$\sqrt{3}+i$ polar form

$z = x+iy = \sqrt{3}+i$

$\therefore x = \sqrt{3}, y = 1$

$\alpha = \tan^{-1}\left|\frac{y}{x}\right| = \tan^{-1}\left|\frac{1}{\sqrt{3}}\right| = \pi/6$

Here $z = (\sqrt{3}, 1)$ $(+,+)$ is in 1st quadrant

amp $z = \alpha = \pi/6$

$\theta = \pi/6$

$|z| = \sqrt{x^2+y^2} = \sqrt{(\sqrt{3})^2+1^2} = \sqrt{4} = 2$, modulus

$z = r(\cos\theta + i\sin\theta)$

$$\sqrt{3}+i = 2\left(\cos\left[\pi/6\right] + i\sin\left[\pi/6\right]\right)$$

modulus amplitude