

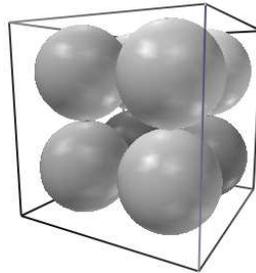
8 Eight VIII



Corresponding ordinal: eighth.

The number $8 = 2^3$ is the third cubic number. (The first two are $0 = 0^3$ and $1 = 1^3$.)

Note how 8 spheres can be put inside a cube:



The number 8 is the fifth even number, the third composite number, and the ninth digit.

As a product of primes: $8 = 2^3$.

The number 8 has four divisors: 1, 2, 4, 8.

The number 8 is the seventh deficient number $s(8) = 1 + 2 + 4 = 7 < 8$.

As the sum of four or fewer squares, $8 = 2^2 + 2^2$.

As the sum nine or fewer cubes: $8 = 2^3 = 1^3 + 1^3 + 1^3 + 1^3 + 1^3 + 1^3 + 1^3 + 1^3$.

As the difference of two squares: $8 = 3^2 - 1^2$.

The number 8 appears in two Pythagorean triples: [6, 8, 10] and [8, 15, 17]. The second is primitive.

As the sum of two odd primes, $8 = 3 + 5$.

The number 8 is the first of an enigmatic pair of numbers. In 1342, Rabbi Levi ben Gershon proved that 8 and 9 are the only proper powers of 2 and 3 that differ by one. In 1814, Eugene Charles Catalan conjectured that 8 and 9 are the only proper powers of *any* numbers that differ by one. A number of the form b^n is called a *power*, and if n is greater than 1, it is called a *proper power*. So $8 = 2^3$ and $9 = 3^2$ are proper powers. Catalan's conjecture was proved in 2002 by Preda Mihăilescu.

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Eight perfect interleaving shuffles, each leaving the top card fixed, return a 52-card deck to its original position.

The eighth President of the United States was Martin Van Buren.

The eighth state to enter the Union was South Carolina.

The first ten amendments to the United States Constitution constitute the *Bill of Rights*. The eighth amendment says that “Excessive bail shall not be required, nor excessive fines imposed, nor cruel and unusual punishment inflicted.”

The eighth largest state in the United States is Colorado.

There are eight furlongs in a mile.

The stop sign in the United States is in the form of an octagon, a regular 8-sided polygon. (Number Freak)



A popular pool game is called *eight ball*, in which the black pool ball numbered 8 is central to the game.

The phrase “behind the eight ball” means a disadvantageous position.

A person who is a misfit is sometimes called an eight ball.

A V-8 engine in an automobile has two banks of four cylinders positioned at an angle to one another (so it looks like a V).