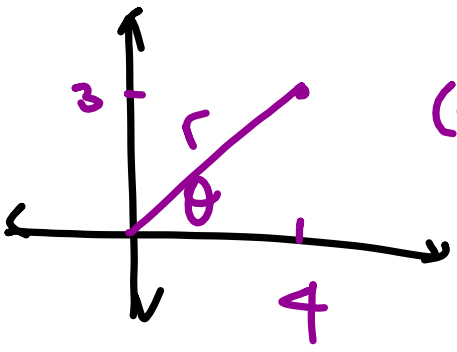
Polar coordinates.

r: dist. from the origin

θ: ∠ from non-neg x-axis.

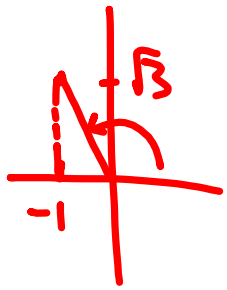


rect. (4,3)

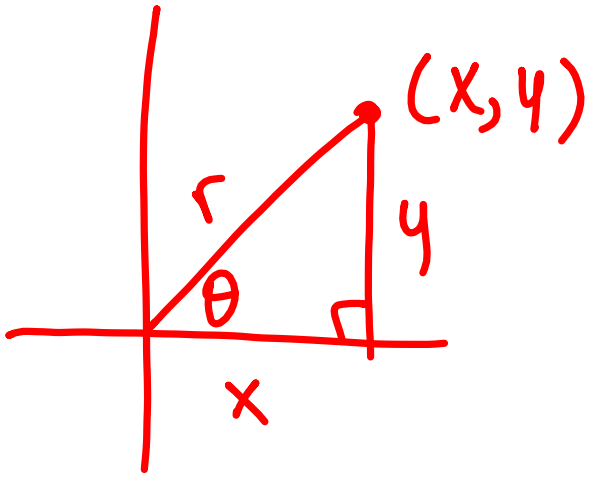
Polar: (r, θ) (5, 37°)

rect → polar

1) $(-1, \sqrt{3}) \rightarrow (2, 120^\circ)$



2) $(3\sqrt{3}, -3) \leftarrow (6, 330^\circ)$



R → P

$x^2+y^2=r^2$

$\tan\theta=\frac{y}{x}$

P → R

$x=r\cos\theta$

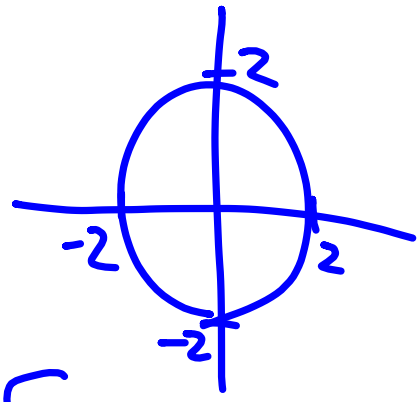
$y=r\sin\theta$

rect

$x^2+y^2=4$ ⟶

Polar

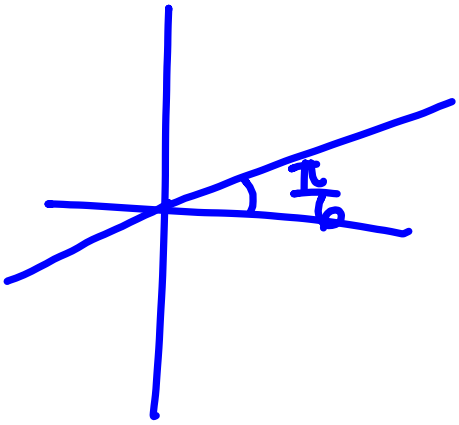
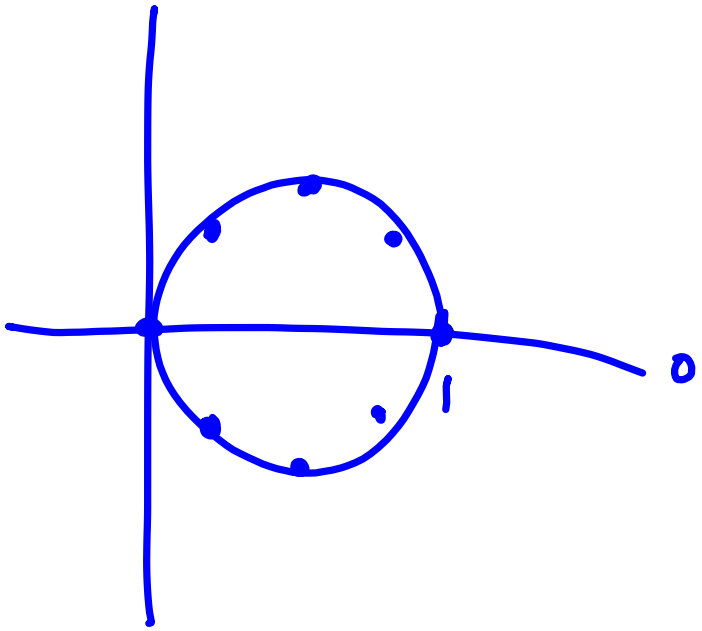
$r=2$



$y=\frac{\sqrt{3}}{3}x$ ⟵ $\theta=\frac{\pi}{6}$ ⟶ $\frac{\sqrt{3}}{3}$

$\tan=m$

$\frac{\sqrt{3}}{3}=\tan\frac{\pi}{6}=\frac{y}{x}$



$r = \cos\theta$