian  ***khamšā***.

Arabic خمسون ***khamsun***; Hebrew חמישים ***khameesheem***; Maltese: ***ħamsin***; Amharic ***amsa***.

More languages
Magyar ***negyven***.
Mayan ***lahunyoxkal*** (10 to 60).
Nahuatl ***ōmpōhualmahtlāctli*** (2 x 20 and 10).
Suomi ***viisikymmentä*** .
Zulu ***amashumi amahlanu*** .

51 is a pentagonal number as well as a centered pentagonal number (one of the few numbers to be both) and an 18-gonal number.

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	is the smallest number which can be written with all the digits from 1 to 5 (without repetition) as a sum of prime numbers: 2 + 3 + 5 + 41 A scalene triangle having sides **51**, 52 and 53 (consecutive integers) has an area that is also an integer (1170 units^2). Such triangles whose sidelengths and area are all integers are called Heronian triangles. There are **51** and 3/7 degrees in the angle of the Egyptian pyramids, which is 1/7 the arc length of a circle. = (10 + 7)(10 - 7) = 6 + 7 + 8 + 9 + 10 + 11 (sum of consecutive integers) = $26^2 - 25^2 = 26 + 25$ = $2^3 + 2^3 + 2^3 + 3^3$ (sum of cubes) is the 'Anti-Devil' number. According to Abellio, 51 symbolizes the "Universal Time". "51% is not a mandate!" is an anti-Bush slogan. The grain used in bourbon whisky cannot be less than 51% maize, with the remainder being made up of malt and rye. 4**51** is, in Fahrenheit, the ignition temperature of paper. **Pastis 51** is one of favorite anise flavoured drinks of the French people. 'Pastis 51' derives its name from first being produced in 1951. Don't be baffled if you see the number 51 cropping up in Chinese website names, since 51 sounds like 'without trouble' or 'carefree' in Chinese. Buy your favorite Number (51) here.
52	is the 5th Bell number (Bell numbers is the number of distinct possible ways of putting *n* distinguishable balls into one or more indistinguishable boxes). is a decagonal number (4 x 4^2 - 3 x 4). is a centered 17-gonal number. is the 3rd untouchable number (an untouchable number is a positive integer that cannot be expressed as the sum of all the proper divisors

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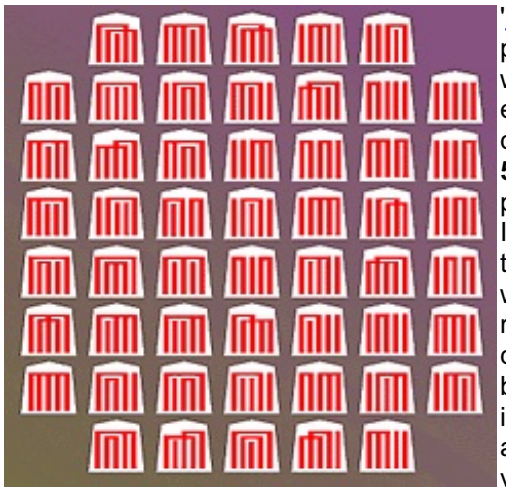
of any positive integer, including the untouchable number itself).

$= 5^2 + 3^3$
= 23 + 29 (sum of consecutive primes)
= 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10 (sum of the 3rd through 10th integers)
= 2 + 3 + 5 + 8 + 13 + 21 (sum of the 3rd through 8th Fibonacci numbers)

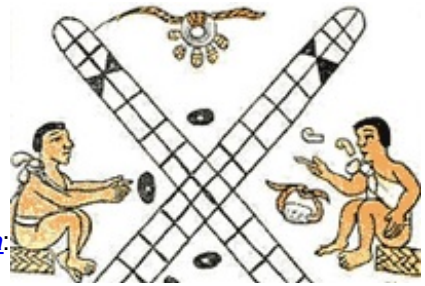


'Genjiko' is the name of a popular Japanese design whereby five vertical bars are either connected or non-connected at the top resulting in **52** design combinations (see picture opposite).
Its name originates from a traditional Japanese game in which 5 incense sticks are randomly taken out from a bag containing 25 incense sticks (5 bags x 5 different types of incenses) and are lit one after another. The player draws 5 vertical lines on a piece of paper and adds a horizontal bar on the top section of the vertical lines each time they smell the same scent.

The *microcentury* is **52** minutes and 35.76 seconds and was introduced by Enrico Fermi as the "standard" duration of a lecture period. It's equal to exactly 3155.76 seconds, as one millionth of the scientific Julian century, which is defined to be equal to 36525 days of 86400 seconds each.

is the number of weeks in a year.
is the number of cards in a standard pack without jockers
is the number of white keys on the piano (notes in C major scale).
is a significant number in the Maya calendar.

Patolli (or Patole, Spanish form) is an Aztec board game utilizing **52 squares** arranged in a cross form. Its name came from the Aztec word for bean - patolli, meaning *fava* or *kidney bean*.



52nd Verse of Buddha's ***Dhammapada***: On Flowers

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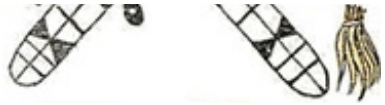
	Like a beautiful flower, brightly coloured and scented, *even so useful is the well-uttered speech of one who acts accordingly.* -- Buddha (240 B.C.) 
53	is the smallest prime which is not the difference between powers of 2 and 3. is the only two-digit number that is reversed in hexadecimal (base 16): 35_{16} xy + x + y never yelds 53. the reciprocal of 53 (1/53) has 13 digits that repeat: 0.**018867924528**30188679245283.... is the sum of five consecutive primes: 5 + 7 + 11 + 13 + 17 the sum of the first **53** integers is 1431, which is divisible by 53, a property shared by many other numbers. the sum of the first **53** primes is 5830, which is divisible by 53, a property shared by few other numbers. the sum of all consecutive prime numbers from 7 to 53 is the product of 7 x **53**: 7 x 53 = 7+11+13+17+19+23+29+31+37+41+43+47+53 = 371 $53 = 2^2 + 7^2 = 1^2 + 4^2 + 6^2$ (sum of squares) $53^2 = 28^2 + 45^2$ $53^5 = 4\mathbf{18},195,493 = (4+\mathbf{18}+1+9+5+4+9+3)^5$ $53^7 = 1,174,711,139,837 = (1+1+7+4+7+1+1+1+3+9+8+3+7)^7$ $2^{\mathbf{53}} = 9\mathbf{00}7199254740992$ is the smallest power of 2 containing two successive zeroes. the chance that no pair of 53 people in a room have the same birthday is approximately 1/53. is the code for international direct dial phone calls to Cuba. is the number of countries in Africa.
54	is a 19-gonal number. is the smallest number that can be written as the sum of 3 squares in 3 different ways:

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	$7^2 + 2^2 + 1^2 = 6^2 + 3^2 + 3^2 = 5^2 + 5^2 + 2^2$ $= 3^3 + 3^3 = = 3^4 - 3^3$ $= (3^3 + 3^2 + 3^1 + 3^0) + (3^3 - 3^2 - 3^1 - 3^0)$
55	is a heptagonal number, and a centered nonagonal number. is also the largest triangular number in the Fibonacci sequence: $= 1 + 2 + 3 + \ldots + 8 + 9 + 10$ is a palindromic number, and a square pyramidal number: $= 1^2 + 2^2 + 3^2 + 4^2 + 5^2$ $= 3 + 6 + 10 + 15 + 21$ (sum of consecutive triangular numbers) $= 28^2 - 27^2 = 28 + 27$ $= 8^2 - 3^2$ $= 2^0 + 2^1 + 2^2 + 2^3 + 3^0 + 3^1 + 3^2 + 3^3$ $5^3 + 5^3 =$ **250** and $\mathbf{2}^3 + \mathbf{5}^3 + \mathbf{0}^3 =$ **133** and $\mathbf{1}^3 + \mathbf{3}^3 + \mathbf{3}^3 = 55$ $55^2 = 44^2 + 33^2$ $55^2 =$ **30**25 and **30** + 25 = 55 The reciprocal of 55 has a curious relationship to the Fibonacci sequence: $1/55 = \sum_{n=1}^{\infty} F(n) \times 8^{-(n+1)} = 0.0181818182$ Every integer greater than 55 is the sum of distinct primes of the form $4n + 3$. **A classic coin puzzle involving number 55** There are 10 hats containing each 17 coins. 9 hats contain "identical real" coins - weighing 10 grams each. But 1 hat contains 17 "identical" fake coins. Fake coins are 1 gram off (so all 17 coins are either heavier or lighter). All 170 coins are identical in every other characteristics. Your mission is to locate the "fake" coins by using an electronic balance once! Solution Take just 1 coin from the hat #1; 2 from hat #2; 3 from hat #3, and so on... In order to get: 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10 = **55** coins. Then measure the mass of the 55 coins. Obviously, if ALL the coins were real the mass would be: 10 x 55 = 550 grams. Now, if the actual mass is off by 1 gram, then the fake coins are in hat #1. If by 2 grams, hat #2; by 3 grams, hat #3... In fact, the difference in grams between 550 and the actual weighing gives the rank of the hat containing the fake coins.

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56	is a tetrahedral number: = 1 + 3 + 6 + 10 + 15 + 21 (sum of the first 6 triangular numbers) = 3 + 5 + 7 + 11 + 13 + 17 (sum of consecutive primes) $56^2 = 65^2 - 33^2$ is the maximal number of regions into which 10 lines divide a plane. is the number of reduced 5 x 5 Latin squares. is the 12th term of the partition numbers, which count the number of ways of placing *N* indistinguishable items into *N* indistinguishable urns (but with no empty urns). **56**.9612484322608203... is the value of x, for which $x^x=10^{100}$. It is therefore the biggest number you can raise to its own power on most scientific calculators. (111+1)/(1+1) = **56** (222+2)/(2+2) = **56** (333+3)/(3+3) = **56** ... (999+9)/(9+9) = **56** The '56 Aubrey Holes' are one of the oldest features of Stonehenge. They are 56 holes arranged in a circle, but their purpose is still unknown.
57	= 3 x 19 = 111 in base 7 (that is: $57 = 7^2 + 7^1 + 7^0$) = 7 + 8 + 9 + 10 + 11 + 12 = $1^2 + 2^2 + 4^2 + 6^2$ (sum of squares) = $29^2 - 28^2 = 29 + 28$ is a 20-gonal number. can be expressed as a sum $x^y + y^x$, where *x* and *y* are integers greater than 1: $57 = 2^5 + 5^2$. Such numbers are called 'Leyland numbers'. The number of ways that 57 can be partitioned into whole number parts no larger than 2 is: 29. The number of ways that 57 can be partitioned into whole number parts no larger than 3 is: 300. 57 degrees and 18 minutes is the number of degrees in 1 radian.

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	The 57th day of the year = February 26 57 is the number of sauce varieties H. Heinz lied about to promote his famous ketchup (when he began his business, he actually had many fewer than 57 sauces or food products!). The Heinz people are still quite attached to the number 57: the phone number at corporate headquarters in Pittsburgh is 237-5757, and the address is P.O. Box 57. "Heinz 57" is also used as a joke slang term for mixed-breed dogs, as well as people who are multiracial, or most commonly, people who are of different national heritages. The most complex Chinese character still in use is the sinograph 'biáng', with **57** strokes! Which refers to *Biang biang noodles*, a type of noodle from China's Shaanxi province. 
58	is the sum of the first seven prime numbers: 2 + 3 + 5 + 7 + 11 + 13 + 17 = 13 + 14 + 15 + 16 (sum of consecutive numbers) = $2^2 + 2^2 + 5^2 + 5^2$ = $3^2 + 7^2$ is a '**hoax number**', that is a composite number the sum of whose digits is the sum of the digits of its distinct prime factors. In this case: 5 + 8 = 2 + (2 + 9) -- prime factors of 58 being 2 and 29 58 reversed (85) is also a hoax number, in fact: 8 + 5 = 5 + (1 + 7) -- prime factors of 85 being 5 and 17 58° Celsius is the highest air temperature ever recorded on earth (recorded in Lybia, 1922). The Welsh name for a village on Anglesey *Llanfairpwllgwyngyllgogerychwyrndrobwllllantysiliogogogoch* (also spelt *Llanfair Pwllgwyngyll* and commonly known as *Llanfair PG*) has 58 letters.
59	is the smallest number which when divided by 2, 3, 4, 5, and 6 leaves remainders of 1, 2, 3, 4 and 5, respectively. is a "safe prime". That is, a prime of the form $2p + 1$, where p is also a prime: 59 = 2 x 29 + 1 59 and 61 are twin prime pair.

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	59 divides 616161... 61 (repeated 29 x *n* times, n integer), but 61 divides 595959... 59 (repeated 30 x *n* times, n integer). = 17 + 19 + 23 (sum of consecutive primes) = $30^2 - 29^2 = 30 + 29$ = $2^3 + 2^3 + 2^3 + 2^3 + 3^3$ (sum of cubes) $59^4 = 133^4 + 134^4 - 158^4$ (Euler argued that there were solutions to the equation $a^4 + b^4 = c^4 + d^4$, where $a < c < d < b$ are positive integers. The first solution is in fact $a = 59$) 59 inches = 1 yard + 1 foot + 11 inches is the number of times the minute and second hands on a clock are aligned in one hour. 1 day on planet Mercury lasts about 59 Earth days. Only 59% of the Moon's surface is directly visible from the Earth.
60	is an ambundant number. is adjacent to 2 prime numbers: 59 and 61. is also an heptagonal pyramidal number and a 21-gonal number (icosihenagonal number of the form $(19n^2 - 17n)/2$). is the smallest number divisible by 1 through 6 and the smallest number with 12 different divisors (1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60). is the smallest number which is the sum of two odd primes in 6 different ways: 60 = 29 + 31 (twin primes) = 23 + 37 = 19 + 41 = 17 + 43 = 13 + 47 = 7 + 53 is the product of Pythagorean triples: 3 x 4 x 5 = 5 + 7 + 9 + 11 + 13 + 15 (sum of consecutive odd numbers) = 8 + 10 + 12 + 14 + 16 (sum of consecutive even numbers) = 29 + 31 = 11 + 13 + 17 + 19 (sum of consecutive primes) = $8^2 - 2^2 = 16^2 - 14^2$ (difference of squares) = $2^6 - 2^2$ (difference of powers with same base) = 4 x 4 x 4 – 4 = 44 + 4 x 4 = $4^4/4 - 4$ (four 4's diversion) Base 60 was the number system used by the Mesopotamians and is the reason we have 60 seconds in a minute, 60 minutes in an hour, 360 degrees in a circle, etc. - *Posted by Tim Barss* **60** is the last term of a sequence of increasing integers which can be spelled in 5 letters: 3, 7, 8, 20 (score), 40, 50, 60 - *G. Sarcone*

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Each internal angle in an equilateral triangle = **60** degrees.
29 February (the leap day) is the **60**th day of the year.
60 is the international telephone dialing code for Malaysia.
'Diamond wedding' anniversary celebrates **60** years of marriage.
60 is the atomic number of *Neodymium* (Nd) = 60 (60 protons and 60 electrons).
The cycle of **60** in the Chinese zodiac (六十花甲; liùshí huājiǎ) is formed by the 5 Elements and 12 terrestrial Branches (Animals).

In our Millenium occur **60 palindromic dates** in the dd-mm-yyyy format. Palindromic dates are the same when read backward and forward; the first ones are:
10/02/2001, 20/02/2002, 01/02/2010, 11/02/2011, etc.

Fun with degrees
What drink does this formula represent:
60(3 degree arc + 6 degree arc + 3 degree arc) + A
90(2 degree arc + 4 degree arc + 1 degree lines) + A
Answer

SIXTY in different languages (© G. Sarcone)
(Old English ***siextig***)

Indo-european | ***S$^{(w)}$EKSKOMT(A)** |
Sanskrit |षष्टि ***s'as'tih*** |
Greek, Attic | **ἑξήκοντα *HEXÊKONTA*** |
Latin | **SEXAGINTA** |

Italian ***sessanta***; French ***soixante***; Spanish ***sesenta***; Portuguese ***sessenta***; Catalan ***seixanta***; Provençal ***seissanta***; Romanian ***şaizeci***; Rumansh ***sissonta***; Sardinian ***sessànta.***

Old Germanic | ***SEKSTIGUS** |

Dutch ***zestig***; German ***sechzig***; Danish ***tres*** (***tresindstyve*** archaic = 3 x 20); Norwegian ***seksti***; Swedish ***sextio***; Icelandic ***sextíu*** .

Old Slavic | **S^{h}ESTIDESETJ** |

Russian шестьдесят ***shest'desyat***; Czech ***šedesát*** ; Slovenian ***šéstdeset***; Polish ***sześćdziesiąt***.

Chinese 六十 ***liùshí*** (complex form 陆拾).

Ancient Egyptian [sỉsy.w or ỉswy.w (?)] ***se***; Akkadian 𒋗 ***šeššā***.

Arabic ستون ***sittun***; Hebrew שישים ***sheesheem***; Maltese: ***sittin***; Amharic ***selsa***.

More languages

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	Magyar ***hatvan***. Mayan ***oxkal*** (3 x 20). Nahuatl ***yēmpōhualli*** (3 x 20). Suomi ***kuusikymmentä*** . Zulu ***amashumi ayisitupa***.
61	is a cuban prime of the form $p = (x^3 - y^3)/(x - y)$, where $x = y + 1$ and $y > 0$. is a Pillai prime, since 8! + 1 is divisible by **61**, but $61 \neq 1 + 8n$, where n = any integer. is the smallest prime whose reversal (16) is a square. is the 6^{th} Euler number. is a repfigit number. $= 5^3 - 4^3$ $= 5^2 + 6^2$ $= 31^2 - 30^2 = 31 + 30$ $61^2 = 11^2 + 60^2$ (Pythagorean triple) is the smallest prime such that its square can be expressed as the sum of 1, 2, 3, and 4 distinct squares: $61^2 = 60^2 + 11^2 = 52^2 + 24^2 + 21^2 = 56^2 + 22^2 + 10^2 + 1^2$ 59 and 61 are twin prime pair. The 61st Fibonacci number (2,504,730,781,961) is the least Fibonacci number that contains all the digits from 0 to 9. 61 items can be arranged in a regular pattern to make a hexagon with 5 items per side. 1 liter ≈ 61 $inches^3$ "61*" is also the name of TV show/series or movie.
62	is the smallest number that can be written as the sum of of 3 distinct squares in 2 distinct ways: $= 1^2 + 5^2 + 6^2$ $= 2^2 + 3^2 + 7^2$ $= 2^3 + 3^3 + 3^3$ (sum of cubes)

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63

$= 2^6 - 1$
$= 6^2 + 3^3$
is the number of partially ordered sets of 5 elements.
is a self-reference number:

64

is the smallest number with 7 divisors, and the smallest power of 2 with no prime neighbors.
is the square of 8, the cube of 4, and the 6th power of 2:
$2^6 = 4^3 = 8^2 = 64$
is the difference of the first pair of amicable numbers:
284 - 220 = 64
is the number of ways of distributing 7 identical objects into one or more different containers.

