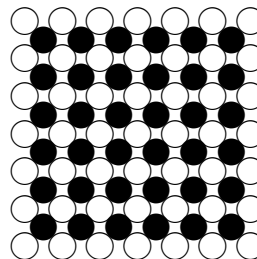
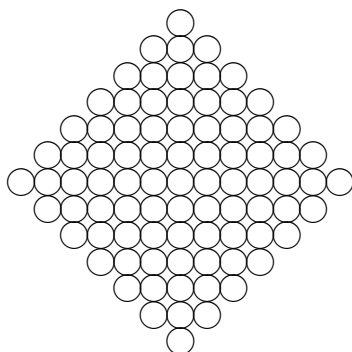


85 Eighty-Five LXXXV



Corresponding ordinal: eighty-fifth.

The number 85 is the forty-third odd number and the sixty-first composite number.

As a product of primes: $85 = 5 \cdot 17$.

The number 85 has four divisors: 1, 5, 17, 85.

The number 85 is the sixty-fifth deficient number: $s(85) = 1 + 5 + 17 = 23 < 85$.

As a sum of four or fewer squares: $85 = 2^2 + 9^2 = 6^2 + 7^2 = 1^2 + 2^2 + 4^2 + 8^2 = 2^2 + 3^2 + 6^2 + 6^2 = 2^2 + 4^2 + 4^2 + 7^2$.

As a sum of nine or fewer cubes: $85 = 5 \cdot 1^3 + 2 \cdot 2^3 + 4^3 = 4 \cdot 1^3 + 3 \cdot 3^3$.

As a difference of two squares: $85 = 11^2 - 6^2 = 43^2 - 42^2$.

The number 85 appears in eight Pythagorean triples:

$$\begin{array}{cccc} [13, 84, 85] & [36, 77, 85] & [40, 75, 85] & [51, 68, 85] \\ [85, 132, 157] & [85, 204, 221] & [85, 720, 725] & [85, 3612, 3613] \end{array}$$

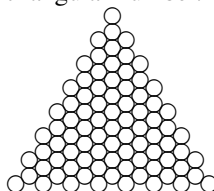
The first, second, fifth, and eighth are primitive.

As a sum of three odd primes: $85 = 3 + 3 + 79 = 3 + 11 + 71 = 3 + 23 + 59 = 3 + 29 + 53 = 3 + 41 + 41 = 5 + 7 + 73 = 5 + 13 + 67 = 5 + 19 + 61 = 5 + 37 + 43 = 7 + 7 + 71 = 7 + 11 + 67 = 7 + 17 + 61 = 7 + 19 + 59 = 7 + 31 + 47 = 7 + 37 + 41 = 11 + 13 + 61 = 11 + 31 + 43 = 11 + 37 + 37 = 13 + 13 + 59 = 13 + 19 + 53 = 13 + 29 + 43 = 13 + 31 + 41 = 17 + 31 + 37 = 19 + 19 + 47 = 19 + 23 + 43 = 19 + 29 + 37 = 23 + 31 + 31$.

2 Chapter 85 Eighty-Five LXXXV

The number $85 = 6^2 + 7^2$ is a sum of two consecutive squares, hence is a centered square number, as you can see. You can see the 6^2 and the 7^2 in the picture on the right.

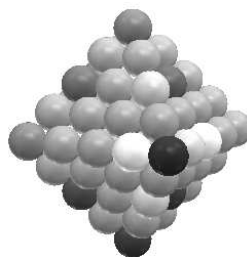
The number $85 = 1 + 3 \cdot 28$ is a centered triangular number because 28 is a triangular number. It is the eighth centered triangular number.



The number $85 = 5 \cdot 17$ is a product of two consecutive Fermat primes.

There are 85 five-digit primes that begin with the digits 85. They range from 85009 to 85999. It is the smallest two-digit number with that property. The other is 95, there being 95 five-digit primes that begin with the digits 95.

The number 85 is an octahedral number because $85 = 5^2 + 2(4^2 + 3^2 + 2^2 + 1^2)$.



E85 is a fuel consisting of 85% ethanol and 15% gasoline. Boring? The Department of Energy seems to be pushing it.

In the book, “The 85 Ways to Tie a Tie”, the authors have a mathematical model for tying ties that gives exactly 85 ways, but most are unfeasible.