

Cubic Equations Encyclopedia Article

Cubic Equations

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Cubic Equations

A cubic equation is one of the form $ax^3+bx^2+cx+d=0$ where a, b, c and d are **real numbers**. For example, $x^3-2x^2-5x+6=0$ and $x^3-3x^2+4x-2=0$ are cubic **equations**. The first one has the real solutions, or **roots**, -2 , 1 , and 3 , and the second one has the real root 1 and the complex roots $1+i$ and $1-i$.

Every cubic equation has either three real roots as in our first example or one real root and a pair of (conjugate) complex roots as in our second example.

There is a formula for finding the roots of a cubic equation that is similar to the one for the quadratic equation but much more complicated. It was first used by Geronimo Cardano in 1545, even though he had obtained the formula from **Niccolo Tartaglia** under the promise of secrecy.