$= 1 + 3 + 5 + 7 + 9 + 11 + 13 + 15$ (sum of consecutive odd numbers)
$= 17^2 - 15^2$
$= 10^2 - 6^2$
$= 2^7 - 2^6$
$= (2^2 + 2^2)(2^2 + 2^2) = 4 \times 4^2$

$= \sqrt{(\sqrt{(\sqrt{4})})^{4!}}$

$= 7 \times 3^2 + 1^2$

64 x **23** = **32** x **46** (mirror number pattern)

The number $\mathbf{2^{64} + 1}$ ($\approx 1.84467441 \times 10^{19}$) can be factorized!

The formula **xy + (x + y)** never produces 64.

is the number of hexagrams in the *I Ching*.

There are 64 squares on a checker/chess board.
In China, "64 incident" refers to the *Tiananmen Square protests* which happened on 4 June 1989.

65

appears in the Padovan sequence, preceded by the terms 28, 37, 49 (it is the sum of the first two of these).
is the lowest integer that becomes square if its reverse is either added to or subtracted from it.

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is the 'magic constant' of a 5x5 magic square.
The protein in egg whites coagulate at 65 degrees C (150 degrees F).
In the ASCII code used by computers, 65 represents a capital letter A.

$= 1^5 + 2^4 + 3^3 + 4^2 + 5^1$ - posted by Jim O'Donohoe
$= \sqrt{(63^2 + 16^2)}$
$= \sqrt{(56^2 + 33^2)}$
$= 1^2 + 8^2$
$= 4^2 + 7^2$
$= 33^2 - 32^2$
$= 2 + 3 + 4 + ... + 9 + 10 + 11$
$65 + 56 = 121 = 11^2$
$65 - 56 = 9 = 3^2$
$65^2 - 56^2 = 33^2$ (Pythagorean triple)

Magic Circle

If you add up the numbers in each spoke OR in each ring of the circle below, you will always obtain **65**.

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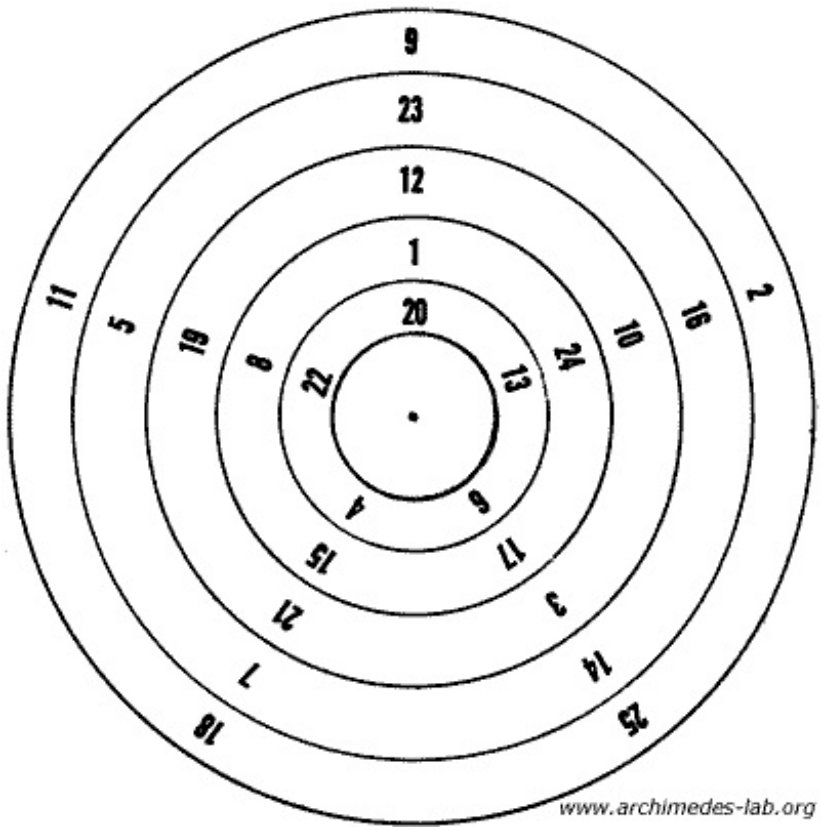

66

is a triangular palindromic number and the number of 8-iamonds.

$= 1 + 2 + 3 + \ldots + 10 + 11$
$= 2^2 + 2^2 + 3^2 + 7^2$ (sum of square numbers)

Is the largest number <100 that contains no letter 'e' (sixty-six). The next number with no embedded 'e' is number 2000 (two thousand). Such numbers are called 'eban numbers' (i.e. 'e' is banned).

There are 66 books in the Bible.

67

is the smallest number which is both palindromic in base 5 or 6.
is the sum of five consecutive primes: 7 + 11 + 13 + 17 + 19

With just 12 cuts it is possible to divide a pizza into 67 tiny pieces.

1/67 written as decimal is 0.0149253731... and continues as a repeating sequence of 33 digits.

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68	is the smallest composite number that becomes prime by turning it upside down. = 1 x 2^2 x 17 = 5 + 6 + 7 + 8 + 9 + 10 + 11 + 12 = 14 + 16 + 18 + 20 **68.8** = **8** · **8.6** (related to vampire numbers) The last day of November 46 B.C. was the longest day in history, it lasted 68 days! In May '68 a general strike broke out across France. It quickly began to reach near-revolutionary proportions before being discouraged by the Stalinist oriented French Communist Party, and finally suppressed by the government, which accused the Communists of plotting against the Republic.
69	is the fifth number that stays the same when written upside down (such numbers are called *strobogrammatic*), the complete list of invertable numbers starts: 11, 69, 88, 96, 101, 111, 181, 609, 619, 689, 808, 818, 888, 906, 916, 986, 1001, 1111, 1691, 1881, 1961, 6009, 6119... As well as 6 and 9 being the same digit rotated 180 degrees, they are also binary complements: 6 = 0110 9 = 1001 69 ≈ 163(π - ***e***) [...within 0.0005%] has the property that n^2 and n^3 all together contain each digit once: 69^2 = 4,761 and 69^3 = 328,509 is often the largest factorial that can be calculated by a pocket calculator: 69!≈1.71x10^{98} (less than 10^{100}) 69^{32} = 6.96969696 · 10^{58} 69^2 = 4761 69^3 = 328509 (the two answers include all digits once) The title of the novel **69** by Ryu Murakami. This number symbolizes also an erotic position... No need to describe it! is the Zodiac sign of the Cancer.

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Buy your favorite Number (69) here 666.

Number list: *lista dei numeri* (it), *liste des nombres* (fr), *lista de números* (es, por), *Liste besonderer Zahlen* (ger), *getallen en getalverzamelingen* (du), *seznam čísel* (cz), 數表 (ch), 数の一覧 (jap), *список чисел* (ru), שמות מספרים (he).

→ 0-6 | → 7-12 | → 13-23 | → 24-69 | → **70-200** | → 201-684 | → 5H0P

70

is a Pell number and the smallest abundant number which is not the sum of some subset of its divisors.

$= 7 + 8 + 9 + 10 + 11 + 12 + 13$
$= 2(6^2 - 1^2) = 2(6 + 1)(6 - 1)$

$70^2 = 1^2 + 2^2 + 3^2 + 4^2 + ... + 22^2 + 23^2 + 24^2$

Symbolism:
70 corresponds to the totality of an evolution, an evolutionary cycle being fully completed, according to Saint Augustin.
The corresponding Hebraic letter is *'ain*, which corresponded to the sixteenth mystery of the Tarot: the house-God, symbol of fall, collapse, catastrophe - there is agreement with the idea of termination of cycle, according to R. Allendy.
In the Bible:
The 70 weeks prophecy of the book of Daniel. (Dn 9,24)
The 70 years of captivity of Babylonian of two of the twelve tributes of Israel. (2 Ch 36,21)
Ezekiel sees 70 ancients adoring the idols. (Ezk 8,11)

70 liters of water are needed to produce just **1 apple**!

SEVENTY in different languages (© G. Sarcone)
(Old English ***hundseofontig***)

Indo-european | ***SEPT'MKOMT(A)** |
Sanskrit |सप्तति ***saptati*** |
Greek, Attic | **ἑβδομήκοντα *HEBDOMEKONTA*** |
Latin | **SEPTUAGINTA** |

Italian ***settanta***; French ***soixante-dix*** (= 60 + 10; Swiss French and Belgian ***septante***); Spanish and Portuguese ***setenta***; Catalan and Provençal ***setanta***; Romanian ***şaptezeci***; Rumansh ***siatonta***; Sardinian ***setànta.***

Old Germanic | ***SIBUNTEHUND** |

Dutch ***zeventig***; German ***siebzig***; Danish ***halvfjerds*** (***halvfjerdsindstyve*** archaic = 3 twenties + 1/2 of a fourth twenty); Norwegian ***sytti***; Swedish ***sjuttio***; Icelandic ***sjötíu*** .

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	Old Slavic | **SEDMIDESETJ** |
	Russian семьдесят ***sem'desyat***; Czech ***sedmdesát***; Slovenian ***sedemdeset***; Polish ***siedemdziesiąt***.
	Chinese 七十 ***qīshí*** (complex form 柒拾).
	Ancient Egyptian [sfḫy.w] ***sefkheyu***; Akkadian 𒅆𒌋 ***sebeā***.
	Arabic سبعون ***sab'un***; Hebrew שבעים ***sheeveem***; Maltese: ***sebgħin***; Amharic ***sèba***.
	More languages Magyar ***hetven***. Mayan ***lahucankal*** (80 – 10). Nahuatl ***yēmpōhualmahtlāctli***. Suomi ***seitsemänkymmentä***. Zulu ***amashumi ayisikhombisa***.
71	is the first of a pair of twin primes: **71**, 73. Twin primes, such as 3 and 5, are primes that differ by 2 (i.e. the smallest possible difference between two primes). divides the sum of the antecedent primes, in fact: 2 + 3 + 5 + 7 + 11 + ... + 67 + 71 is divisible by 71. = (4! + 4.4)/.4 (representation of numbers using only **four 4's**) = $36^2 - 35^2 = 36 + 35$ **71** - 1 = 1 x 2 x 5 x 7 and **71** + 1 = 3 x 4 x 6 (products of partitions of consecutive numbers) $71^2 = 7! + 1$ $71^2 = 2^7 + 17^3$ (sum of prime powers of two prime numbers) $71^3 = 357911$ (consecutive odd numbers) $71^4 = 136^3 + 4785^2$
72	is the smallest number that can be written as a sum of two primes, each ending with the digit 1, in two distinct ways: 72 = 11 + 61 = 31 + 41 is the largest number of spheres that can touch another sphere in a lattice packing in 6 dimensions. Dividing **72** by the interest rate (x percent), you obtain the number of years you should wait to double your initial capital. = 2 + 4 + 6 + 8 + 10 + 12 + 14 + 16 (sum of consecutive even integers) = 4 + 5 + 6 + 7 + 8 + 9 + 10 + 11 + 12 (sum of consecutive integers)

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= 5 + 7 + 11 + 13 + 17 + 19 (sum of 6 consecutive primes)
= 13 + 17 + 19 + 23 (sum of 4 consecutive primes)

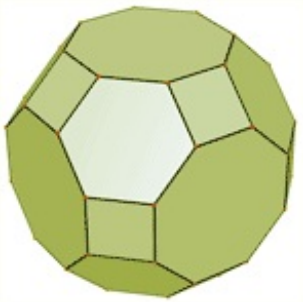
= (1 x 2 x 3 x 4 x 5 x 6)/(1 + 2 + 3 + 4) - *G. Sarcone*
= $2^3(2^3 + 1) = 3^2(3^2 - 1)$
= $2^3 \cdot 3^2$
= $11^2 - 7^2 = 19^2 - 17^2$ (difference of 2 consecutive squared primes)
= $2^3 + 4^3 = 3^4 - 3^2$

72 = 24 x 3 and reversely 27 = 24 + 3

$72^5 = 19^5 + 43^5 + 46^5 + 47^5 + 67^5$

The isosceles triangle having a pair of **72°** angles is called a **Golden Triangle**.

The **Great Rhombicuboctahedron** (see opposite) is an Archimedean Solid with 72 Edges.



The pulse rate of normal adult human is about **72 beats** per minute at rest.

72 hours = 3 days

The 72 names of God in the Kabbalistic tradition.

Incredible geometric sculpture made with **72** pencils by the artist and mathematician **George W. Hart**. [click here to enlarge]

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73	is smallest prime whose digits are reversed in base 22 and the smallest number (besides 1) which is one less than the double of its reverse: 2 x 37 - 73 = 1 is a divisor of 10001. **73**^{2} = 48^2 + 55^2 (Pythagorean triple). 365 days in a year : 5 = 73 73 = 14 + 21 + 13 + 2 + 5 + 18 N U M B E R (each number of the sum represents a letter in its alphabetical order) is the smallest number with the property that it and its neighbors can be written as a sum of 2 squares. 72 = 6^2 + 6^2 **73** = 3^2 + 8^2 74 = 5^2 + 7^2 *- Found by **Daniel Clemente** from the Polytechnical University of Catalonia*
74	is a nontotient. is the number of non-Hamiltonian polyhedra with a minimum number of vertices. = 17 + 18 + 19 + 20 74% is the storage density of a volume filled with small spheres.
75	is the number of orderings of 4 objects with ties allowed. is a repfigit number... If you take the "digit sum" 7+5=12 and then continue adding in twos in "fibonacci style" look what happens: **7** + **5** = 12 5 + 12 = 17 12 + 17 = 29 17 + 29 = 46 29 + 46 = **75** ...arriving back at 75! 75^5 = 19^5 + 43^5 + 46^5 + 47^5 + 67^5 75 liters of water are needed to produce **1 glass of beer** (250 ml)! A dollar bill contains **75**% cotton and 25% linen.

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76	is an automorphic number: 76^2 = 5776 76^3 = 438976 76^4 = 33362176 76^5 = 2535525376... = 8 + 13 + 21 + 34 (sum of consecutive Fibonacci numbers) = $3^2 + 3^2 + 3^2 + 7^2$ (sum of square primes)
77	is the largest number that cannot be written as a sum of distinct numbers whose reciprocals add up to 1. For example: 2 + 6 + 8 + 10 + 12 + 40 = 78 and 1/2 + 1/6 + 1/8 + 1/10 + 1/12 + 1/40 = 1 is the sum of 3 squares: $4^2 + 5^2 + 6^2$ is the sum of the first 8 prime numbers: 2 + 3 + 5 + 7 + 11 + 13 + 17 + 19 = 1001 / (77 - 37 - 27) - By G. Sarcone = 4x4 + 5x5 + 6x6 = $39^2 - 38^2$ = $9^2 - 2^2$ Any number having a ***abc*abc** numeral pattern is divisible by 77 (replace each letter with a digit. E.g. 123123) Seventy-seven is the smallest number requiring five syllables in English. French speaking people have two different names for seventy-seven: 'Soixante-dix-sept' (*sixty and seventeen*) and 'septante-sept' (Swiss French people). During World War II in Sweden at the border with Norway, "**77**" (*sjuttiosju*) was used as a 'Shibboleth' (discriminatory password), because the tricky pronunciation in Swedish (approx. 'shütioohshü') made it easy to instantly discern whether the speaker was native Swedish, Norwegian, or German.
78	is the lowest number which can be written as the sum of of 4 distinct squares in 3 ways. is a triangular number (sum of consecutive integers from 1 to 12): 78 = 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10 + 11 + 12 = 37 + 41 (sum of consecutive primes)

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	$78^3 = 39^3 + 52^3 + 65^3$
79	is a permutable prime, and the smallest prime whose sum of digits is a 4th power. is a Pillai prime. A Pillai prime is a prime p for which there is an integer $n > 0$ such that the factorial of n is 1 less than a multiple of the prime, but the prime is not 1 more than a multiple of n, in short: $n! \equiv -1 \pmod{p}$ but $p \neq 1 \pmod{n}$ $79 = 11 + 31 + 37$ and $97 = 11 + 13 + 73$ (sums of reversible primes) $= (7 \times 9) + (7 + 9)$ (this also works for 19, 29, 39, 49, ...) $= 40^2 - 39^2 = 40 + 39$ $= 2^{\mathbf{7}} - \mathbf{7}^2$ $= 2^2 + 5^2 + 5^2 + 5^2$ (sum of squares) $\approx 8.888^2$ $x^2 - \mathbf{79}x + 1601$, if you replace x in the previous expression with any number from 1 to 79, you always obtain a prime number!
80	is the product of 5 primes. is the smallest number n where n and $n+1$ are both products of 4 or more primes ($80 = 2 \times 2 \times 2 \times 2 \times 5$ and $81 = 3 \times 3 \times 3 \times 3$). = 4 scores $= n \times 2^{(n-1)} = 5 \times 2^4$ $= 3 + 5 + 7 + 9 + 11 + 13 + 15$ (sum of consecutive odd numbers) $= 7 + 73 = 13 + 67 = 19 + 61 = 37 + 43$ (4 distinct sums of 2 primes) $= 2^3 + 2^3 + 4^3$ (sum of 3 positive cubes) $= 4^2 + 8^2 = 4^2 + 4^3$ $= 9^2 - 1^2 = 292^2 - 44^3$ $= 6! / 3^2$ $80^2 = 4^3 + 8^3 + 12^3 + 16^3$

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	The "80:20 rule" originated from Vilfredo Pareto, an Italian economist. He discovered a common phenomenon: about 80% of the wealth in most countries was controlled by a consistent minority -- about 20% of the people. In French there are 3 ways to say 80: '**quatre-vingts**', in France, and Quebec, '**huitante**', in Switzerland, and '**octante**', in Belgium. **EIGHTY** in different languages (© G. Sarcone) (Old English ***hundeahtatig***) Indo-european | ***OKTÔKOMT(A)** | Sanskrit |अशीति ***aśîti*** | Greek, Attic | ***ὀγδοήκοντα OGDOKONTA*** | Latin | **OCTOGINTA** | ; Medieval Latin | **OCTUAGINTA** | Italian ***ottanta***; French ***quatre-vingts*** (= 4 x 20; Swiss French and Belgian ***huitante***, ***octante*** - archaic); Spanish ***ochenta***; Portuguese ***oitenta***; Catalan ***vuitanta***; Provençal ***ochanta***; Romanian ***optzeci***; Rumansh ***otgonta***; Sardinian ***otànta.*** Old Germanic | ***AHTÔTEHUND** | Dutch ***tachtig***; German ***achtzig***; Danish ***firs*** (***firsindstyve*** archaic = 4 times twenty); Norvegian ***åtti***; Swedish ***åttio***; Icelandic ***áttatíu*** . Old Slavic | **OS(T)MIDESETJ** | Russian восемьдесят ***vosem'desyat***; Czech ***osmdesát*** ; Slovenian ***osemdeset***; Polish ***osiemdziesiąt***. Chinese 八十 ***bāshí*** (complex form 捌拾). Ancient Egyptian [ḫmny.w] ***khmeneyu***; Akkadian 𒋗𒈪 ***samānā***. Arabic ثمانون ***thamanun***; Hebrew שמונים ***shmo'neem***; Maltese: ***tmenin***; Amharic ***sèmanya***. More languages Magyar ***nyolcvan***. Mayan ***cankal*** (4 x 20). Nahuatl ***nāuhpōhualli***. Suomi ***kahdeksankymmentä*** . Zulu ***amashumi ayisishiyagalombili*** .
81	is a Heptagonal number, that is a polygonal number of the form *n*(5*n* - 3)/2 is the square of the sum of its digits; there are no other numbers with this property except 0 and 1.

