



A diagram of the complex plane with a horizontal real axis and a vertical imaginary axis. A vector z is drawn from the origin into the first quadrant. A second vector, $-z$, is drawn from the origin into the third quadrant, pointing in the opposite direction of z .

$$z = x + iy$$
$$= re^{i\theta}$$

$$-z = -x - iy$$
$$= re^{i(\theta + \pi)}$$