

6 Six VI



Corresponding ordinal: sixth.

The number 6 is the first perfect number. A number is *perfect* if it is the sum of its proper divisors (a divisor of a number is *proper* if it is less than the number). The proper divisors of 6 are 1, 2, and 3, and $6 = 1 + 2 + 3$, so 6 is perfect. There is much mysticism associated with perfect numbers. Saint Augustine wrote that the universe was created in 6 days because 6 is a perfect number.

The number 6 is the third triangular number, as you can see by the triangular shape above: it is the sum of the first three positive numbers. The smaller triangular numbers are 1 and 3.

The square of 6 is also triangular. Any greater triangular number whose square is triangular would have to have more than 660 digits. (Penguin Dictionary).

The number $6 = 3 + 3$ is the fourth even number. The smaller even numbers are 0, 2, and 4.

The number 6 is the second composite number. The only smaller composite number is 4. Notice that $6 = 2 \times 3$ shows that 6 is composite and expresses 6 as a product of primes.

The number 6 has four divisors: 1, 2, 3, 6.

The number 6 is a factorial number: $6 = 3! = 3 \times 2 \times 1$.

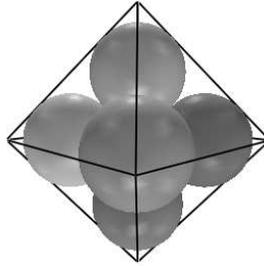
As a sum of four or fewer squares: $6 = 1^2 + 1^2 + 2^2$. It is the second number that is the sum of three nonzero squares.

As the sum of nine or fewer cubes: $6 = 1^3 + 1^3 + 1^3 + 1^3 + 1^3 + 1^3$.

The number 6 can be written the sum of two cubes of rational numbers: $6 = (17/21)^3 + (37/21)^3$. (Number Freak)

The number 6 appears in the Pythagorean triple [6, 8, 10]. These entries are just double the entries in the Pythagorean triple [3, 4, 5].

The number 6 is an octahedral number.



Christian Goldbach (1690–1764) conjectured that every even number greater than or equal to 6 is the sum of two odd primes. To date, no one has proved or disproved this conjecture, which is known as the *strong Goldbach conjecture*. See 9 for the weak Goldbach conjecture.

The number 6 is the only triangular number that is the average of a pair of twin primes. (Number Gossip and Prime Curios) In fact, 6 is the only triangular number that is one more than a prime.

The number 6 is the product and the sum of the same three numbers. It is the only number of that sort. (Penguin Dictionary)

Six of something is called a half-dozen because twelve is a dozen.

A plane closed polygon with 6 sides is called a hexagon.

The sixth President of the United States was John Quincy Adams, the son of John Adams, who was the second President of the United States.

The first ten amendments to the United States Constitution are called the *Bill of Rights*. The sixth amendment says that “In all criminal prosecutions, the accused shall enjoy the right to a speedy and public trial, by an impartial jury . . . to be confronted with witnesses, to have . . . witnesses in his favor, and to have the Assistance of Counsel for his defence.”

The American flag has six white stripes.

The sixth state to enter the Union was Massachusetts.

The sixth largest state in the United States is Arizona.

The term of a U.S. senator is six years.

There are six feet in a fathom.