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	is the 3rd lowest prime power of a prime power of a prime. = 5 + 6 + 7 + 8 + 9 + 10 + 11 + 12 + 13 (sum of consecutive numbers) = 1 + 3 + 5 + 7 + 9 + 11 + 13 + 15 + 17 (sum of consecutive odd numbers) = $3^4 = 9^2$ = $2^5 + 7^2$ = $41^2 - 40^2 = 41 + 40$ = $1^2 + 4^2 + 8^2$ = $(1 + 2 + 2 + 4)^2 = 1^3 + 2^3 + 2^3 + 4^3$ x^2 - **81**x + 1681, if you replace x in the previous expression with any number from 1 to 80, you always obtain a prime number! The reciprocal of **81** gives an interesting recurring decimal expansion: 1/81 = 0.123456790**123456790**123456790... The result is actually a repeating decimal containing every digit from 0 to 9, except for 8. - Posted by Ting Wang However, the smallest fraction that gives a repeating set of all the digits 0-9 placed successively is: 13717421/111111111 = 0.123456789**0123456789**... Group consecutive numbers like this: 1 - 2, 3 - 4, 5, 6 - 7, 8, 9, 10 - 11, 12, 13, 14, 15 - ... Then cancel every second group. Now, if you sum the first remaining *n* groups, you will obtain n^4. For instance: (1) + (4 + 5 + 6) + (11 + 12 + 13 + 14 + 15) = 3^4 = 81 - Source: "Scripta Mathematica", Juzuk, 1939. The **Tao Te Ching** (道德經), the Chinese book of wisdom, is a philosophical text of around 5,000 Chinese characters in **81** brief chapters. Turkish pronunciation of 81 (***seksen bir***) is exactly 'sex-N-beer', this is a kind of amusing wordplay for people who understand both Turkish and English. 81, is the number of squares on a Shogi board (Japanese chess board).
82	is an happy number, and a companion Pell number. is a 15-gonal number and a centered 27-gonal number. is the number of different ways you can arrange 6 regular hexagons by joining their adjacent sides; thus it is the number of possible 6-hexes (with

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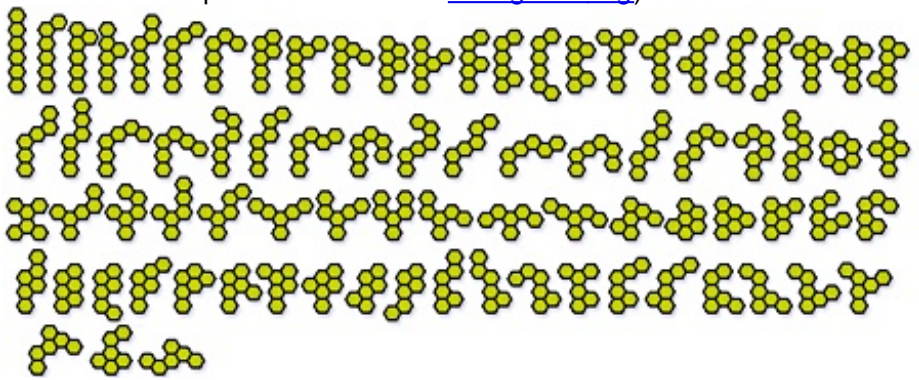
82 6-hexes it is possible to form an hexagonal ring).



= 1 + 5 + 21 + 55 (sum of Fibonacci numbers)
= 19 + 20 + 21 + 22 (sum of consecutive integers)
= $1^2 + 9^2$
= $2^2 + 2^2 + 5^2 + 7^2$ (sum of square primes)
= $2(4^2 + 5^2)$

Can be expressed as 5 different sums of two primes:
82 = 3 + 79 = 11 + 71 = 23 + 59 = 29 + 53 = 41 + 41
(cf. Goldbach's conjecture)

is one of the *nuclear magic numbers* in physics. 'Nuclear magic numbers' are the numbers of nucleons (protons or neutrons) forming full outer shells in an atomic nucleus, that are relevant for nuclear isotope stability.
is the international telephone dialing code for Korea.
is the International Standard Book Number for books published in Norway (ISBN 82-...).
The verb *to pay* is used 82 times in the Bible.

The Latin and Greek prefixes "duooctoginta-", "dioctaconta-", "dooctaconta-", "octacontadi-", and/or "octacontakaidi-" all mean 'eighty-two'.
The noun and adjective "duooctogintennary" means 'a group of 82' or 'a 82-year period'. The adjective and noun "duooctogintennial" means 'recurring every 82 years' or 'lasting 82 years'. The noun and adjective "duooctogintennium" means 'a period of 82 years'.

The **number 82** appears frequently throughout the film "Magnolia", written and directed by Paul Thomas Anderson, and starring Tom Cruise.

82nd Verse in Tagore's Gitanjali:
Time is endless in thy hands, my Lord. There is none to count thy minutes.
Days and nights pass and ages bloom and fade like flowers. Thou knowest how to wait.
Thy centuries follow each other perfecting a small wild flower.

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	We have no time to lose, and having no time we must scramble for a chances. We are too poor to be late. *And thus it is that time goes by while I give it to every querulous man who claims it, and thine altar is empty of all offerings to the last.* *At the end of the day I hasten in fear lest thy gate to be shut; but I find that yet there is time.*
83	is the number of zeroless squares that are composed of the digits 1 up to 9. - Beilier = 11 + 31 + 41 (sum of the first 3 primes ending with 1) it seems there are over 10^{83} elementary particles with non-zero mass in the known universe.
84	is a tetrahedral number: 84 = 1 + 3 + 6 + 10 + 15 + 21 + 28 (sum of the first 7 triangular numbers) is the highest order of a permutation on 14 elements. = 41 + 43 (sum of twin primes) = $4^1 + 4^2 + 4^3$ = $3^2 + 5^2 + 5^2 + 5^2$ (sum of cubes) 1000 + **84** = 1084 (one thousand eighty-four) is the smallest natural number whose name contains the five vowels a, e, i, o, u in order.
85	is the largest known *n* for which $1^2+2^2+3^2+...+n^2 = 1+2+3+...+m$ has a solution. 85/38 is a good approximation of $\sqrt{5}$. = $2^2 + 9^2$ = $6^2 + 7^2$ (sum of 2 consecutive squares) = $4^0 + 4^1 + 4^2 + 4^3$ (sum of powers of 4) $85^2 = 13^2 + 84^2 = 36^2 + 77^2$
86	is an happy number. is the largest known *n* for which 2^n contain NO zeros: $2^{\mathbf{86}}$ = 77,371,252,455,336,267,181,195,264 (26 digits). = 222 in base 6. = 20 + 21 + 22 + 23 = $3^2 + 4^2 + 5^2 + 6^2$ (sum of consecutive squares) used as a verb, to "eighty-six" means to "ignore" or "get rid of".

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87

is the sum of the squares of the first 4 primes:
$2^2 + 3^2 + 5^2 + 7^2$

= 3 x 29
= 12 + 13 + 14 + 15 + 16 +17
= 44 + 43 = $44^2 - 43^2$

By tradition, 87 is an unlucky score for cricketers (100-13).

88

is an hexadecagonal number and the only number known whose square has no isolated digits. In fact, its square has all its digits twice: $88^2 = 7744$
is an 'untouchable number'. An untouchable number is a positive integer that cannot be expressed as the sum of all the proper divisors of any number. The sequence of the first untouchable numbers is: 2, 5, 52, 88, 96, 120, 124, 146, 162, 188, 206, 210...

A piano has **88** keys.

= $23^2 - 21^2$
= $13^2 - 9^2$
= $4^2 + 6^2 + 6^2$ (sum of squares)
= $2^3 + 2^3 + 2^3 + 4^3$ (sum of cubes)
= 3 + 4 + 5 + ... + 11 + 12 + 13 (sum of consecutive integers)
= 17 + 19 + 23 + 29 (sum of consecutive primes)

It can be read the same upside down or when viewed in a mirror.

Eighty-eight, 11 letters long, is the longest number that is normally typed using strictly alternating hands (ignoring the hyphen).

88 is used in Chinese culture to mean "bye bye"; found in Chinese-language chat, text, SMS, IM. **88** is in fact pronounced in Chinese Mandarin language as "ba ba", simulating the sound of the English language farewell "bye bye".

The **8th** letter of the alphabet is 'H'. 8 two times signifies 'HH', shorthand for the Nazi greeting:"Heil Hitler". **88** is often found on hate group flyers, in both the greetings and closing comments of letters written by neo-Nazis, and in e-mail addresses.

89

is a prime and a Fibonacci number.
generates a cyclic number series where each term is the sum of the square digits of the previous number:

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89 - 145 - 42 - 20 - 4 - 16 - 37 - 58 - 89 - ...

The decimal expansion of the inverse of 89 (that is 1/89) is just the Fibonacci series, added together in an appropriate fashion: like a column of decimal fractions, arranged so the right most digit of the *n*th Fibonacci number is in the *n+1*th decimal place:

```
  .01
  .001
  .0002
  .00003
  .000005
  .0000008
  .00000013
  .000000021
  .0000000034
  .00000000055
  .000000000089
  .0000000000144
+       ...
----------------
  .01123595505...
```

As you can easily check, 1/89 = 0.01123595595...

89^2 = 39^2 + 80^2 (Pythagorean triple)

= 8^1 + 9^2
= 2^3 + 3^3 + 3^3 + 3^3

90

is a 'perfect unitary number', that is an integer which is the sum of its positive proper unitary divisors (excluding itself).

is the product of 2 consecutive integers. Such specific numbers are called 'oblong numbers' because they correspond to the area of an "oblong" rectangle with sides *n* and *n*+1. Thus, oblong numbers can also be expressed as *n*^{2} + *n*.

is the number of degrees in a right angle. Moreover, as a compass direction, 90 degrees corresponds to east.

= 1 x 2 x 3^2 x 5

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= 2 + 4 + 6 + 8 + 10 + 12 + 14 + 16 + 18 (sum of the first 9 consecutive even numbers)
= 16 + 17 + 18 + 19 + 20 = 21 + 22 + 23 + 24 (2 consecutive sums of consecutive numbers)
= 43 + 47 (sum of 2 successive primes)
= 7 + 11 + 13 + 17 + 19 + 23 (sum of consecutive primes)
= $9^1 + 9^2 = 10^2 - 10^1$
= $0^1 + 1^2 + 2^3 + 3^4$
= $2^2 + 3^2 + 4^2 + 5^2 + 6^2$ (sum of consecutive squares)
= $3^3 - 4^3 - 6^3 + 7^3$

Sturgeon's Law: "90% of everything is rubbish".

"Success is 10 percent inspiration and 90 percent perspiration", Thomas Alva Edison.

Some 'scientific' reviews state humans are "**90% water**" when in fact newborns have approx. 78%, 1-year-olds around 65%, adult men about 60%, and adult women around 55%. See **mythical numbers**.

"90-60-90" is considered as an ideal proportion for becoming a model (90-60-90 are the breast-waist-hips measurements in centimeters, these were the alleged measurements of Marilyn Monroe).

Bamboo can increase its height by 90 centimeters in just one day.

The Greek and Latin prefixes "enneaconta-", "nonaconta-", and "nonaginta-" respectively means 'ninety'.
"Nonagerian" is a person who is from 90 to 99 years old.
The compound noun and adjective "fourscore and ten" means 'ninety'.

In Italian, *pezzo da novanta* (piece of ninety) means 'big boss' or 'big shot'.
In Italy, when someone is or has been frightened by something unexpected, it is used to say *la paura fa novanta!* (the scare does ninety!).

NINETY in different languages (© G. Sarcone)
(Old English ***hund(e)nigontig***)

Indo-european | ***NEWNKOMT(A)** |
Sanskrit |नवति ***navati*** |
Greek, Attic | **ἐνενήκοντα *ENENÈKONTA*** |
Latin | **NONAGINTA** |

Italian ***novanta***; French ***quatre-vingt-dix*** (= 4 x 20 + 10; Swiss French and Belgian ***nonante***); Spanish and Portuguese ***noventa***; Catalan ***noranta***; Provençal ***nonanta***; Romanian ***nouăzeci***; Rumansh ***navonta***;

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	Sardinian ***nobànta.***
	Old Germanic | ***NIWUNTEHUND** |
	Dutch ***negentig***; German ***neunzig***; Danish ***halvfems*** (***halvfemsindstyve*** archaic = half a fifth times twenty); Norwegian ***nitti***; Swedish ***nittio***; Icelandic ***níutíu*** .
	Old Slavic | **DEVETIDESETJ** |
	Russian девяносто ***devyanosto***; Czech ***devadesát*** ; Slovenian ***devetdeset***; Polish ***dziewięćdziesiąt***.
	Chinese 九十 ***jiǔshí*** (complex form 玖拾).
	Ancient Egyptian [psḏy.w] ***pest'ayu***; Akkadian 𒐼𒌋𒌋 ***tišā*** .
	Arabic تسعون ***tis'un***; Hebrew תשעים ***teesh'eem***; Maltese: ***disgħin***; Amharic ***zètèna***.
	More languages Magyar ***kilencven***. Mayan ***lahunhokal*** (10 of 5 x 20). Nahuatl ***nāuhpōhualmahtlāctli***. Suomi ***yhdeksänkymmentä*** . Zulu ***amashumi ayisishiyagalolunye*** .
91	is a triangular, an hexagonal and also a square pyramidal number. is a semiprime and the smallest pseudoprime to base 3. = 1 + 2 + 3 + ... + 11 + 12 + 13 (sum of consecutive numbers) = $1^2 + 2^2 + 3^2 + 4^2 + 5^2 + 6^2$ (sum of consecutive squares) = $3^3 + 4^3$ = $6^3 - 5^3$ The traditional dimensions of the tatami mat (畳) are **91** x 182 cm. In 2006, **91** per cent of all known executions took place in China, Iran, Pakistan, Iraq, Sudan and the USA. Executions in 2006: China: 1,010+; Iran: 177; Pakistan: 82; Iraq: 65+; Sudan: 65+; USA: 53; Saudi Arabia: 39+; Yemen: 30+; Vietnam: 14; Kuwait: 10+; Somalia: 7+; Singapore: 5+; Egypt: 4+; Jordan: 4+; Japan: 4; Malaysia: 4; Indonesia: 3+; Bahrain: 3; Mongolia: 3; North Korea: 2; Syria: 2; Uganda: 2; Bangladesh: 1; Botswana: 1; Equatorial Guinea: 1. Note: '+' symbol indicates that the figure is a minimum one; the true figure may be higher due to state secrecy or a lack of available information.

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92	$= 3^2 + 3^2 + 5^2 + 7^2$ (sum of squares) is the number of different arrangements of 8 non-attacking Queens on an 8 by 8 chessboard (i.e. no two Queens should share the same row, column, or diagonal). Multiply 92 by 8, then that product by 8, then that product by 8, and so on... List the products one under the other, shifting the digits two places to the right as shown below. Continue indefinitely. Add. The sum converges to a string of 9s: 92 736 5888 47104 376832 3014656 24117248 192937984 9999999...
93	= 333 in base 5. With just 9 straight cuts a potato can be divided into 93 pieces. $= 2^2 + 5^2 + 8^2$ (sum of squares) = 13 + 14 + 15 + 16 + 17 + 18
94	is a 17-gonal number and a Smith number (a Smith number is a composite number the sum of whose digits is the sum of the digits of its prime factors excluding 1, here: 9 + 4 = 2 + 4 + 7). 94! - 1 is prime.
95	is the number of planar partitions of 10. $= 1^2 + 2^2 + 3^2 + 9^2$ (sum of squares) = 8 + 9 + 10 + 11 + 12 + 13 + 14 + 15 = 5 + 7 + 11 + 13 + 17 + 19 + 23 (sum of consecutive primes)
96	is the smallest number that can be written as the difference of 2 squares in 4 ways: $= 25^2 - 23^2 = 14^2 - 10^2$ $= 11^2 - 5^2 = 10^2 - 2^2$ $= 2^5 \times 3$ = 5! – 4!

