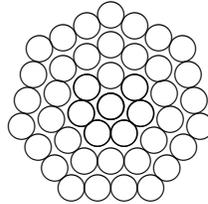# 43 Forty-Three XLIII



Corresponding ordinal: forty-third.

The number $43$ is the twenty-second odd number, the fourteenth prime number, and the thirty-third deficient number.

The prime $43$ appears in the sixth twin-prime pair $41, 43$.

As a sum of four or fewer squares: $43 = 3^2 + 3^2 + 5^2 = 1^2 + 1^2 + 4^2 + 5^2 = 3^2 + 3^2 + 3^2 + 4^2$.

As a sum of nine or fewer cubes: $43 = 3 \cdot 1^3 + 5 \cdot 2^3 = 2 \cdot 2^3 + 3^3$.

As a difference of two squares: $43 = 22^2 - 21^2$.

The number $43$ appears in only one Pythagorean triple: $[43, 924, 925]$. This is primitive, of course.

As the sum of three odd primes: $43 = 3 + 3 + 37 = 3 + 11 + 29 = 3 + 17 + 23 = 5 + 7 + 31 = 5 + 19 + 19 = 7 + 7 + 29 = 7 + 13 + 23 = 7 + 17 + 19 = 11 + 13 + 19 = 13 + 13 + 17$.

The number $43$ is a centered heptagonal number, as you can see from the diagram above.

The number $4^{43} = 77\,371\,252\,455\,336\,267\,181\,195\,264$ does not contain the digit $0$.

The number $43^{43} + 4$ is a prime.

At age $43$, John Fitzgerald Kennedy was inaugurated as President of the United States. He was the youngest person ever to be elected President, although Teddy Roosevelt was $42$ when he became President.

When asked about his age, Augustus de Morgan said he was $x$ years old in the year $x^2$. He was $43$ in $1849$.

The forty-third President of the United States was George W. Bush

The forty-third state to enter the Union was Idaho.

The forty-third largest state in the United States is Vermont.