

Euler's Formula

Euler's formula is a mathematical formula in complex analysis that shows a deep relationship between the trigonometric functions and the complex exponential function.

Euler's formula states that, for any real number x ,

$$e^{ix} = \cos(x) + i \sin(x)$$

$$e^{-ix} = \cos(x) - i \sin(x)$$

where

e is the [base of the natural logarithm](#)
 i is the [imaginary unit](#) (Note that $i^2 = -1$)
 \sin and \cos are [trigonometric functions](#).