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	= $2^3 + 2^3 + 2^3 + 2^3 + 4^3$ (sum of cubes) = $2^7 - 2^5$
97	is a permutable prime number (the number **97** and its symmetrical counterpart **79** are prime numbers). is a 4-dimensional centered cube prime (prime numbers of the form $n^4+(n+1)^4$). is the highest 2-digit prime number whose cube is zeroless. **97**/56 is a good approximation of $\sqrt{3}$. curiously, the numbers **97**, 907, 9007, 90007 and 900007 are all prime. $\mathbf{97}^2 = 65^2 + 72^2$ (Pythagorean triple) $\mathbf{97}^3 = 912{,}673 = (91 + 2 - 6 + 7 + 3)^3$ = $49^2 - 48^2 = 49 + 48$ = $2^3 + 2^3 + 3^3 + 3^3 + 3^3$ (sum of cubes) = $2^4 + 3^4$ (sum of 4th powers of consecutive primes) = 29 + 31 + 37 (sum of consecutive primes) = 4 x 4! + 4/4 (four 4's diversion) In the Gregorian calendar, there are **97** leap days every 4 hundred years. 0.0**97** is the average brain weight of a goldfish (in grams). **97** cm is the minimum height a visitor must be to ride the Kali River Rapids ride at Disney World. **97** is the number of ancient Pyramids existing in Egypt.
98	is the lowest number such that its first 5 multiples contain the digit 9: 0**9**8, 1**9**6, 2**9**4, 3**9**2, 4**9**0 = $1^4 + 2^4 + 3^4$ = 3 + 5 + 7 + 11 + 13 + 17 + 19 + 23 (sum of consecutive primes) **98**.14072356 is 9.9066 squared, and it used the digits 1, 2, 3, 4, 5, 6, 7, 8, 9, and 0 exactly once. 'Rachid' (also 'Rasheed', 'al Rashid', 'ar Rashid', or 'el Rachid'. From Arabic: راشد; "rightly guided") is the **98**th and next to last name of Allah.

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	98.6 degrees Fahrenheit is normal body temperature.
99	is a palindromic number and a Kaprekar number. $= 2^3 + 3^3 + 4^3$ = 4 + 5 + 6 + 7 + ... + 11 + 12 + 13 + 14 99/70 is a good approximation of $\sqrt{2}$. $99^2 = 9801$ and 98 + 01 = 99 **2** x 7^2 + 1 = **99** and **2** x 70^2 + 1 = $\mathbf{99}^2$ XCIX or IC? Rules regarding Roman numerals often state that C cannot be preceded by I or V, only by X. Thus, one should represent the number 'ninety-nine' as XCIX, not as the 'shortcut' IC. This 'problem' manifested in questions as to why 1999 was not written simply IMM or MIM as opposed to the virtually universal MCMXCIX. *Machoumearobilengmonoolemongametsoarobilengmonoolemong* means '99' in the language of the Bassoutos tribe. Riddle: What goes "99 bonk"? Answer: A Centipede with a wooden leg!
100 C 百	is the smallest square which is also the sum of 4 consecutive cubes. = 99 + 9/9 = 33 x 3 + 3/3 = 5 x 5 x 5 - 5 x 5 = (8 + (8 + 8)/8)(8 + (8 + 8)/8) = 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 x 9 = (1 + 2 - 3 - 4)(5 - 6 - 7 - 8 - 9) = 123 + 45 – 67 + 8 – 9 = 123 - 45 - 67 + 89 = 98 - 76 + 54 + 3 + 21 = $\sqrt[2]{9} + \sqrt[3]{64}$ + 15 + 78 (digits 1 to 9 were used once in the equalities above) = 56 + 34 + 90/(82-71) [by G. Sarcone] = 1/2 + 38/76 + 49 + 50 = 1/8 + 63/72 + 49 + 50 = 3/7 + 16/28 + 49 + 50 (the equalities above are **pandigital** that is all digits from 0 to 9 were used once) = $\mathbf{2}^6 + \mathbf{6}^2$

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$= 2^2 \times 5^2$
$= 5^3 - 5^2$
$= 1^3 + 2^3 + 3^3 + 4^3 = (1 + 2 + 3 + 4)^2$
$= 26^2 - 24^2 = 6^2 + 8^2$

$= 45 + 55$ (sum of consecutive triangular numbers)
$= 47 + 53$ (sum of consecutive primes)
$= 2 + 3 + 5 + 7 + 11 + 13 + 17 + 19 + 23$ (sum of consecutive primes)
$= 1 + 3 + 5 + 7 + 9 + 11 + 13 + 15 + 17 + 19$ (sum of consecutive odd number)

*Log*100 = 2 (base-10 logarithm)
*Ln*100 = 4.60517 (natural logarithm)

$2^{\mathbf{100}} \times \mathbf{100}^2 + 1$ is prime.

The human brain is a busy place. We each have about **100** billion neurons. Each of the 100 billion neurons actively communicates with 1000 - 10,000 others.
Each of the 100 billion neurons can be 'on' or 'off', and can generate $2^{100,000,000,000}$ (or roughly $10^{30,000,000,000}$) unique brain states. The number of the possible brain states is greater than the number of particles in the universe!

100 grades (units for angle measures) = 90° = (p/2) radians

100° Celsius is the boiling point of water.

The **100** billionth crayon made by Crayola was Periwinkle Blue.

Only one out of **one hundred** cacao flowers will become fertilized and grow into a cocoa pod!

Indo-european languages are classified under two major groups: the ***satam*** and the ***centum*** group. The terms come from the words for the number "**one hundred**" in representative languages of each group.
In the 'centum' group we find italic (*centum*), greek (*he-katon*), celtic (*cent*), and germanic languages (*hund-rad*); in the 'satam' group: indo-iranian (*satem*), baltic (*simtas*) and slavic languages (*suto*).

HUNDRED in different languages (© G. Sarcone)
(Old English ***hund*** also ***hundred*** or ***hundtêontig***)

Indo-european | ***(D)KOMTÔM** (ten tens) |
Sanskrit |शतम् ***s'atam*** |

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	Greek, Attic | **ἑκατόν *HE-KATON*** | Latin | **CENTUM** | Italian ***cento***; French, Catalan and Provençal ***cent***; Spanish ***cien*** (***ciento***); Portuguese ***cem*** (***cento***); Romanian ***o sută*** (< old Slavic *suto*); Rumansh ***tschien***; Sardinian ***céntu.*** Old Germanic | ***TEHUNTEHUND** also **HUN(D)TEHUNTIGUS** (ten tens) | Dutch ***honderd*** (< *hunda-rada* = hundred-number); German ***hundert***; Danish ***hundrede***; Norwegian ***hundre***; Swedish ***hundra***; Icelandic ***hundra ð***. Old Slavic | **SUTO** | Russian сто ***sto***; Czech, Slovenian and Polish ***sto***. Chinese (一)百 (***yī***) ***bǎi*** (complex form 壹佰). Ancient Egyptian [š.t] ***shewt***; Akkadian  ***meat***. Arabic مائة ***mi'a***; Hebrew מאה ***me'a***; Maltese: ***mija***; Amharic ***mèto***. More languages Magyar ***száz***. Mayan ***hokal*** (5 x 20). Nahuatl ***mācuīlpōhualli***. Suomi ***sata***. Zulu ***ikhulu***.
101	$101^2 = 20^2 + 99^2$ (Pythagorean triple) $= 5! - 4! + 3! - 2! + 1!$ $= 2^2 + 4^2 + 9^2$ $= 13 + 17 + 19 + 23 + 29$ (sum of consecutive primes) $= 51^2 - 50^2 = 51 + 50$ is the number of partitions of 13.
102	is the lowest number with 3 different digits. $= 1^2 + 4^2 + 6^2 + 7^2 = 2^2 + 3^2 + 5^2 + 8^2$ (curiously enough 1 + 4 + 6 + 7 = 2 + 3 + 5 + 8) $102^7 = 12^7 + 35^7 + 53^7 + 58^7 + 64^7 + 83^7 + 85^7 + 90^7$ $= 2 \times 3 \times 17$ $= 33 + 34 + 35$ (sum of consecutive numbers) $= 19 + 23 + 29 + 31$ (sum of consecutive primes)

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103	is the only odd prime number that divides the number of bones in a human body. $= 2^2 + 5^2 + 5^2 + 7^2$ is the smallest number other than 1 that is impossible to score with two darts.
104	is a divisor of $25^2 - 1$ $= 13 \times 2^3 = (13 - 2^3)^3 - 13 - 2^3$ $= 6 + 8 + 10 + 12 + 14 + 16 + 18 + 20$ (sum of consecutive even numbers) is the lowest known number of unit line segments that can exist in the plane, 4 touching at every vertex.
105	is a triangular and a 12-gonal number. is the largest number n known such that $n - 2^k$ is prime for k=>1 (Erdös conjecture). For instance: $105 - 2^1 = 103$; $105 - 2^2 = 101$; $105 - 2^3 = 97$; $105 - 2^4 = 89$; $105 - 2^5 = 73$; $105 - 2^6 = 41$ is the middle of the prime quadruplet: 101, 103, 107, 109. $= 1 + 2 + 3 + \ldots + 13 + 14 = 6 + 7 + 8 + \ldots + 14 + 15 =$ $= 12 + 13 + \ldots + 17 + 18 = 15 + 16 + 17 + 18 + 19 + 20 =$ $= 19 + 20 + 21 + 22 + 23 = 34 + 35 + 36 = 52 + 53$ (5 distinct possible sums of consecutive integers) $105^4 = 22^4 + 28^4 + 63^4 + 72^4 + 94^4$ By 70 years, an average person will have lost **105 pounds** of skin particles!
106	is the number of trees with 10 vertices. The sum of the first 106 digits of Pi is prime. - Sellers $= 25 + 26 + 27 + 28$ (sum of consecutive integers) $= 5^2 + 9^2 = 2^2 + 2^2 + 7^2 + 7^2$
107	is the exponent of a Mersenne prime. $= 2^3 + 2^3 + 3^3 + 4^3$ is the smallest positive integer requiring 6 syllables in English.

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108	is 3 hyperfactorial. can be written as the sum of a cube and a square ($a^3 + b^2$) in two ways ($3^3 + 9^2$ and $2^3 + 10^2$). This is the smallest number with this property. Every angle of a pentagon measures 108°. There are 108 different types of heptominoes. = 36 x 3 = 27 x 4 = 0^0 x 1^1 x 2^2 x 3^3 = $3^3 + 3^3 + 3^3 + 3^3 = 6^2 + 6^2 + 6^2$ = 12 x **9** and 1 + 0 + 8 = **9** = 8 + 9 + 10 + 11 + 12 + 13 + 14 + 15 + 16 = $3^2 + 5^2 + 5^2 + 7^2$ (sum of square primes) = 8 + 15 + 29 + 56 (sum of consecutive Tetranacci numbers) is a significant number in Buddhism. It represents the number of temptations that human beings face, which tie them to the Wheel of *samsara*. There are many religious elements related to this number - a bell is rung 108 times to bring in the New Year in Japan. is the number of beads in a Buddhist *Japa mala* (kind of rosary). They implement the following formula: 6 x 3 x 2 x 3 = 108 6 senses (sight, sound, smell, taste, touch, thought), 3 aspects of time (past, present, future), 2 conditions of heart (pure or impure), 3 possibilities of sentiment (like, dislike, indifference). is the sum of the numbers 4, 8, 15, 16, 23 and 42 that frequently appear throughout the TV series 'LOST'. The diameter of the sun is 108 times the diameter of the Earth.
109	is the smallest number which is palindromic in bases 5 and 9. Using only the coins in circulation in the UK, you can pay the sum of 30 pence in 109 different ways. The interior angle of a tetrahedron is **109**° 28'. Soap bubbles can only join each other at one or two angles: 109 or 120 degrees. No other angles are possible. = 31 + 37 + 41 (sum of consecutive primes) $109^2 = 60^2 + 91^2$ (Pythagorean triple)
110	is the smallest number that is the product of two different substrings. = $5^2 + 6^2 + 7^2$ (3 consecutive squares) = 2 x 55 = 5 x 22

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	= 1x**2** + 2x**2** + 3x**2** + ... + 8x**2** + 9x**2** + 10x**2** is also known as "eleventy" according to the number naming system invented by J. R. R. Tolkien.
111	is the smallest possible magic constant of a 3 x 3 magic square of distinct primes. 67 1 43 13 37 61 31 73 7 is the ninth number that stays the same when written upside down. is also the 'magic constant' of the *n*-Queens Problem for *n* = 6. = 3 x 37 = 12 x 9 + 3 = 16 + 17 + 18 + 19 + 20 + 21 = (1 + 2 + 3 + ... + 34 + 35 + 36) / 6 = $20^2 - 17^2 = 56^2 - 55^2$ (differences of squares) 111 x 111 = 12321 1111 x 1111 = 1234321 11111 x 11111 = 123454321 111111 x 111111 = 12345654321 1111111 x 1111111 = 1234567654321 11111111 x 11111111 = 123456787654321 111111111 x 111111111 = 12345678987654321 Zeno's Paradox The Greek hero Achilles and the turtle are running a foot race. The tortoise is given a head start of 100 meters. Achilles is catching up quickly - but the chelonian has moved a further 10 meters during this time. Achilles quickly pulls up to this short distance as well. But the turtle has also crawled 1 meter further... In this way, the turtle always advances a 10th of the distance that Achilles catches up. Can Achilles ever pass the turtle? Answer: Yes, he can! After **111** meters (after 111 1/9 meters, to be exact), Achilles will overtake the slow-moving animal. This paradox is based on a false assumption: it does not take into account that an infinite progression can have a finite sum.
112	is an abundant number and a heptagonal number. is the side of the smallest square that can be tiled with distinct integer-

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	sided squares. = 2^4 x 7
113	is a permutable prime. 355/**113** = 3.1415929... A good approximation of π. There are 13 consecutive divisible integers (non-primes) between 113 and 127. For Tintinologists 113, and not 57b as depicted in the comic book 'the Calculus Affair' by Hergé, is the number of the street where the house of the professor Alfredo Topolino is still located in Nyon. Actually, the current full address is: 113, route de Saint-Cergue, 1260 Nyon, Switzerland.
114	appears in the Padovan sequence, preceded by the terms 49, 65, 86 (it is the sum of the first two of these). = 222 in base 7. 114 = 19 x **6** and 1 + 1 + 4 = **6** The Muslim holy book the Quran is divided into 114 suras or chapters.
115	is a heptagonal pyramidal number and a lucky number. is the number of 8-vertex rooted trees. = 23 x (2 + 3) = 5! - 5
116	is a noncototient. is a value of *n* for which *n*!+1 is prime.
117	is the lowest value of the longest edge in a Heronian Tetrahedron. 117^2 +/- 2 are primes. = $11^3 - 2^3 = 5^3 - 2^3$
118	is the smallest even number not differing by 1 or a prime number from one of its prime neighbors. - S. Wagler is the lowest number which has 4 different partitions into 3 parts with the same product.
119	is the smallest 3-digit number having two prime digit permutations: 191 and 911.

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	= 17 + 19 + 23 + 29 + 31 (sum of consecutive primes)
120	is a triangular number. is the smallest number to appear 6 times in Pascal's triangle. = 5! 120 liters of water are needed to produce **1 glass of wine** (125 ml)!
121	is the only square known of the form $1+p+p^3+p^3+p^4$, where p is prime (121 = $3^0 + 3^1 + 3^2 + 3^3 + 3^4$). 121 = 38 + 83 (palindromic sum) = 5! + 1 = 37 + 41 + 43 (sum of 3 consecutive primes) = 11^2 = 1 + 3 + 5 + 7 + 9 + 11 + ... + 19 + 21 (sum of consecutive odd numbers) 1/**120** = 1/3 - 1/5 - 1/8
122	= 29 + 30 + 31 + 32 = 115 + (1 + 1 + 5) Palindromic curiosities with 122: 122 x 122 = 14884 and 48841 = 221 x 221 122 x 213 = 25986 and 68952 = 312 x 221
123	is a 42-gonal number. is the 10^{th} Lucas number. = $\sqrt{}(\sqrt{}(\sqrt{}((\sqrt{}4)/.4)^{4!}))) - \sqrt{}4$ = 18 + 19 + 20 + 21 + 22 + 23 (sum of consecutive numbers) 123 x $2^{123} - 1$ = 1.30796035 x 10^{39} = = 1307960347 8523572189 3734614731 5859062783 = = prime number **123** modulo **12** = **3** – G. Sarcone Curiosity: Write down any number (excluding the digit 0): 64861287124425928 Now, count up the number of even and odd digits, and the total number of digits it contains, as follows: 12 | 5 | 17

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	Then, string those 3 numbers together to make a new number, and perform the same operation on that: 12517 1 | 4 | 5 Keep iterating: 145 1 | 2 | 3 You will always arrive at **123**. 123 is the symbol of the Holy Trinity: Father, Son and Holy Spirit. The number 123 is used 3 times in the Bible.
124	is an untouchable number. is the smallest number such that its first 3 multiples contain the digit 2. = 5 + 7 + 11 + 13 + 17 + 19 + 23 + 29 (sum of 8 consecutive primes) = $2^7 - 2^2$ = $5^2 + 5^2 + 5^2 + 7^2$
125	is the smallest number which is both a sum of distinct prime squares and a prime cube, and is the only number known that contains all its proper divisors as proper substrings. = **125** = 5^{1+2} = $5^3 = 11^2 + 2^2$ *Quasquicentennial* is a period of 125 years. Origin: *quasqui-* one and a quarter (pseudo-Latin, appar. QUA(dri-) + (se)SQUI-) + CENTENNIAL.
126	is a film size used in easy-to-use cameras. = **126** = **6** x **21** = 2 x 3^2 x 7 = $_9C_4$ = 6 + 8 + 10 + 12 + 14 + 16 + 18 + 20 + 22 (sum of consecutive even numbers) = $2^7 - 2^1$ (difference of same powers) = $4^2 + 5^2 + 6^2 + 7^2$ (sum of consecutive squares)
127	is the 4th Mersenne prime and an **autothecal** number. = **127** = 2^7 - **1** = **-** **1** **+** 2^7 (an autothecal number is an integer *n* that can be expressed using all the digits of *n* once - in order from left to right - , and the main math operators)

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	= 1111111_2 is in fact the sum of seven powers of 2: = $2^0 + 2^1 + 2^2 + 2^3 + 2^4 + 2^5 + 2^6$ = $2^7 - 2^0$ = 3 + 5 + 7 + 11 + 13 + 17 + 19 + 23 + 29 (sum of consecutive primes) $2^{127} - 1$ is the 12th Mersenne prime number. You can arrange the number 127 as a pattern of concentric hexagons.
128	is the largest number which cannot be written as the sum of distinct squares. = 2^7 = 9 + 11 + 13 + 15 + 17 + 19 + 21 + 23 (sum of consecutive odd numbers)
129	is the smallest number that can be expressed as the sum of 3 squares in 4 ways.
130	is a noncototient. is the number of functions from 6 unlabeled points to themselves. = $1^2 + 2^2 + 5^2 + 10^2$ (sum of the squares of the first 4 divisors)
131	is a permutable prime, and the smallest palindromic prime with 3 primes embedded: 13, 3 and 31. = 41 + 43 + 47 (sum of consecutive primes)
132	is the 6th Catalan number. is the smallest number which is the sum of all of the 2-digit numbers that can be formed with its digits.
133	is prime, and its reversal (331) is also prime. is the smallest integer *n* for which the sum of the proper divisors of *n* divides phi(*n*). = $2^{2^2} + (2 \times 3)^2 + 3^{2^2}$ - G. Sarcone = $2^3 + 5^3$
134	$134^2 - 67^2 = 13467$ = ${}_8C_1 + {}_8C_3 + {}_8C_4$
135	= $1^1 + 3^2 + 5^3$

