

Problem 3

In each of Problems 1 through 6, use Euler's formula to write the given expression in the form $a + ib$.

$$e^{i\pi}$$

Solution

Euler's formula states that $e^{ix} = \cos x + i \sin x$.

$$\begin{aligned} e^{i\pi} &= \cos \pi + i \sin \pi \\ &= -1 + i(0) \\ &= -1 \end{aligned}$$