How can I use the IMARGUMENT function in Excel?

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The IMARGUMENT function in Excel is a mathematical function that allows users to find the argument, or angle, of a complex number in polar form. This function takes in a complex number as its input and returns the corresponding argument in radians. It can be used in a variety of applications, such as calculating phase angles in electrical circuits or analyzing vector quantities in physics. To use the IMARGUMENT function, simply input the complex number into the function and press enter. The result will be displayed in radians. This function can be a useful tool for performing complex calculations and analyzing data in Excel.

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

Description

Returns the argument θ (theta), an angle expressed in radians, such that:

$$x + yi = |x + yi| \times e^{\theta i} = |x + yi|(\cos\theta + i\sin\theta)$$

Syntax

IMARGUMENT(inumber)

The IMARGUMENT function syntax has the following arguments:

Inumber Required. A complex number for which you want the argument θ.

Remarks

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

IMARGUMENT is calculated as follows:

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

where:

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

and

z = x + yi