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	= (1 x 3 x 5)(1 + 3 +5)
136	is the sum of the cubes of the digits of the sum of the cubes of its digits: **136** = 2^3 + 4^3 + 4^3 1^3 + 3^3 + 6^3 = **244**
137	divides 11,111,111. 137 and 139 form a twin prime pair. it is possible to divide a pizza into 137 tiny pieces with just 17 straight cuts. is almost the reciprocal of the Sommerfeld's fine-structure constant (137.035999084 ± 0.000000051). is the maximum number of 7^{th} powers that are needed to sum to any arbitrarily large number. is the largest prime factor of 123,456,787,654,321. is the average brain weight of a baboon (in grams). = 4^2 + 11^2 = 2^7 + 2^3 + 2^0 = 10001 / 73 137^2 = 88^2 + 105^2 (Pythagorean triple) 137^2 = **18769**, but 133^2 = **17689**, 281^2 =**78961** and 286^2 = **81796**, four different squares having the same digits in the solution!
138	is the smallest possible product of 3 primes, one of which is the concatenation of the other two (2 x 3 x 23). is the sum of four consecutive primes: 29 + 31 + 37 + 41 138 + 138/2 = 207 and 0.**207**207207... x 666 = 138 'Untrioctium' is an unsynthesized chemical element with atomic number 138 and symbol Uto. is considered as an occult number and one of its factors (23) is also an occult number!
139	is the number of unlabeled topologies with 5 elements. is a prime and a happy number (see also number 86). To find out whether a number is 'happy' or not, you must square its digits, add them up, and go on doing this... If you eventually get to 1, you have a happy number. For instance: 1^2 + 3^2 + 9^2 = 91 9^2 + 1^2 = 82

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	$6^2 + 8^2 = 100$ $1^2 + 0^2 + 0^2 = \mathbf{1}$
140	is the smallest harmonic divisor number: 12 / (1/1 + 1/2 + 1/4 + 1/5 + 1/7 + 1/10 + 1/14 + 1/20 + 1/28 + 1/35 + 1/70 + 1/**140**) = 5 $= 1^2 + 2^2 + 3^2 + 4^2 + 5^2 + 6^2 + 7^2$ 140 liters of water are needed to produce **1 cup of coffee** (125 ml)!
141	is a Cullen number ($n \times 2^n + 1$ is a Cullen prime when $n = 141$). $= 2^3 + 2^3 + 5^3$ (sum of cubes)
142	is the number of 6-vertex planar graphs.
143	is the smallest quasi-Carmichael number in base 8. = 11 x 13 (product of twin primes) = 1001 / 7 $= 2^2 + 3^2 + 3^2 + 11^2$ $= - 3^4 - 4^4 - 5^4 - 6^4 + 7^4$ = 43 + 47 + 53 = 11 + 13 + 17 + 19 + 23 + 29 + 31 (sum of consecutive primes)
144	is the only square in the Fibonacci sequence (apart from 1). Moreover, it is the 12th term of the Fibonacci sequence. Reversing 12 and 144 in the equality $12^2 = 144$ gives $441 = 21^2$. **144** = (**1** + **4**)! + **4**! (autothecal number) $144^5 = 27^5 + 84^5 + 110^5 + 135^5$ = 71 + 73 (sum of consecutive primes) = 3! x 4! = 4! + 5! $= 4^2 + 2 \times 8^2$ $= 6^2 + 3 \times 6^2$ One of the largest numbers, that is not a power of 10, that has a specific name: 'gross' (= dozen dozen).

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145	is a centered square number and also a pentagonal number. is a product of 2 distinct primes: 5 x 29 = 1! + 4! + 5! = $4^3 + 3^4$ = $12^2 + 1^2 = 8^2 + 9^2$ (sum of squares) = $(1^2 + 2^2)(2^2 + 5^2)$ = $3^3 + 3^3 + 3^3 + 4^3$ (sum of cubes)
146	is an octahedral number. An octahedral number is of the form $(2n^3 + n)/3$. = 222 in base 8 = $5^2 + 11^2$ = $(1^2 + 1^2)(3^2 + 8^2)$ $146^2 + 1$ is prime
147	is an odd nonprime number divisible by exactly 3 primes: = 3 x 7 x 7 is the number of sided 6-hexes.
148	is an heptagonal number. is the number of 6-vertex perfect graphs. = $3^2 + 3^2 + 3^2 + 11^2 = 5^2 + 5^2 + 7^2 + 7^2$ (sum of squares) = $2^2 + 12^2$ = $(1^2 + 1^2)(5^2 + 7^2)$
149	is the concatenation of the first 3 positive squares. = $6^2 + 7^2 + 8^2$ (sum of consecutive squares) = $2^3 + 2^3 + 2^3 + 5^3$ (sum of cubes) = 23 + 43 + 83 (sum of 3 primes which are not sum of two squares)
150 **CL**	is the smallest n for which $n + n$ times the n^{th} prime is square. has no prime factors larger than 5. is the longest interval between consecutive twin prime pairs less than a thousand. It occurs between [659, 661] and [809, 811]. sin(**150**°) = cos(30°) = cos(60°) = cos(300°) = 0.5 cos(**150**°) = sin(240°) = sin(300°) = cos(210°) = $-3^{1/2}/2$

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	= 7 + 11 + 13 + 17 + 19 + 23 + 29 + 31 (sum of consecutive primes) **Dunbar's number** is a theoretical value with implications in sociology and anthropology. It is actually a theoretical cognitive limit to the number of people with whom one can maintain stable social relationships. No precise value has been proposed for Dunbar's number, but a commonly cited approximation is **150.** *Sesquicentennial* is a period of 150 years.
151	is a palindromic prime. is the total number of types of Pokémon in the original set.
152	= 2^3 x 19 = 12 + 14 + 16 + 18 + 20 + 22 + 24 + 26
153	is a triangular number: = 1 + 2 + 3 + 4 + 5 + ... + 15 + 16 + 17 is also an hexagonal number and and one of six known truncated triangular numbers. = 3^2 x 17 = $1^3 + 5^3 + 3^3$ (is the smallest number that is the sum of powers of its own digits, where the power is the same as the number of digits. The next few numbers with this property are: 370, 371, 407, 1634...) = 1! + 2! + 3! + 4! + 5! = $77^2 - 76^2$ 153 = 3 x 51 153 / 999 = 0.**153**153153... (cyclic number) The sum of digits of 153 is a perfect square: 1 + 5 + 3 = 9 = 3^2 The sum of aliquot divisors of 153 is also a perfect square: 1 + 3 + 9 + 17 + 51 = 81 = 9^2 Phil Kohn discovered an interesting property of **153**: Start with any integer that is a multiple of 3. Sum the cubes of its digits to obtain a second number. Then keep repeating this procedure. In a finite number of steps you will arrive at the dead end of **153**. Let's try with the number 162: $1^3 + 6^3 + 2^3 = 225$; $2^3 + 2^3 + 5^3 = 141$; $1^3 + 4^3 + 1^3 = 66$; $6^3 + 6^3 = 432$; $4^3 + 3^3 + 2^3 = 99$; $9^3 + 9^3 = 1458$;

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	$1^3 + 4^3 + 5^3 + 8^3 = 702$; $7^3 + 2^3 = 351$; *et voila* $3^3 + 5^3 + 1^3 =$ **153** On adding the number 153 to its reverse we obtain 504, whose square is the smallest square which can be expressed as the product of two different numbers which are reverse of one another: 153 + 351 = 504, and 504^2 = **288** x **882** 153 + 315 + 531 = 351 + 135 + 513 "Ascendit Simon Petrus et traxit rete in terram plenum magnis piscibus, **centum quinquaginta trium**". (Iohannem, 21:11) *The net which Simon drew out of the sea at Tiberias contained **153** fishes* (Holy Bible, John 21:11).
154	is a nonagonal number and the smallest integer which is palindromic in bases 6, 8, and 9. = 2 x 7 x 11 = $2^2 + 2^2 + 5^2 + 11^2$ (sum of squares)
155	is the sum of the primes between its smallest and largest prime factor. = $3^3 + 4^3 + 4^3$ (sum of cubes) = $5^1 + 5^2 + 5^3$ = $2^2 + 3! + 5! + 7^2 - 11 - 13$
156	is the number of 6-vertex graphs. is the number of strikes a clock will strike in the course of a day. The equalities below are written with all digits from 1 to 9 once: 2 x 78 = 156 = 39 x 4 1/**156** = 1/3 - 1/4 - 1/13
157	is a prime number and the largest known number whose square contains the same digits as its successor: 157^2 = 24649 and 158^2 = 24964 **CIVIL** is the anagram of the Roman numeral CLVII (157).
158	is the number of planar partitions of 11.

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	= 3 + 5 + 7 + 11 + 13 + 17 + 19 + 23 + 29 + 31 (sum of consecutive odd numbers)
159	is the number of isomers of $C_{11}H_{24}$. = 47 + 53 + 59 (sum of consecutive primes) = $2^2 + 3^2 + 5^2 + 11^2$ (sum of squares) is the lowest number that it is impossible to finish on with 3 darts.
160	is the number of 9-iamonds. = $2^3 + 3^3 + 5^3$ (sum of cubes) = 2 + 3 + 5 + 7 + 11 + 13 + 17 + 19 + 23 + 29 + 31 (sum of consecutive primes)
161	is a hexagonal pyramidal number. When 161 is rotated 180 degrees it becomes a palindromic prime.
162	= 2 x 3^4 ≈ 100 x Golden Number
163	is a lucky prime and the largest Heegner Number. ≈ 69/(π - e) ≈ $2^5 \cdot \log_e 163$ = $2^3 + 3^3 + 4^3 + 4^3$ (sum of cubes) = 1 + 2 x 3^4
164	= 2^2 x 41 = $3^2 + 3^2 + 5^2 + 11^2$ (sum of squares)
165	= $_{11}C_3 = {}_{11}C_8$ = (9 x 10 x 11) / 6
166	is the number of monotone Boolean functions of 4 variables. 166!-1 is a factorial minus one prime.
167	is a prime number. 167 x 701 = 117067 (the product has the same digits as its factors)

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	In backgammon, starting from the initial position, each player has a pip count of 167.
168	n^7 - n is divisible by 168 when n is odd. = 37 + 41 + 43 + 47 (sum of consecutive primes) There are 168 hours in a week. Many Chinese products bear price tags with the number 168 on them, because 168 sounds like the Chinese expression, "lucky all the way".
169	is a square whose digits are non-decreasing. = 13^2 = (16 + 9) + (16 x 9) $\sqrt{}$169 = 19 - 6
170	is the smallest number n for which phi(n) and sigma(n) are both square.
171	is a palindromic and triangular number. = $2^3 + 2^3 + 3^3 + 4^3 + 4^3$ (sum of cubes) 10^{171} - 171 is prime. - Broadhurst & Titanix
172	= 444 in base 6. = 1 x 2^2 x 43 is the sum of 2 consecutive primes: 83 + 89 = $3^3 + 3^3 + 3^3 + 3^3 + 4^3$ (sum of cubes)
173	is a prime number. is the sum of 3 consecutive primes: 53 + 59 + 61 = $2^2 + 13^2$ To predict the eclipses, the ancient Siberians used the strings of dots: {53+33}+{30}+{23}+{16}+{7+9+1+1} which are equal to 173, and the periods of time (24 hours) -- 86, 30, 23, 16, 7, 9, 1, 1 -- are noteworthy for the calculations. It takes around 173 years for all the water in Lake Superior to be changed.
174	is a 59-gonal number = 2 x 3 x 29

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	$= 5^2 + 6^2 + 7^2 + 8^2$
175	is the smallest number n>1 such that n^6+6 is prime. $= 1^1 + 7^2 + 5^3$ *Demisemiseptcentennial* or *quartoseptcentennial* is a period of 175 years.
176	is happy number and an octagonal and pentagonal number. is the number of possible partitions of the number 15. $= 2^3 + 2^3 + 2^3 + 3^3 + 5^3$ (sum of cubes)
177	is a 60-gonal number. is the number of 7-edge graphs. is the 'magic constant' of the Chen prime magic square: Chen's Magic Square 17 89 71 113 59 5 47 29 101 $= 2 + 3 + 5 + 7 + 11 + 13 + 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47$ (sum of the first 15 consecutive primes)
178	is a 31-gonal number. Strangely enough, 178 and 196 are related... In fact, 178 has a square with the same digits as 196: $178^2 = 31,684$ $196^2 = 38,416$ 178 has also a cube with the same digits as 196: $178^3 = 5,639,752$ $196^3 = 7,529,536$ $= 2^2 + 2^2 + 7^2 + 11^2$ (sum of consecutive square primes)
179	is a prime number. $3^2 + 691^2 + 2293^2 = 179^3$
180	is the total number of degrees in a triangle. arctan1 + arctan2 + arctan3 = **180**

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181	is a strobogrammatic prime. It can be read the same upside down or when viewed in a mirror. $181^2 = 105^3 - 104^3$ (solution of $x^2 = y^3 - z^3$)
182	is a palindromic and undulating number, if written in the ternary, the negaternary, or the nonary numeral systems. $= 3^3 + 3^3 + 4^3 + 43$ (sum of cubes) $= 14^2 - 14$
183	is a central polygonal number, $n^2 - n + 1$, where $n = 14$. is a number that cannot be written as a sum of 3 squares. is the smallest integer n so that n concatenated with n+1 is square: **183184** $= 428^2$ is 111 in base 13. $= 32^2 - 29^2 = 92^2 - 91^2$ (difference of squares) $= 2^2 + 3^2 + 7^2 + 11^2$ (sum of 4 distinct square primes) λοπαδοτεμαχοσελαχογαλεοκρανιολειψανοδριμυποτριμματο- σιλφιοκαραβομελιτοκατακεχυμενοκιχλεπικοσσυφοφαττο- περιστεραλεκτρυονοπτοκεφαλλιοκιγκλοπελειολαγῳοσιραιο- βαφητραγανοπτερύγων transliterated as: *Lopadotemachoselachogaleokranioleipsanodrimhypo* *trimmatosilphioparaomelitokatakechymenokichlepi* *kossyphophattoperisteralektryonoptekephalliokigklo* *peleiolagoiosiraiobaphetraganopterygon* is a **183-letter** Greek word coined by Aristophanes in Ἐκκλησιάζουσαι (*Assemblywomen*); and it represents a fictional dish created with the ingredients which make up its name (all kinds of dainties: sauces, fish, poultry and other meat). It is also cited as the longest ancient Greek word ever written. the **183th** day of the year (July 2) is the midpoint of a non-leap year (because there are exactly 182 days before and 182 days after).
184	is a Kaprekar constant in base 3. is the largest number of regions into which a plane can be divided by 14 circles. 1 / 184 = 0.005$\overline{\mathbf{434782608695652173913 0}}$... (the reciprocal of 184 contains a 22-digit long repeating numeral pattern)

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	= 181 + 3 = 179 + 5 = 173 + 11 = 167 + 17 = 137 + 47 = 131 + 53 = 113 + 71 = 101 + 83 (sum of 8 distinct pair of primes: ref. Godlbach conjecture) = 2^3 x 23 (concatenation of the first 2 primes) = 41 + 43 + 47 + 53 (sum of consecutive primes) = $25^2 - 21^2 = 47^2 - 45^2$ (difference of squares)
185	= $13^2 + 4^2 = 11^2 + 8^2$ = 5 x 37 1/185 = 0.00**54**0**54**0**54**0**54**... 185 x 3/5 = 111
186	is a 14-gonal number and a 63-gonal number. = 89 + 97 (sum of consecutive primes) = $2^2 + 2^2 + 3^2 + 13^2$ (sum of squares)
187	is the lowest quasi-Carmichael number in base 7. = 59 + 61 + 67 (sum of 3 consecutive primes) = 7 + 11 + 13 + 17 + 19 + 23 + 29 + 31 + 37 (sum of 9 consecutive primes) = $2^3 + 3^3 + 3^3 + 5^3$ (sum of cubes) The 189th century would be the first to contain as few as five prime years: 18803, 18839, 18859, 18869 and 18899...
188	is the number of semigroups of order 4. = $2^2 + 3^2 + 7^2 + 11^2$ (sum of squares)
189	is a Kaprekar constant in base 2. = $4^3 + 5^3 = (-3)^3 + 6^3$ (sum of cubes)
190	is is a triangular number, a hexagonal number. is the largest number with the property that it and its distinct prime factors are palindromic in Roman numerals: 190 = CXC = II · V · XIX - Thoms = $4^2 + 5^2 + 6^2 + 7^2 + 8^2$ (sum of consecutive squares) = 1 + 2 + 3 + ... + 17 + 18 + 19 (sum of consecutive numbers)

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191	is a palindromic prime. By adding up the values of the common US coins, we obtain 191 cents (silver dollar + half dollar + quarter + dime + nickle + penny).
192	is the smallest number with 14 divisors. $= 5 + 7 + 11 + 13 + 17 + 19 + 23 + 29 + 31 + 37$ (sum of consecutive primes) $= 2^8 - 2^6 = 4^4 - 4^3$
193	is a twin prime with 191, and the only known odd prime p for which 2 is not a primitive root of $4p^2+1$. A scalene triangle having sides **193**, 194 and 195 (consecutive integers) has an area that is also an integer (16296 units^2). Such triangles whose sidelengths and area are all integers are called Heronian triangles. $= (9^3 - 7^3) / 2$
194	is the smallest number that can be written as the sum of 3 squares in 5 different ways. is the product of two distinct primes: 2 x 97 $= 7^2 + 8^2 + 9^2$ (sum of consecutive squares)
195	is the smallest number that can be expressed as a sum of distinct squares in 16 different ways. is the lowest value of n such that ${}_{2n}C_n$ is divisible by n^2.
196	is the lowest number that is not known to reach a palindrome when repeatedly added to its reverse. For example, let's begin with the number 7,326... If we reverse it's digits and add it to the original number, we get 13,563. Like so: 7326 + 6237 = 13563 Since this new number is not a palindrome, we can continue the reverse-and-add process and it may become one: 7326 + 6237 = 13563 13563 + 36531 = 50094 50094 + 49005 = 99099 is a palindrome. Most of the time only a few iterations (less than 10) are needed before the number becomes a palindrome. In the case of 196, it is believed that it will never become a palindrome, no matter how many iterations are performed on the number.

