Number Explorer Help

Usage

Number Explorer displays some properties of the Natural Numbers (1, 2, 3...). The largest number for which properties can be displayed is 2,147,483,648 which is 2^{31}.
Numbers larger than 6 digits may take a long time to calculate.

Menu Options

File | Clear
Clear the display

File | Settings
Display settings menu which allows the user to choose which properties are displayed

File | Exit
Exit the program

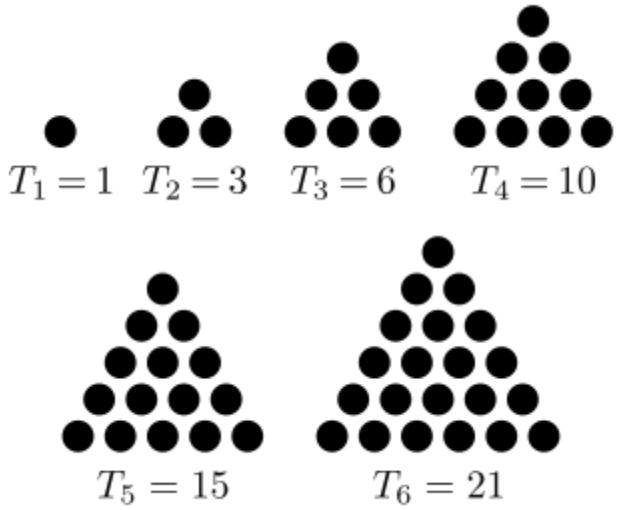
Help |View Help
Display this file

Help | About
Display the credits

Number Properties

Triangular

A triangular number counts objects arranged in an equilateral triangle, as in the diagram below. The *n*th triangular number is the number of dots in the triangular arrangement with *n* dots on a side, and is equal to the sum of the *n* natural numbers from 1 to *n*.

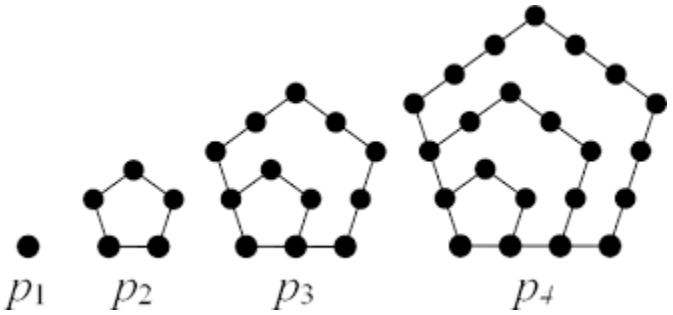


Square

A square number or perfect square is an integer that is the square of an integer; in other words, it is the product of some integer with itself. For example, 9 is a square number, since it can be written as 3 × 3.

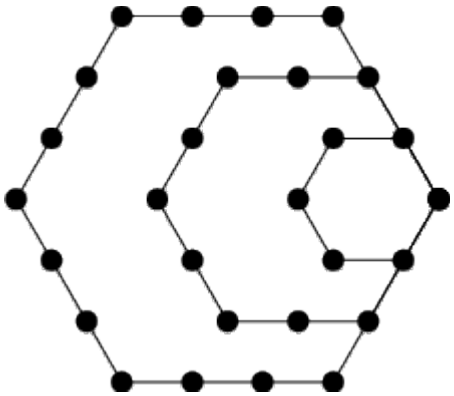
Pentagonal

A pentagonal number is a figurate number that extends the concept of triangular and square numbers to the pentagon, but, unlike the first two, the patterns involved in the construction of pentagonal numbers are not rotationally symmetrical. The nth pentagonal number is the number of distinct dots in a pattern of dots consisting of the outlines of regular pentagons with sides up to n dots, when the pentagons are overlaid so that they share one vertex. For instance, the third one is formed from outlines comprising 1, 5 and 10 dots, but the 1, and 3 of the 5, coincide with 3 of the 10 – leaving 12 distinct dots, 10 in the form of a pentagon, and 2 inside.



Hexagonal

A hexagonal number is a figurate number. The nth hexagonal number is the number of distinct dots in a pattern of dots consisting of the outlines of regular hexagons with sides up to n dots, when the hexagons are overlaid so that they share one vertex.



Perfect

A perfect number is a positive integer that is equal to the sum of its divisors, e.g. 6 = 1 + 2 + 3.

Repunit

In recreational mathematics, a repunit is a number like 11, 111, or 1111 that contains only the digit 1. The more general term, where the repeated digit may be any digit, is repdigit. The term stands for repeated unit