

How can I use the IMPOWER function in Excel to raise a number to a specified power?

Authored by
stats writer

June 30, 2024

RECOMMENDED CITATION

stats writer (2024). *How can I use the IMPOWER function in Excel to raise a number to a specified power?*. PSYCHOLOGICAL SCALES. Retrieved from <https://scales.arabpsychology.com/?p=161010>

The IMPOWER function in Excel is a powerful tool that allows users to easily raise a number to a specified power. By simply inputting the number and the desired power, the function automatically calculates the result and displays it in the designated cell. This feature is especially useful for mathematical and financial calculations, as it eliminates the need for manual calculations and reduces the risk of human error. With the IMPOWER function, users can efficiently and accurately perform complex exponentiation tasks, making it an essential tool for those working with large quantities of numerical data in Excel.

This article describes the formula syntax and usage of the **IMPOWER** function in Microsoft Excel.

Description

Returns a complex number in $x + yi$ or $x + yj$ text format raised to a power.

Syntax

IMPOWER(inumber, number)

The IMPOWER function syntax has the following arguments:

Inumber Required. A complex number you want to raise to a power.

Number Required. The power to which you want to raise the complex number.

Remarks

Use COMPLEX to convert real and imaginary coefficients into a complex number.

If number is nonnumeric, IMPOWER returns the #VALUE! error value.

Number can be an integer, fractional, or negative.

A complex number raised to a power is calculated as follows:

$$(x + yi)^n = r^n e^{in\theta} = r^n \cos n\theta + ir^n \sin n\theta$$

where:

$$r = \sqrt{x^2 + y^2}$$

and:

$$\theta = \tan^{-1}\left(\frac{y}{x}\right)$$

and:

$$\theta \in (-\pi; \pi]$$

ARABPSYCHOLOGY.COM