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	= 2^2 x 7^2
197	is the only 3-digit Keith number. = $2^3 + 4^3 + 5^3$ (sum of cubes) = $99^2 - 98^2$
198	is a 67-gonal number and a practical number. is between the twin prime pair of 197 and 199. ***abc*** - ***cba*** = 198 (replace each letter with a digit so that *a*=n, *b*=n-1 and *c*=n-2. E.g. 765 - 567 = 198) = 11 + 99 + 88 = (100 – 1) (100 – 98) = 55% of 360 The IKEA catalog has a print run of **198 million** copies in 27 languages and distributed in 35 countries (2009).
199	is an 'invertible prime' (turned upside down, a different prime is formed: 661). is also an 'absolute' or 'permutable prime', meaning that 919 and 991 are primes as well! is the 11^{th} Lucas number. Adding 210 to **199** over and over again, you get 8 more primes that can be arranged together into a 3x3 magic square: 1669 | **199** | 1249 619 | 1039 | 1459 829 | 1879 | 409 = $2^2 + 5^2 + 7^2 + 11^2$ (sum of consecutive square primes) = $3^2 + 4^2 + 5^2 + 6^2 + 7^2 + 8^2$ (sum of consecutive squares) = 61 + 67 + 71 (sum of 3 consecutive primes) = 31 + 37 + 41 + 43 + 47 (sum of 5 consecutive primes)
200	appears in the Padovan sequence. = $66^3 – 536^2$

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	= $2^3 \times 5^3$ = $7^0 + 7^1 + 7^2 + 7^3$ = $2^3 + 4^3 + 4^3 + 4^3$ (sum of cubes) $11113^2 - \mathbf{200}^2 = 11313 \times 10913 = 123{,}458{,}769$ and the reverse of the digits of all of the above numbers (**200** excepted) have the same property: $31111^2 - \mathbf{200}^2 = 31311 \times 30911 = 967{,}854{,}321$ The number 200, according to Bullinger's study of biblical literature, signifies 'insufficiency'. The word 200 (ducenti) has a double meaning in Latin: "two hundred" and/or "to the leading man" (dative case of 'ducens', *leading*). - G. Sarcone 200 liters of water are needed to produce **1 glass of milk** (200 ml)! *Bicentennial* is a period of 200 years.

Number list: *lista dei numeri* (it), *liste des nombres* (fr), *lista de números* (es, por), *Liste besonderer Zahlen* (ger), *getallen en getalverzamelingen* (du), *seznam čísel* (cz), 數表 (ch), 数の一覧 (jap), *список чисел* (ru), *שמות מספרים* (he).
→ 0-6 | → 7-12 | → 13-23 | → 24-69 | → 70-200 | → **201-684** | → 5H0P

201	is a centered icosagonal number, and a Kaprekar constant in base 4. $201n + 2$ are prime, for n = 14, 15, and 16. - *Patterson* 201 x 627 = 126027 (the product has the same digits as its factors) = 3 x 67
202	= 2 x 101 $= (2 + 3 + 5 + 7)^2 - (2^2 + 3^2 + 5^2 + 7^2)$ - *Trotter & De Geest* = 43 + 47 + 53 + 59 (sum of 4 consecutive primes) 202 x 11 = 2222
203	is the sixth Bell number. $203^2 + 203^0 + 203^3$ is prime.
204	is a square pyramidal number. is the number of different squares you can find in a chessboard.

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	= 101 + 103 (sum of twin primes) = $1^2 + 2^2 + 3^2 + 4^2 + 5^2 + 6^2 + 7^2 + 8^2$ (sum of consecutive squares) = **20** + 19 + 18 + ... + 6 + 5 + **4** (reverse sum of consecutive integers in the number) -- *Matthew Goers* = 23 + 29 + 31 + 37 + 41 + 43 (sum of consecutive primes) = 2^2 x 3 x 17 $204^2 = 23^3 + 24^3 + 25^3$
205	is the largest number that cannot be written as the sum of distinct primes of the form $6n+1$. = $2^3 + 2^3 + 4^3 + 5^3$ (sum of cubes)
206	is the smallest number whose English name contains all five vowels exactly once (twO hUndrEd And sIx). = $1^3 + 2^3 + 2^3 + 4^3 + 5^3$ (sum of consecutive cubes)
207	is the smallest possible sum of primes which are formed using each of the digits 1 through 9: 207 = 89 + 61 + 43 + 7 + 5 + 2 - *Gupta* curiously, the first half of the digits of 207^4 are a permutation of the last half of the digits: **18360**36801. = $3^2 \cdot 23$ = $2^2 + 3^2 + 5^2 + 13^2$ **CIVIC** is a palindrome and the anagram of the Roman numeral CCVII (**207**).
208	is a tetranacci number. = 2^4 x 13 = $2^2 + 3^2 + 5^2 + 7^2 + 11^2$ - *Sladcik* = $2^3 + 2^3 + 4^3 + 4^3 + 4^3$
209	is a Harshad number and the smallest quasi-Carmichael number in base 9. the curve $4^2x^2 - y^2 = 209$ contains the 'prime points' (3, 13), (5, 29), (7, 43), and (13, 83) - *Buddenhagen* 88 + **209** = 297 and 88,**209** = 297^2 (see number 494 furtherbelow)

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	= $1^6 + 2^5 + 3^4 + 4^3 + 5^2 + 6^1$ - posted by *Jim O'Donohoe* = $3^3 + 3^3 + 3^3 + 4^3 + 4^3$ = 11 · 19
210	is the product of the first 4 primes: = 2 x 3 x 5 x 7 is a triangular number. = 1 + 2 + 3 + 4 + ... + 17 + 18 + 19 + 20
211	is a Chen prime. = $3^5 - 2^5$ = 67 + 71 + 73 (sum of consecutive primes)
212	is the lowest even 3-digit integer, ABC, such that (ABC)/(A x B x B) is also prime. curiously, 4 out of 5 digits of 212^2 are the same (44944). 212° Fahrenheit = 100° Celsius (the boiling point of water) = 2^2 x 53
213	= 3 x 71 = $2^3 + 2^3 + 2^3 + 4^3 + 5^3$
214	is the number of bones in a human skeleton. is the number of Chinese radicals (main characters) essential for locating words in Chinese dictionaries. = 2 x 107 = $2^3 + 3^3 + 3^3 + 3^3 + 5^3$
215	= $6^3 + (-1)^3 = 6^3 - 1^3$ (sum and difference of cubes) - *G. Sarcone* = 555 in base 6
216	is the smallest cube which can be written as the sum of 3 cubes: $3^3 + 4^3 + 5^3$ = **216** = $\mathbf{6^{1+2}}$ = **216** = $\sqrt{[(2+1)!]^6}$ (autothecal number) = **21** + 20 + 19 + ... + 8 + 7 + **6** (reverse sum of consecutive integers in the number) -- *Matthew Goers* Is the 'constant' of the smallest multiplication magic square:

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	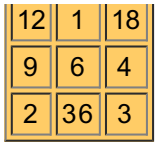
217	is a Gaglütz number: 21**7** modulo **7**12 = 21**7** - G. Sarcone is a centered hexagonal number, and a Kaprekar constant in base 2. = 1 + 2 + 4 + 5 + 10 + 20 + 25 + 50 + 100 (sum of the factors of the number 100) = $1^3 + 6^3 = (-8)^3 + 9^3$ (sum of cubes)
218	is a nontotient number, and the number of 4-vertex digraphs. = $7^3 + 13^3$ (sum of cubes)
219	is a semiprime number, and the number of space groups, not including mirror images. = $3^3 + 4^3 + 4^3 + 4^3$
220	is the smallest amicable number. = 47 + 53 + 59 + 61 (sum of consecutive primes)
221	is the number of 7-vertex Hamiltonian planar graphs. **221**b, Baker Street, London, England is the address of Sherlock Holmes. = $10^2 + 11^2$ = 13 x 17 is the sum of 5 consecutive primes: 37 + 41 + 43 + 47 + 53 is also the sum of 9 consecutive primes: 11 + 13 + 17 + 19 + 23 + 29 + 31 + 37 + 41
222	is the number of lattices on 10 unlabeled nodes. = 2 x 3 x 37 = 109 + 113 (sum of consecutive primes)
223	is a long prime. the numbers of the series 23, **223**, 2223, 22223, 222223, 2222223, 22222223, 222222223, 2222222223... (in the preceding list only 23, 223, and 22222223 are primes) are formed with the formula: (2 x 10^n +

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	7)/9 = 71 + 73 + 79 (sum of consecutive primes) = 19 + 23 + 29 + 31 + 37 + 41 + 43
224	= 2^5 x 7 = $2^3 + 3^3 + 4^3 + 5^3$ (sum of consecutive cubes) = $2^8 - 2^5$
225	is an octagonal square number. = $113^2 - 112^2$ = $(1 + 2 + 3 + 4 + 5)^2$ = $1^3 + 2^3 + 3^3 + 4^3 + 5^3$ = 3^2 x 5^2 = 15 x 15
226	is a centered pentagonal number. = 2 x 113 = $2(7^2 + 8^2)$
227	is a prime number and twin prime with 229, it is also the number of 8-edge connected planar graphs. = 2 + 3 + 5 + 7 + (2 x 3 x 5 x 7) [sum of the sum and the product of the first 4 primes] = $2^3 + 3^3 + 4^3 + 4^3 + 4^3$ $227^n = 233^n + 239^n - 251^n - 257^n + 263^n$, with n = 1, 2 $2^{227} - 1$ is the smallest composite Mersenne number about which we don't know the divisors.
228	is 77-gonal number and an abundant number. = 444 in base 7. = 2^2 x 3 x 19 = 29 + 31 + 37 + 41 + 43 + 47 (sum of consecutive primes) = 7 + 11 + 13 + 17 + 19 + 23 + 29 + 31 + 37 + 41 (sum of 10 consecutive primes)
229	is prime, and twin prime with 227. is also the smallest prime which remains prime when added to its reverse.

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	is the number of different projective configurations, in which 12 points and 12 lines meet with 3 lines through each of the points and 3 points on each of the lines. = 126(2/6 + 3/7 + 4/8 + 5/9) = $4^4 - 3^3$
230	is the number of space groups, describing all possible crystal symmetries. = $6^2 + 7^2 + 8^2 + 9^2$ (sum of consecutive squares)
231	is a triangular number: 231 = 1 + 2 + 3 + ... + 19 + 20 + 21 is also an hexagonal and an octahedral number. is the number of partitions of 16. is exactly the number of cubic inches in an American gallon. The fact that this is exact (by definition) makes it useful for deriving other conversion constants, for instance, that there are 12 x 12 x 12/231 = 7.4805194... gallons in one cubic foot. This removes some of the uncertainties of rounding. -- *Charles Gardner, Salford, USA.* = $2^2 + 3^2 + 7^2 + 13^2$ (sum of prime squares) 1/**231** = 3/7 - 1/3 - 1/11
232	is decagonal number. is the number of 7 by 7 symmetric permutation matrices. = 2^3 x 29 = $2^4 + 6^3 = 2^3(2^2 + 5^2) = 2(4^2 + 10^2)$
233	is a Fibonacci prime. If divided by the Fibonacci number 144, it approximates the golden ratio! 233 can be the hypotenuse of a Pythagorean triangle; in fact it is also the smallest 3-digit number such that it and its neighbors (232, 234) can be written as a sum of 2 squares. = 5 + 7 + 11 + 13 + 17 + 19 + 23 + 29 + 31 + 37 + 41 (sum of consecutive primes)
234	= 2 x 3^2 x 13 = $3^5 - 3^2$ = $3^2 + 15^2$

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	= $2(6^2 + 9^2)$
235	is a centered triangular number (= [3xn^2 + 3xn + 2] / 2, n = 12). is the smallest integer whose first two digits are different primes such that their sum equals the 3rd digit. is the number of trees with 11 vertices. = 73 + 79 + 83 (sum of consecutive primes) **235** lunar months made up almost exactly **19** solar years (Metonic cycle: 19 tropical years ≈ 235 synodic months ≈ 6939.6... days)
236	the product of the digits of 236 is the reverse of the sum of its prime factors: 2 x 3 x 6 = **36** and 2 + 2 + 59 = **63** = 2^2 x 59 = 3 + 5 + 7 + 11 + 13 + 17 + 19 + 23 + 29 + 31 + 37 + 41 (sum of first consecutive primes)
237	is the smallest 3-digit number with its digits being 3 different primes that is not prime nor any of the permutations of its digits represent a prime number. is the lowest number such that its first 3 multiples contain the digit 7.  'Room 237' plays a relevant role in the Stanley Kubrick film "The Shining". Researchers count 237 reasons to have sex!
238	= 2 x 7 x 17 = 2 + 3 + 5 + 7 + 11 + 13 + 17 + 19 + 23 + 29 + 31 + 37 + 41 (sum of the first 13 primes)
239	is the largest number that cannot be written as a sum of 8 or fewer cubes: 239 = 5^3 + 3 x 3^3 + 4 x 2^3 + 1^3 (= 9 cubes) 239 = 2 x 4^3 + 4 x 3^3 + 3 x 1^3 (= 9 cubes) ... etc. 239^2 = 2 x 13^4 - 1 This prime number appears in one of the earliest known geometrically converging formulas for computing π:

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	$\pi/4 = 4 \arctan(1/5) - \arctan(1/239)$
240	is the smallest number with 20 divisors. $n^x - n^{x-4}$ is divisible by 240 if x > 7. The maximum number of divisors for any integer less than 1,000,000 is **240**. Only 5 numbers less than 1,000,000 have 240 divisors: 720720, 831600, 942480, 982800, 997920. A cholesterol level of 240 and above is considered high risk.
241	is a prime number. $= (15 + 4i)(15 - 4i)$ $= (2^8 + 4^8 + 1^8) / (2^4 + 4^4 + 1^4)$ can be represented as: $241 = 4^2 + 15^2 = 3^2 + 6^2 + 14^2 = 6^2 + 6^2 + 13^2$ is the sum of 170 and its reverse: 241 = 170 + 071 $241^2 = 29281^2 + 50160^2$ $241^2 = 29041^2 - 29040^2$ (Pythagorean triples)
242	is the smallest number *n* where *n* through *n*+3 are all products of 3 or more primes. = 11 x 22 = 59 + 60 + 61 + 62 = 44 + 55 + 66 + 77
243	is the sum of five consecutive primes: 41 + 43 + 47 + 53 + 59 $= 3^5$ = 100 000 in base 3 1 / 243 = 0.00**4**11**5**22**6**33**7**44**8**55**9**...
244	is a nontotient, and the smallest number (except 2) that can be written as the sum of 2 squares or the sum of 2 fifth powers. $= 1^3 + 3^3 + 6^3$ (sum of cubes)
245	is a stella octangula number. $= 5 \times 7^2$ $= 8^2 + 9^2 + 10^2$ (sum of consecutive squares)

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246	$= {}_9C_2 + {}_9C_4 + {}_9C_6$ $= 2 \times 3 \times 41$ $= 3^3 + 3^3 + 4^3 + 4^3 + 4^3$ (sum of cubes)
247	is the smallest possible difference between 2 integers that together contain each digit exactly once. its digits sum to its smallest prime factor: $247 = 13 \times 19$ and $2 + 4 + 7 = 13$
248	$= 2^8 - 2^3$
249	$= 3 \times 83$
250	$= 2 \times 5^3$
251	is the smallest number that can be written as the sum of 3 cubes in 2 ways: $= 2^3 + 3^3 + 6^3 = 1^3 + 5^3 + 5^3$
252	is the 5^{th} central binomial coefficient. $= (10 \times 9 \times 8 \times 7 \times 6)/(5 \times 4 \times 3 \times 2 \times 1)$ $252 \times 252 = 441 \times 144$ (palindromic equality) If you flip a coin 10 times in a row, there are exactly 252 ways in which it can turn out that you get exactly 5 heads and 5 tails.
253	is the lowest non-trivial triangular star number. $= 1 + 2 + 3 + \ldots + 20 + 21 + 22$ $= 1/2\ (22 \times 23)$ $= 4^3 + 4^3 + 5^3$
254	$= 2^8 - 2^1$
255	= 11111111 in base 2. $255 \times 807 = 205785$ (the product has the same digits as its factors)
256	is the smallest 8^{th} power (besides 1): $= 2^8 = 4^4 = 16^2$

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	= $1\ 0000\ 0000_2$ = 100_{16} = $2^9 - 2^8$ = $4^3 + 4^3 + 4^3 + 4^3$ = $3^5 + 3^2 + 3^1 + 3^0$ $\sqrt{256} = 2 \times 5 + 6$
257	is a Fermat prime. = $2^{2^3} + 1$ = $1^8 + 2^8$ Most corpses in the wild are skeletonized or mummified according to the formula: y = (**257** · 5)/x, where x is the average temperature in Centigrade, and y is the total number of days.
258	= 2 x 3 x 43 = $6^1 + 6^2 + 6^3$ = 59 + 61 + 67 + 71 (sum of consecutive primes)
259	= 1111 in base 6. = $1^3 + 2^3 + 5^3 + 5^3$ = $2^3 + 2^3 + 3^3 + 6^3$
260	is the constant of a 8x8 magic square. = 2^2 x 5 x 13 = (1 + 2 + 3 + ... + 62 + 63 + 64) / 8 is the number of days in the "Tzol k'in", the almanac cycle Mayans used for divination. are the pounds of oxygen that one tree can produce each year.
261	is the number of different ways to dissect a 16-gon into 7 quadrilaterals.
262	is the 9^{th} meandric number.
263	is is a prime number that is equal to the arithmetic mean of the nearest primes above and below: (269 + 257) / 2

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	= 43 + 47 + 53 + 59 + 61 (sum of consecutive primes)
264	seems to be the largest number whose square is 'undulating': 264^2 = 69696 n^{10} - 1 is divisible by 264 if n is prime and $n > 3$. = 11 + 13 + 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 (sum of consecutive primes)
265	is the number of derangements of 6 items. = !6 = 6!(1 - 1/1! + 1/2! - 1/3! + 1/4! - 1/5! + 1/6!)
266	= $2^3 + 2^3 + 5^3 + 5^3$ In nature, there are 266 different kinds of atoms.
267	is a deficient number, and the number of planar partitions of 12. = $1^3 + 2^3 + 2^3 + 5^3 + 5^3$ = $2^3 + 2^3 + 2^3 + 3^3 + 6^3$ (sum of cubes)
268	seems to be the smallest number whose product of digits is 6 times the sum of its digits. = 131 + 137 (sum of consecutive primes)
269	is a prime number, and twin prime with 271. = 83 + 89 + 97 = 131 + 137 (sum of consecutive primes) The **269th** day of a non-leap year is 26 September (26/9). *-- Claudio Melle r*
270	is a harmonic divisor number. 270 - 1 and 270 + 1 are primes. $270^2 + 1$ is prime. 10! has 270 divisors. = 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 (sum of consecutive primes) = $3^3 + 3^3 + 6^3$ (sum of cubes) According to Worldwatch, **270** thousand trees are flushed down the toilet or end up as garbage every day around the world (data 2010).

