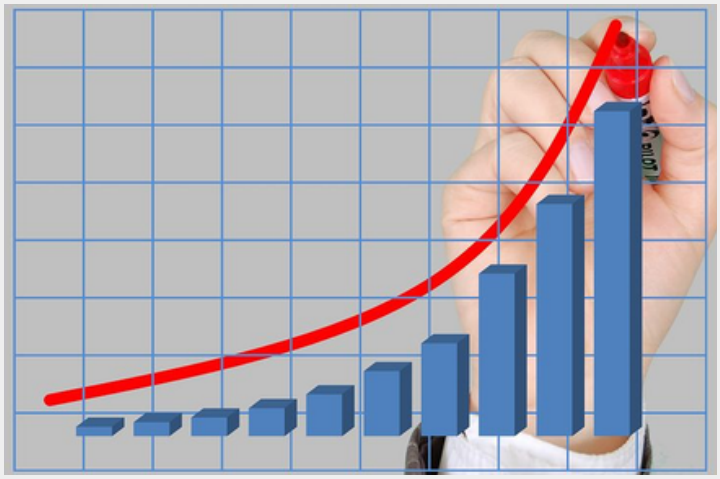
Exponential Equations

The Power of Explosive Growth

How can a disease spread rapidly through a population? The answer to these questions, and many others, lies in the world of exponential equations.



What is an exponential equation?
An exponential equation is a mathematical equation in which the variable appears in the exponent. Unlike polynomial equations, where the variable is multiplied by itself a fixed number of times, in exponential equations the variable indicates how many times a base is multiplied by itself.

For example, in the equation y = 2^x, the base is 2 and the exponent is x. As x increases, the value of y grows exponentially.

Exponential growth in real life Exponential growth is present in many aspects of our lives:
Finance: Compound interest, which is calculated on the initial capital and the accumulated interest, makes money grow exponentially.
Biology: Bacterial reproduction and virus spread follow exponential patterns under ideal conditions.
Physics: The radioactive decay of atoms is an exponential process.
Technology: Computer capacity has doubled approximately every two years, following Moore's Law, which describes exponential growth.