How can I convert a complex number into its polar form using the IMLN function in Excel?

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The IMLN function in Excel allows users to convert a complex number into its polar form. This function uses the natural logarithm of the complex number to determine its angle and magnitude in polar coordinates. By inputting the real and imaginary parts of a complex number, the IMLN function calculates and returns the corresponding angle and magnitude in polar form. This feature can be useful for data analysis and mathematical calculations involving complex numbers.

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

Description

Returns the natural logarithm of a complex number in x + yi or x + yj text format.

Syntax

IMLN(inumber)

The IMLN function syntax has the following arguments:

Inumber Required. A complex number for which you want the natural logarithm.

Remarks

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

The natural logarithm of a complex number is:

$$\ln(x+yi) = \ln\sqrt{x^2+y^2} + i\tan^{-1}\left(\frac{y}{x}\right)$$