Definition

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Yuji Masuda
(y_masuda0208@yahoo.co.jp)

First, ±∞ is constant at any observation point (position).
If a set of real numbers is R, then

$$R \times (\pm\infty) = \pm\infty$$
$$R + (\pm\infty) = \pm\infty$$
$$(-1) \times (\pm\infty) \neq \mp\infty$$

On the other hand, when x (∈R)is taken on a number line, the absolute value X becomes larger toward ± ∞ as the absolute value X is expanded.
Similarly, as the size decreases, the absolute value X decreases toward 0.
Furthermore, x (-1) represents the reversal of the direction of the axis.

$$R \times (-1) \times (\pm\infty) = \frac{R}{\pm\infty}$$
$$-1 = \left(\frac{1}{\pm\infty}\right)^2 = i^2$$
$$1 = (\pm\infty) \times i$$

$$\therefore (\pm\infty) \cdot i - 1 = 0$$

Second, from the definition of napier number e

$$\lim_{n\to\infty}\left(1 + \frac{1}{(\pm\infty)}\right)^{(\pm\infty)} = e$$

$$1 + i = e^i \left(\because (1+i)^{\frac{1}{i}} = e\right)$$
$$i = \log(1+i) (\because 1 + i = e^i)$$
$$(1+i)^\pi = -1 (\because e^{i\pi} = -1)$$