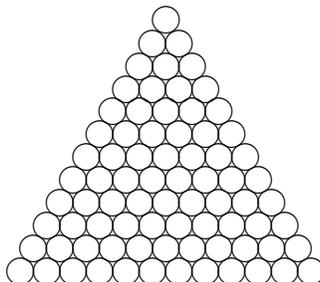


78 Seventy-Eight LXXVIII



Corresponding ordinal: seventy-eighth.

The number 78 is the fortieth even number and the fifty-sixth composite number.

As a product of primes: $78 = 2 \cdot 3 \cdot 13$.

The number 78 has eight divisors: 1, 2, 3, 6, 13, 26, 39, 78.

The number 78 is the sixteenth abundant number: $s(78) = 1 + 2 + 3 + 6 + 13 + 26 + 39 = 90 > 78$. It is a proper multiple of the perfect number 6.

As a sum of four or fewer squares: $78 = 2^2 + 5^2 + 7^2 = 1^2 + 2^2 + 3^2 + 8^2 = 1^2 + 4^2 + 5^2 + 6^2 = 2^2 + 3^2 + 4^2 + 7^2$.

As a sum of nine or fewer cubes: $78 = 6 \cdot 1^3 + 2^3 + 4^3 = 3 \cdot 2^3 + 2 \cdot 3^3$.

The number 78 appears in five Pythagorean triples: [30, 72, 78], [78, 104, 130], [78, 160, 178], [78, 504, 510], [78, 1520, 1522]. None of these is primitive because 78 is twice an odd number.

As a sum of two odd primes: $78 = 5 + 73 = 7 + 71 = 11 + 67 = 17 + 61 = 19 + 59 = 31 + 47 = 37 + 41$.

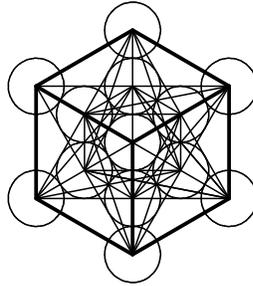
The number 78 is the twelfth triangular number: $78 = 1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10 + 11 + 12$.

The numbers 77 and 78 are two consecutive integers, with no repeated prime factors, such that the sum of the of the prime factors of each is the same, namely 18. Such a pair is called a *Ruth-Aaron pair* because when Hank Aaron hit his 715th home run, he broke Babe Ruth's record of 714. But if you add the prime factors of $714 = 2 \times 3 \times 7 \times 17$, or of $715 = 5 \times 11 \times 13$, you get the same number, namely 29.

2 Chapter 78 Seventy-Eight LXXVIII

The number 78 is the smallest number that can be written as a sum of four distinct squares in three ways. Here we allow 0^2 to be one of those squares (but not two of them, of course).

To draw *Metatron's cube*, you join all the centers of 13 circles with lines. In so doing, you draw 78 lines. See below



The atomic number of platinum is 78.

There are 78 cards in a Tarot deck.

Dogs and chickens have a diploid number of 78 chromosomes.