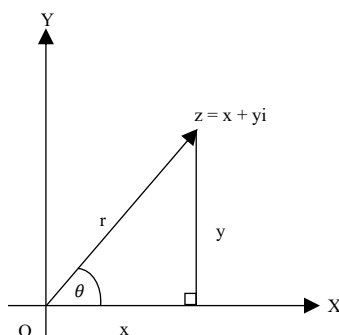# Polar Form of Complex Number

If $z = x + yi$ is a non-zero complex number, z can be represented by a vector in the complex plane.

$x = r cos\theta$, $y = r sin\theta$

$r = |z| = \sqrt{x^2 + y^2}$, $tan\theta = \frac{y}{x}$ when $x \neq 0$

Therefore, the complex number z may be written in terms of r and θ as follows:

$$z = r(cos\theta + isin\theta)$$

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