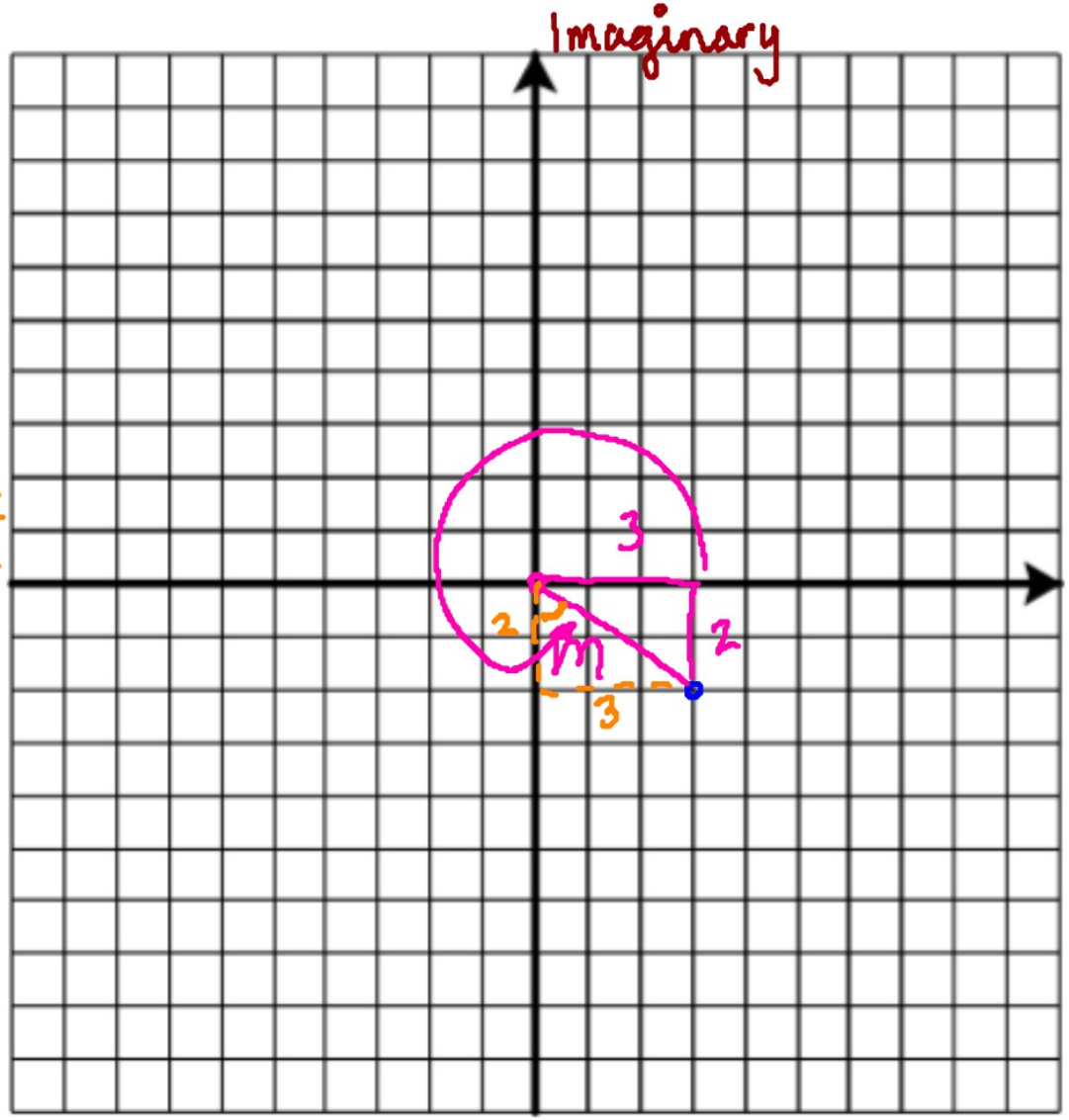
Adventures of the Complex Coordinate Plane



$\tan(\theta) = \frac{3}{2}$

.983

(3, 4)

$z = a + ib$

$z = 3 - 2i$

Modulus $\sqrt{13}$

- hypotenuse
- magnitude

argument 5.70

- radian of rotation

Modulus is 3

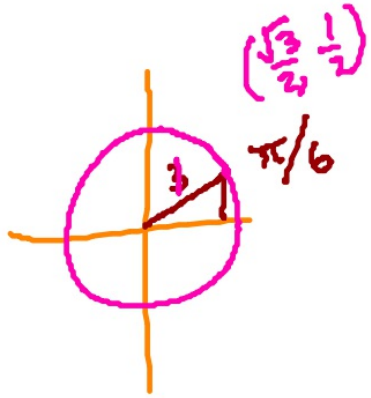
Argument is $\pi/6$

non-calc

What is $\underset{\text{mod}}{3}\ \text{cis}\ \underset{\text{arg}}{\pi/6}$?

What are complex coordinates ?

$$z = \frac{3\sqrt{3}}{2} + \frac{3i}{2}$$



$$z = 3\cos\frac{\pi}{6} + 3i\sin\frac{\pi}{6}$$

$$z = 3\left(\frac{\sqrt{3}}{2}\right) + 3i\left(\frac{1}{2}\right)$$

Calc

$\tan^{-1}\left(\frac{1}{3}\right) = .322$

$+ \pi$

$\sqrt{10}$ 3.46

- Find modulus & argument

for $-3 - i$, $-3 + i$ $\frac{2.82}{\sqrt{10}}$

- Find z^*

$z = \cos\theta + i\sin\theta$

$z^* = \cos\theta - i\sin\theta$

z = complex coordinates = $a + ib = r\,\mathrm{cis}\,\theta$

(r: mod, θ: arg)

z^* = conjugate of z = $\overline{z}$

Find zz^*

$$(a+ib)(a-ib)$$

$$a^2 - i^2 b^2 = \boxed{a^2+b^2}$$

$$(\cos\theta - i\sin\theta)^2 =$$