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271	is a prime and a centered hexagonal number. is the smallest prime p such that (p - 1) and (p + 1) are both divisible by a cube. = 10^3 - 9^3 (difference of cubes) = 7 + 11 + 13 + 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 (sum of consecutive primes)
272	is the 7^{th} Euler number. = 16 x 17 = 17^2 - 17^1 = 61 + 67 + 71 + 73 (sum of consecutive primes)
273	= 333 in base 9. = 111 in base 6. -**273**.15 °C is the lowest temperature theoretically obtainable (absolute zero).
274	is a tribonacci number: 44 + 81 + 149 sum of cubes: 2^3 + 2^3 + 2^3 + 5^3 + 5^3
275	= 5^2 x 11
276	is the sum of the first three 5^{th} powers: = 1^5 + 2^5 + 3^5
277	is a prime and a Perrin number. = $(2 + 7)^2$ + $(7 + 7)^2$ = 3^3 + 5^3 + 5^3 (sum of cubes) 1/2 + 1/3 + 1/5 + 1/7 + 1/11 + ... + 1/271 + 1/**277** > 2
278	is a nontotient. = 2 x 139
279	is the smallest number whose product of digits is 7 times the sum of its digits.
280	is an octagonal number. = 2^3 x 5 x 7
281	is a prime number.

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	= 29 + 31 + 37 + 41 + 43 + 47 + 53 (sum of consecutive primes)
282	is the sum of its proper divisors containing the digit 4: 47 + 94 + 141 is the smallest multi-digit palindrome sandwiched between twin primes: 281 and 283.
283	is a prime number. $= 2^5 + 8 + 3^5$
284	is an amicable number (with 220). $= 2^2 \times 71$
285	$= 1^2 + 2^2 + 3^2 + \ldots + 7^2 + 8^2 + 9^2$ (sum of consecutive squares)
286	is a tetrahedral number. is the number of rooted trees with 9 vertices. $= C_{13}^3 = C_{13}^{10}$
287	= 7 x 41 = 89 + 97 + 101 = 47 + 53 + 59 + 61 + 67 = 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 (sums of consecutive primes)
288	seems to be the smallest non-palindrome and non-square that when multiplied by its reverse gives a square: $288 \times 882 = 504^2$ = 4! x 3! x 2! x 1!
289	is a square (17^2) with non-decreasing digits. $= 1^3 + 2^3 + 4^3 + 6^3$ $= 0^0 + 1^1 + 2^2 + 3^3 + 4^4$ $289 = (8 + 9)^2$ Radio frequences of 289 kHz are fatal to insects.
290	is the product of three distinct prime numbers: = 2 x 5 x 29

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	= 67 + 71 + 73 + 79 (sum of consecutive prime numbers)
291	= 3 x 97
292	is the number of ways to make change for 1 dollar (or for 1 Euro, with 1, 5 and 25 cents).
293	is a prime number. = 11 + 101 + 181 (sum of the first 3 tetradic primes) = $2^3 + 2^3 + 3^3 + 5^3 + 5^3$ (sum of cubes)
294	= 2 x 3 x 7^2 11115^2 - **294**^{2} = 123,456,789
295	= 5 x 59
296	= 2^3 x 37
297	is a Kaprekar number: 297^2 = 88 209; 297 = 88 + 209
298	= 2 x 149
299	is the smallest number whose sum of digits is 20. is a self-number. = 13 x 23 is the maximum number of pieces into which a 3-dimensional space can be cut with a given number of plane cuts: a sphere sliced with 12 straight cuts produces 299 pieces.
300	is a triangular number, that is the sum of all positive integers up to 24. is the largest possible score in bowling. = 2^2 x 3 x 5^2 = 149 + 151 (sum of twin primes) = 13 + 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 (sum of consecutive primes) 300 m/s is the speed of the sound in the air.

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	Different late Roman notations of number 300: **CCC**, or **XV^{xx}**, or **III^{c}**. All human beings are born with 300 bones, but adults only have 206 because some fuse together naturally. The Spartan king Leonidas led an extremely small army of **300** Greek Soldiers to hold off an invading Persian army more than 20 times as large. The "Three Hundred" (οι τριακόσιοι) was the name given to those Spartans who fought to the death at the Battle of Thermopylae. "Scovilles" are the number of units of water needed to render a unit of pepper 'untingly' to the human tongue. For instance, **habaneros** are the hottest chili peppers and rate around 200,000 - 350,000 Scoville units; that is, 1 cc of habanero chili after being diluted in **300 liters** of water still gives the feeling of hotness! 
301	is a happy number, and a 6-hyperperfect number. = 7 x 43 = 97 + 101 + 103 (sum of consecutive primes) "I have some eggs in my basket. If I count them in 2s, in 3s, in 4s, in 5s, or in 6s I have always 1 egg left over. But if I count them in 7s there are no remainder. How many eggs are in my basket?" Solution: 301.
302	= $9^2 + 10^2 + 11^2$ (sum of consecutive squares)
303	is a lucky number. its cubic power is a concatenation of other cubes: 303^3 = 27818127 (27 8 1 8 1 27) A *Centillion* has **303** zeros and is the highest number recognized by orthodox mathematics... Any number higher than a Centillion is considered an unimaginable abstraction belonging to the realm of infinity.

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304	is the difference of the third pair of amicable numbers: 2924 - 2620 = 304 relationships between 304 and 27: 304 = 3 x 10 x 10 + 4 and 27 = 3 + 10 + 10 + 4 304 = 2^4 x 19 and 27 = 2 x 4 + 19 = 41 + 43 + 47 + 53 + 59 + 61 (sum of consecutive primes)
305	is the 5th 'hexagonal prism' number. An hexagonal prism number is of the form $(n + 1)(3n^2 + 3n + 1)$. $305^2 = 207^2 + 224^2 = 136^2 + 273^2$ (Pythagorean triple) = 5 x 61
306	= 2 x 3^2 x 17 = 71 + 73 + 79 + 83 (sum of consecutive primes)
307	is a prime, and a non-palindrome having a palindromic square: 307^2 = 94249 = $1^3 + 5^3 + 3^3$ (sum of cubes)
308	is a Harshad number, and a heptagonal pyramidal number. = 151 + 157 (sum of consecutive primes)
311	is a permutable prime. Four distinct sums of consecutive primes: = 101 + 103 + 107 = 53 + 59 + 61 + 67 + 71 = 31 + 37 + 41 + 43 + 47 + 53 + 59 = 11 + 13 + 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 The 11th letter of the alphabet is the letter 'K'; thus 3 times 11 equals 'KKK', or *Ku Klux Klan*. 311 is sometimes used as a greeting to demonstrate membership in the KKK or simply sympathy with the Klan and its ideology. There is also a popular rock band with the name "311" which is not at all hate-oriented.
312	= 2^3 x 3 x 13 = 2222 in base 5.

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	$312^2 = 14^3 + 15^3 + 16^3 + 17^3 + 18^3 + 19^3 + 20^3 + 21^3 + 22^3 + 23^3 + 24^3 + 25^3$
313	is a palindromic prime. is the only 3-digit number being a palindromic prime in base 10 and in base 2 (=100111001) as well. - *Larsen* [Editor's note: the next palindromic prime in both base 10 and base 2 is **7284717174827**] $= 12^2 + 13^2$ 3443 / **313** =11 37873 / **313** = 121 (all terms are palindromic!) $313^2 = 25^2 + 312^2$ (Pytagorean triple) $10^{313} + 313$ is prime The probability that at least five of 313 people will share the same birthday is greater than 50%. The reciprocal of 313 (=1/313) produces a string of decimals that repeats itself after 312 (one less than itself) decimals. is the licence plate number on Donald Duck's car. A study carried out in hotels, restaurants, banks, offices and airports found **313** colony forming units of bacteria on every square centimeter of lift button. An elevator buttons is actually 40 times dirtier than toilet seats!
315	$= 3^2 \times 5 \times 7$ $= (4 + \mathbf{3})(4 + \mathbf{1})(4 + \mathbf{5})$ $= (10 - \mathbf{3})(10 - \mathbf{1})(10 - \mathbf{5})$ $= 7! / 4^2$ $= 8! / 2^7$
317	is a prime number. The number made with three hundred and seventeen 1's is a repunit prime. 317 x 461 = 146137 (the product has the same digits as its factors)

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318	represents the number of unlabeled partially ordered sets of 6 elements. = 7 + 11 + 13 + 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 (sum of consecutive primes)
319	cannot be represented as the sum of fewer than 19 fourth powers: 3 x 3^4 + 4 x 2^4 + 12 x 1^4 is the smallest number with the property that the partition with the largest product does not have the largest number of parts. -Selfridge = 103 + 107 + 109 (number of consecutive primes)
320	is the maximum determinant of a 10 by 10 matrix of zeros and ones. 320!+1 is prime. = $2^6 \cdot 5 = 2^5 \cdot (2 \cdot 5)$
322	is the 12^{th} Lucas number. The emblem of the secret society 'Skull and Bones' consists of a skull and crossbones, along with the number **322**. The *Order of Skull and Bones* is based at Yale University, in New Haven, Connecticut. 
323	is the product of twin primes (*twin primes* are pairs of primes of the form *p*, *p*+2): 323 = 17 x 19 = 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 (sum of consecutive primes)
324	= 18^2 = 73 + 79 + 83 + 89 (sum of consecutive primes) $\sqrt{324} = 3^2 \times \sqrt{4}$ **324! - 1** is prime...
325	is a 3-hyperperfect number. = $1^2 + 18^2$ = $6^2 + 17^2$ = $10^2 + 15^2$

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	= 5^2 x 13
326	= 3 + 5 + 7 + 11 + 13 + 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 (sum of consecutive primes)
327	1 x 327 = 327 2 x 327 = 654 3 x 327 = 981 (the 3 results contain every digit from 1 to 9 exactly once)
330	= 2 x 3 x 5 x 11 = 43 + 47 + 53 + 59 + 61 + 67 (sum of consecutive primes) = $6^2 + 7^2 + 8^2 + 9^2 + 10^2$ (sum of consecutive squares) = ${}_{11}C_4$
331	is a prime number. = $11^2 - 10^2$ = 59 + 61 + 67 + 71 + 73 (sum of consecutive primes)
333	is the number of 7-hexes. is a half-evil number: 666/2 represents the millesimal finenes of 8 carat. = 3^2 x 37 = **37**0 - **37** Number patterns: 166,**500**,**333** = $166^3 + \mathbf{500}^3 + \mathbf{333}^3$ **333**,**667**,000 = $\mathbf{333}^3 + \mathbf{667}^3 + 000^3$ **333**,**667**,001 = $\mathbf{333}^3 + \mathbf{667}^3 + 001^3$
335	is divisible by the number of primes below it.
336	336 x 951 = 319530 (the product has the same digits as its factors) = 2^4 x 3 x 7 = ${}_8P_3$ = 6 x 7 x 8
337	is a permutable prime with 373 and 733. is a 4-dimensional centered cube prime (primes of the form $n^4+(n+1)^4$)

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	= $2^{2^3} + 3^{2^2}$ - Kulsha
338	= 2 x 13^2
339	= 3 x 113 **Minuscule 339**, is a Greek minuscule manuscript. This codex contains a complete text of the New Testament on 200 parchment leaves (21.6 x 15.7 cm). It is written in two columns per page, in 56-58 lines per page.
340	is a value of *n* for which *n*!+1 is prime. = 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 (sum of 10 consecutive primes) = 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59 (sum of 8 consecutive primes) = $4^1 + 4^2 + 4^3 + 4^4$ (sum of powers of 4) = $12^2 + 14^2 = 4^2 + 18^2$
341	is the smallest pseudoprime in base 2. In fact, 341 "fools" the primality test for base 2 because it gives the same result a prime number would: $2^{(341-1)}$ is 1 modulo 341. is a star number. = 11 x 31 = 37 + 41 + 43 + 47 + 53 + 59 + 61 (sum of consecutive primes) = $4^0 + 4^1 + 4^2 + 4^3 + 4^4$ (sum of powers of 4)
342	= = 2 x 3^2 x 19 = 666 in base 7. = 18 x 19 = $1^3 + 5^3 + 6^3 = 7^3 - 1^3$
343	= **343** = (**3** + **4**)^3 (autothecal number) = $18^0 + 18^1 + 18^2$
344	is an octahedral number: 8(2 x 8^2 + 1)/3 = 2^3 x 43 = $4^3 + 4^3 + 6^3 = 1^3 + 7^3$
345	is the average number of squirts from a cow's udder needed to yeld a US gallon of milk. = 3 x 5 x 23

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346	is a Smith number. = 2 x 173
347	is a prime number. = **347** = **4** + 7^3
348	= 2^2 x 3 x 29 = 79 + 83 + 89 + 97 (sum of consecutive primes)
349	is a prime number. = 109 + 113 + 127 (sum of consecutive primes)
350	= 2 x 5^2 x 7
351	is a triangular number and the smallest number *n* where *n*, *n*+1, and *n*+2 are all products of 4 or more primes. = 3^3 x 13 = 61 + 67 + 71 + 73 + 79 (sum of consecutive primes)
352	are the different arrangements of 9 non-attacking Queens on an 9 by 9 chessboard. = 2^2 x 11 = 173 + 179 (sum of consecutive primes)
353	is the smallest number whose 4^{th} power can be written as the sum of four 4^{th} powers: $353^4 = 30^4 + 120^4 + 272^4 + 315^4$ = 13 + 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 (sum of consecutive primes)
354	= $1^4 + 2^4 + 3^4 + 4^4$ (sum of the first four 4^{th} powers) = **354** = **3**(**5**! - $\sqrt{}$**4**) (autothecal number)
355	is the number of labeled topologies with 4 elements. = **355** = **3** x **5**! - **5** (autothecal number)
360	is the number of degrees in a circle. This size for angular division was chosen by the Babylonians because it is $60^2/10$ and because it is close to the distance the sun moves through the zodiac each day... In other words, it is close to the length of the tropical year. In *n* days,

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	the sun moves just about *n* degrees across the zodiac. can be evenly factored in 24 different ways — more than any other number of this size. = $2^3 \times 3^2 \times 5$ = **3**6**0** = **3**! x **6**0 (autothecal number)
361	is the number of possible positions on a Go board. = 19 x 19
362	= 2 x 181 = 2 x ($9^2 + 10^2$)
363	= 3 x 11^2 = $3^1 + 3^2 + 3^3 + 3^4 + 3^5$ = 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59 (sum of consecutive primes) $363^2 + 484^2 = (11 \times 55)^2$ (quasi-palindromic pythagorean triples) - *G. Sarcone*
364	is a tetrahedral number. = 12 x 13 x 14/6 = 11 + 13 + 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 (sum of consecutive primes) = $_{14}C_3 = {}_{14}C_{11}$ (Pascal's triangle number)
365	is the number of the days in a year. is the smallest number that can be written as a sum of consecutive squares in more than 1 way: = $10^2 + 11^2 + 12^2 = 13^2 + 14^2$
366	is the number of days in a leap year. = $8^2 + 9^2 + 10^2 + 11^2$
367	is known as the largest number whose square has strictly increasing digits: 367^2 = 134689
369	represents the number of octominoes. = (1 + 2 + 3 + ... + 79 + 80 + 81) / 9
370	is a Narcistic or Armstrong number since it equals the sum of the cube of its digits: $3^3 + 7^3 + 0^3$

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	is the average of the sum of all the possible permutations that we can made with it: 073 + 037 + 307 + 370 + 703 + 730 = 2220 Average: 2220/6= 370 other numbers with this property are: 407, 481, 518, 592, 629 and all repdigit numbes. You can see more examples here. *-- Posted by Claudio Meller* = 83 + 89 + 97 + 101 (sum of consecutive primes)
371	is an Armstrong number since it equals the sum of the cube of its digits: $3^3 + 7^3 + 1^3$ = 7 x 53 = 7 + 11 + 13 + ... + 43 + 47 + 53 (sum of consecutive primes) = 41 + 43 + 47 + 53 + 59 + 61 + 67 (sum of consecutive primes)
372	is a hexagonal pyramidal number. = 2^2 x 3 x 31 = 31 + 37 + 41 + 43 + 47 + 53 + 59 + 61 (sum of consecutive primes)
373	is a permutable prime. = $3^2 + 5^2 + 7^2 + 11^2 + 13^2$ (sum of consecutive square primes) = 67 + 71 + 73 + 79 + 83 (sum of consecutive primes)
374	is the smallest number that can be written as the sum of 3 squares in 8 different ways = 2 x 11 x 17
375	is a truncated tetrahedral number. represents the millesimal finenes of 9 carat. = 3 x 5^3
376	is an automorphic number: 376^2 = 141**376** 376^3 = 53157**376** 376^4 = 19987173**376** ...

