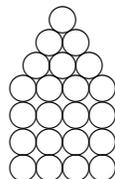


# 22 Twenty-Two XXII



Corresponding ordinal: twenty-second.

The number 22 is a pentagonal number, as you can see.

The number 22 is the twelfth even number and the thirteenth composite number.

As a product of primes:  $22 = 2 \cdot 11$ .

The number 22 has four divisors: 1, 2, 11, 22.

The number 22 is the eighteenth deficient number:  $s(22) = 1 + 2 + 11 = 14 < 22$ .

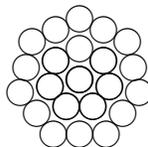
As the sum of four or fewer squares:  $22 = 2^2 + 3^2 + 3^2 = 1^2 + 1^2 + 2^2 + 4^2$ .

As the sum of nine or fewer cubes:  $22 = 6 \cdot 1^3 + 2 \cdot 2^3$ . The number 22 is the second of only 15 numbers that can be written as the sum of eight cubes, but no fewer; see **15**.

The number 22 appears in only one Pythagorean triple, namely  $[22, 120, 122]$ . It's not primitive because 22 is twice an odd number.

As a sum of two odd primes:  $22 = 3 + 19 = 5 + 17 = 11 + 11$ . It is the smallest number that is the sum of two odd primes in three different ways.

The number 22 is a centered heptagonal number in addition to being a pentagonal number.



It's the smallest nontrivial number that is both. The next one is 11572.

There are 22 ways to write the number 8 as a sum of positive numbers. (from "What's special about this number?") These sums are known as *partitions* of 8.

## 2 Chapter 22 Twenty-Two XXII

The number  $22/7$  is a commonly used approximation to  $\pi$ . This approximation goes back to Archimedes.

The twenty-second President of the United States was Grover Cleveland.

The twenty-second state to enter the Union was Alabama.

The twenty-second largest state in the United States is Wisconsin.

There are 22 letters in the Hebrew alphabet.

A cricket pitch is 22 yards long, or one chain. An acre is an area of 10 square chains.

There is a one-line joke about 22 that is based on an ambiguity: Is the twenty-second century really going to last less than a minute?

A Catch-22 is a paradoxical situation. For example, you can't join the union unless you have a job, and you can't get a job unless you're a member of the union.