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	= 2^3 x 47
377	is the 14th Fibonacci number.
381	is a Kaprekar constant in base 2. 381 x 969 = 369189 (the product has the same digits as its factors)
383	is a palindromic prime number. is the number of 7-vertex Hamiltonian graphs. = 101 + 131 + 151 (sum of 3 consecutive palindromic numbers)
384	= 2^7 x 3 = 3 x 8 x 4^2 = 53 + 59 + 61 + 67 + 71 + 73 (sum of consecutive primes)
385	= 5 x 7 x 11 is a square pyramidal number because: $1^2 + 2^2 + 3^2 + \ldots + 8^2 + 9^2 + 10^2 = 385$ is the number of partitions of 18. = $193^2 - 192^2$
386	is a nonagonal and a centered heptagonal number.
390	is the 12th term in the sequence involving rooted polygonal cacti (Husimi graphs) with *n* nodes. = 193 + 197 (sum of consecutive primes) = 89 + 97 + 101 + 103 (sum of 4 consecutive primes)
391	is a centered pentagonal number.
392	is a Harshad number and a Kaprekar constant in base 5. = $2^3 \times 7^2$
399	is a value of *n* for which *n*!+1 is prime. is a Harshad number and the smallest Lucas-Carmichael number. = $7^1 + 7^2 + 7^3$

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	= 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59 (sum of consecutive primes)
400	is a square number. = 1111 in base 7. = $7^0 + 7^1 + 7^2 + 7^3$ = $2^4 \times 5^2$ Just one cow can belch (and fart) enough harmful methane gas in a single day to fill around 400 liter bottles.
401	is the number of connected planar Eulerian graphs with 9 vertices. = $7^2 + 8^2 + 12^2 + 12^2$
402	= $3^3 + 5^3 + 5^3 + 5^3$ = 2 x 3 x 67
403	= $2^3 + 3^3 + 3^3 + 5^3 + 6^3$ = 13 x 31
405	is a pentagonal pyramidal number. = $4^3 + 5^3 + 6^3$ = $3^4 + 3^4 + 3^4 + 3^4 + 3^4$
406	= $1^3 + 4^3 + 5^3 + 6^3$ = $1^3 + 2^3 + 3^3 + 3^3 + 7^3$ *406* is a poem by John Boyle O'Reilly.
407	is a Narcistic or Armstrong number since it equals the sum of the cube of its digits: $4^3 + 0^3 + 7^3$ = 11 x 37
410	is the smallest number that can be expressed as the sum of 2 distinct primes in 2 ways.
415	= $7^2 + 8^2 + 9^2 + 10^2 + 11^2$ (sum of consecutive squares) = $(4^5 + 1^5 + 5^5) / (4 + 1 + 5)$
416	**416,768** = **768**^{2} – **416**^{2} is the nickname for Toronto.

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417	represents the millesimal finenes of 10 carat.
419	is a twin prime number. is the smallest number which, when divided by 2, 3, 4, 5, 6 and 7, leaves remainders of 1, 2, 3, 4, 5 and 6 respectively. **419 scam** (aka *advance fee fraud*) is a type of fraud named after the article of the Nigerian criminal code under which it is prosecuted.
420	is the smallest integer divisible by 1 through 7. is the sum of four consecutive primes: 101 + 103 + 107 + 109 = 20 x 21 **420**, 4:20 or 4/20 refers to consumption of cannabis and, by extension, a way to identify oneself with cannabis subculture. The date **April 20** is sometimes referred to as "Weed Day" or "Pot Day". Section **420** of the Indian Penal Code (also used in Pakistan, Bangladesh and Afghanistan) has become a slang reference for a con-artist or confidence trickster.
421	is a twin prime number and a centered square number. is the name of a French dice game ('Quatre-cent-vingt-et-un'). = 111 in base 20 = $14^2 + 15^2$ (sum of 2 consecutive squares) = 73 + 79 + 83 + 89 + 97 (sum of 5 consecutive primes)
423	= 11 + 13 + 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59 (sum of 13 consecutive primes!)
424	= 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59 + 61 (sum of 10 consecutive primes!)
425	= 5^2 x 17 = $8^2 + 19^2$ = $13^2 + 16^2$ = $5^2 + 20^2$ = 137 + 139 + 149 (sum of 3 consecutive primes)
426	is a nontotient, and a stella octangula number. = 2 x 3 x 71
427	is a value of *n* for which *n*!+1 is prime.

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428	is a nontotient. when squared it gives a concatenation of 2 consecutive numbers: 428^2 = 183 184 = 2^2 x 107
429	is a sphenic number, and the 7^{th} Catalan number. = 3 x 11 x 13
430	is a sphenic number. = 2 x 5 x 43
431	is a Chen prime. 431/510 = $\log_{10}7$ (exact to the 7th decimal place, the difference is actually 0.00000000798570432...) = 47 + 53 + 59 + 61 + 67 + 71 + 73 (sum of consecutive primes)
432	432 + 1 and 432 - 1 are twin primes. = 4 x 3^3 x 2^2 = 103 + 107 + 109 + 113 (sum of consecutive primes) = 12^3 - 6^4 - *G. Sarcone* = 12^2 + 12^2 + 12^2 = 6^3 + 6^3 - *G. Sarcone* = 55 + 144 + 233 (sum of 3 Fibonacci numbers with repeating digits) = 55 + 377 (sum of 2 Fibonacci numbers with repeating digits) - *G. Sarcone* A manufacturer of golf balls once did a test to find the ideal number of dimples to put on golf balls for optimum aerodynamic effect. It turned out that balls with **432 dimples** went farther than the rest (United States Patent 5106096).  is equal to 3 'gross'. A gross is a dozen dozen, i.e.: 12 x 12 = 144 (see above) 432 x 10^2 is an average person's heartbeats in a day. Four hundred thirty-two is also a number that is very closely related to many astronomical events. For example, the diameter of the sun is 864,000 miles (432 x 2 x 10^3). The diameter of the moon is 2,160

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	miles (432 x 10 / 2). If these measurements were not as they are, we would not experience a total eclipse of the sun.
433	is prime, and a star number. $= (13^3 - 11^3) / 2$
434	$= 3^3 + 4^3 + 7^3$ (sum of cubes) $= 11^2 + 12^2 + 13^2$ (sum of consecutive squares) $= 61 + 67 + 71 + 73 + 79 + 83$ (sum of consecutive primes)
435	is a triangular and a hexagonal number. $= 3 \times 5 \times 29$
436	is a nontotient. $= 2^2 \times 109$
437	$= 19 \times 23$
438	= 666 in base 8. $= 2 \times 3 \times 73$
439	is a prime number. sum of three consecutive primes:139 + 149 + 151 is the sum of nine consecutive primes: 31 + 37 + 41 + 43 + 47 + 53 + 59 + 61 + 67
440	is the sum of the first 17 prime numbers: = 2 + 3 + 5 + 7 + 11 + 13 + 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59 $= 2^2 \times 5 \times 11$ $= 21^2 - 1^2$ $= 27^2 - 17^2$ $= 57^2 - 53^2$ $= 111^2 - 109^2$ (differences of squares) $= 2^3 + 3^3 + 4^3 + 5^3 + 6^3$ (sum of consecutive cubes)
441	is the smallest square which is the sum of 6 consecutive cubes: $1^3 + 2^3 + 3^3 + 4^3 + 5^3 + 6^3$ $= 3^2 \times 7^2 = 21^2$

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	= $29^2 - 20^2$ = $35^2 - 28^2$ = $75^2 - 72^2$ = $221^2 - 220^2$ (differences of squares) = $(1 + 2 + 3 + 4 + 5 + 6)^2$
442	is the number of planar partitions of 13. is the sum of eight consecutive primes: 41 + 43 + 47 + 53 + 59 + 61 + 67 + 71
443	is the first 3-digit non-palindromic prime whose binary equivalent is a palindromic prime: 110111011
444	is the largest known n for which there is a unique integer solution to $a_1+...+a_n= (a_1)...(a_n)$. = **CDXLIV** in late roman numeration system
446	is the smallest number that can be written as the sum of 3 distinct squares in 8 ways. = $9^2 + 10^2 + 11^2 + 12^2$
448	is the number of 10-iamonds. = $2^6 \times 7$
450	is the sum of two consecutive primes: 223 + 227 = (5 + 4)(5 + 5)(5 + 0) = $3^2 + 21^2$
454	is the largest number known that cannot be written as a sum of 7 or fewer cubes.
455	= ${}_{15}C_3$ is a tetrahedral number: (13 x 14 x 15)/6 = 5 x 7 x 13
456	is the number of tournaments with 7 vertices. is the sum of a twin prime: 227 + 229 is the sum of four consecutive primes: 107 + 109 + 113 + 127

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	= **4**5**6** = **4**(**5**! - **6**) (autothecal number)
457	is the sum of three consecutive primes: 149 + 151 + 157
459	= 3^3 x 17 954 - **459** = 495
461	is a prime number. = 444 + 6 + 11
462	is the sum of six consecutive primes: 67 + 71 + 73 + 79 + 83 + 89 = 2 x 3 x 7 x 11 = $_{11}C_5$
463	is a prime number. is the sum of seven consecutive primes: 53 + 59 + 61 + 67 + 71 + 73 + 79
464	= 2^4 x 29 $464^2 + 777^2 = (5 \times 181)^2$ (quasi-palindromic pythagorean triples) - *G. Sarcone*
465	is a triangular number. is a Kaprekar constant in base 2. = 3 x 5 x 31 465 x 831 = 386415 (the product has the same digits as its factors)
468	= 3333 in base 5. = 2^2 x 3^2 x 13 is the sum of ten consecutive primes: 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59 + 61 + 67
469	is the largest known value of *n* for which *n*!-1 is prime. = 7 x 67
471	is the smallest number with the property that its first 4 multiples contain the digit 4.
480	is the smallest number which can be written as the difference of 2 squares in 8 ways. $n^8 - 1$ is divisible by 480 if *n* is prime and *n* > 5

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	$n^9 - 1$ is divisible by 480 if n is odd and $n > 1$
481	$= 15^2 + 16^2$ (sum of 2 consecutive integers)
483	is the last 3-digit string in the decimal expansion of π.
484	is a palindromic square number. $= 22^2$ $= 2^2 \times 11^2$
487	is the number of Hadamard matrices of order 28.
489	is an octahedral number.
490	is the number of partitions of 19. $= 2 \times 5 \times 7^2$
494	**494** + 209 = 703 and **494**,209 = 703^2 moreover 297+703 = 1000 $= 2 \times 13 \times 19$
495	is the Kaprekar constant for 3-digit numbers. is the difference of two of its own anagrams: **495** = 954 - 459 (other interesting examples:1089 = 9108 - 8019; 1269 = 2961 - 1692; 2538 = 5823 - 3285...). More examples here. *-- Posted by Claudio Meller* $= 3^2 \times 5 \times 11$
496	is a triangular number (= 1 + 2 + ... + 30 + 31). is the 3rd perfect number, that is, a number equal to the sum of all of its proper divisors, 1 included. The formula for finding perfect numbers is: $(2^n - 1) \times 2^{n-1}$. $= 16 \times 31$ $= 1^3 + 3^3 + 5^3 + 7^3$
497	is the number of graphs with 8 edges. $= 7 \times 71$

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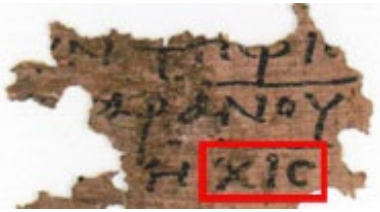
	= 89 + 97 + 101 + 103 + 107 (sum of consecutive primes)
499	is a prime number and the smallest number with the property that its first 12 multiples contain the digit 9. 497 + 2 = **499**, inversing the number -> 994 = 497 x 2 499^3 = 124251**499** = 3 + 5 + 7 + 11 + 13 + 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59 + 61 (sum of consecutive primes)
500 D	D is the symbol for 500 in the Latin numeral system. "Cinquecento" (500, in Italian) is the name of a small well-known car appreciated worldwide by car enthusiasts. = 2^2 x 5^3 500 : 499 = **1**.00**2**00**4**00**8**0**16**0**32**0**64**...
616	is an heptagonal number and a member of the Padovan sequence, coming after 265, 351, 465 (it is the sum of the first two of these). = 2^3 x 7 x 11 = (9^2 + 10^2 + 11^2 + 12^2 + 13^2) + 1 (sum of consecutive squares incremented by 1) For centuries, people have been intrigued by the number 666 (see '666' further below)... However, researchers are re-examining evidence that the 'Number of the Beast' is not 666 as widely believed, but 616.  Fragment from "Book of Revelation" mentions 616 in the third line – χ khi, ι iota, ς sigma (= 616 in greek numeral notation).
666	is said to be the occult '**Number of the Beast**', aka the 'Sign of the Devil', associated in the Bible with the *Antichrist*. lists in their proper order the letters used for numbers in Roman numeration system, namely **D** (500) + **C** (100) + **L** (50) + **X** (10) + **V** (5) + **I** (1), or **DCLXVI**. 

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is the largest triangular number that is also a repdigit.
is a palindromic triangular number.
is the sum of the squares of two consecutive triangular numbers: $15^2 + 21^2$
is the sum of the squares of the first 7 primes:
$2^2 + 3^2 + 5^2 + 7^2 + 11^2 + 13^2 + 17^2$
is the sum of two consecutive palindromic primes:
666 = 313 + 353
is a divisor of 123456789 + 987654321

= 1234 – 567 + 8 – 9
= 123 + 456 + 78 + 9
(in the equalities above digits 1 through 9 were used once)

There are exactly six 6's in 666^6. (There are also exactly six 6's in the previous sentence!)

= 18691113009329 - 18691113008663 (difference of 2 consecutive prime numbers)
$= 1^6 - 2^6 + 3^6$
$= 6 + 6 + 6 + 6^3 + 6^3 + 6^3$
$= 1^3 + 2^3 + 3^3 + 4^3 + 5^3 + 6^3 + 5^3 + 4^3 + 3^3 + 2^3 + 1^3$
$= 3(6^3 + 6)$
$= 2 \times 3^2 \times 37$

$$\frac{\mathbf{1666}}{\mathbf{666}4} = \frac{16}{66} \times \frac{66}{64}$$

The first 2 beasty palindromic primes are:
1**666**1,
10000000000000**666**00000000000001,
can you find the next one?

$-2\sin(666) = \phi$
$\sin(666) = \cos(6 \times 6 \times 6)$

If we split 1010011010 - the binary notation for 666 - into two digits sets (10100 and 11010), the second part of the number is the complemented reverse of the first part:
10100 **00101** (00101 reverse of 10100)
10100 **11010** (11010 complement of 00101)
- By G. Sarcone -

Tuesday, **6 June 2006** is 06-06-06; this convergence of three sixes

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being the Mark of the Beast, some people believe that it is the 'Apocalypse day'. But if you read this, it means that the End of the World has been postponed until June 2066!

Take ANY number having 3 consecutive digits and sum all 6 possible combinations, here 789:
789 + 798 + 879 + 897 + 978 + 987 = 5,328
Now, if your divide the result by 8 you'll obtain 666.

The number 666 can also be found in a number of words and phrases. For example, summing the ASCII character codes for INDONESIA gives 666.

Strangely, the number 666 is a good omen (lucky number) for ethnic Chinese couples marrying in Malaysia. Actually, in Hokkien dialect, the number '6' is pronounced as "luck". Thus, many Chinese believe that tying the knot on June 6th, 2006 that appears as 060606 on the marriage certificates can only triple the luck for the newly-weds.

Contrary to popular myth, no bar code includes the number 666. This belief arose because the number 6 is represented by a pattern similar to that of the 'guard bars' used to mark the beginning, middle, and end of every bar code (the guard bars indicate the computer-scanner when the product code begins and ends). Since the guard bars always appear three times in a given bar code, people who mistakenly read them as 6s claimed that the pattern 6-6-6 was embedded in every bar code. However, looking closely at the '6' in a bar code, we can see that there is a wide white bar either to the left or the right of its pattern, which is not the case with the guard bars. The only numbers on the bar code which are scanned are those shown in the conventional numerals underneath it.

References from the Bible:

In the **King James Version**, excerpt from 'Revelation 13:18':

> *Here is wisdom: let him who hath understanding count the number of the beast: for it is the number of a man; and his number is* ***'six hundred three score and six'*** .

In the **Good News Bible**, the same verse reads:

> *This calls for wisdom. Whoever is intelligent can figure out the meaning of the number of the beast, because the number stands for the name of someone. Its number is* ***'666'***.

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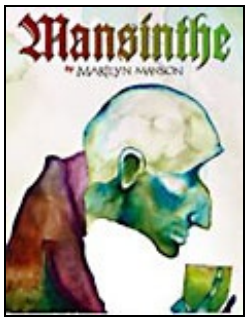
	The Greek text of **Codex Alexandrinus** of the New Testament runs: *Ὧδε ἡ σοφία ἐστίν· ὁ ἔχων νοῦν ψηφισάτω τὸν ἀριθμὸν τοῦ θηρίου, ἀριθμὸς γὰρ ἀνθρώπου ἐστίν· καὶ ὁ ἀριθμὸς αὐτοῦ* ***ἑξακόσιοι ἑξήκοντα ἕξ*** *.* *(Hōde hē sophia estin; ho echōn noun psēphisatō ton arithmon tou thēriou, arithmos gar anthrōpou estin; kai ho arithmos autou* ***'hexakosioi hexēkonta hex'*** *)* Other manuscripts use the numerical form χξς´ (see number **616** above). The **Vulgate** also mentions the 'Number of the Beast': *Hic sapientia est. Qui habet intellectum, computet numerum bestiae. Numerus enim hominis est, et numerus eius est* ***'sescenti sexaginta sex'.*** The fear of the number 666 is called ***hexakosioihexekontahexaphobia***. **Mansinthe**, a new absinthe liquor dedicated to the rock singer Marilyn Manson has **66.6**% alcoholic content per volume. Buy your favorite Number (**666**) here 666. 
684	seems to be the first uninteresting number. But since it is the least uninteresting number it becomes, ipso facto, interesting. Suppose we've divided the numbers into 2 sets: interesting and not interesting. We must therefore remove 684 from the uninteresting numbers set and place it in the interesting numbers set. But now, there will be another smallest uninteresting number. Repeating this process will make any common number interesting. In conclusion... There are no uninteresting numbers! (This conclusion contradicts the intuitive notion that the natural numbers are apparently too many for all of them to be subjectively interesting)
715	is a pentatope number. 715 x 31237 (a prime) = 22**33**44**55** = $_{13}C_4$

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BR	**Brazillion** is a very large number; indescribable by regular numeralogical values such a million or billion. Joke: The Secretary of Defense is giving President Bush his daily briefing. He concludes by saying: "Yesterday, three Brazilian soldiers were killed". " Oh, no!" the President exclaims. "That's terrible!" His staff sits stunned at this display of emotion, nervously watching as the President sits, head in hands. Finally, the President looks up and asks, "How many is a **brazillion**? "

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