

$$e^{i\pi} + 1 = 0$$

$$e^{i\pi} = -1$$

$$\underbrace{e^{i\pi}} = -1 + 0i$$

$$Z_{e^{i\pi}} = -1 + 0i$$

$$e^{i\pi} = \cos \pi + i \sin \pi$$

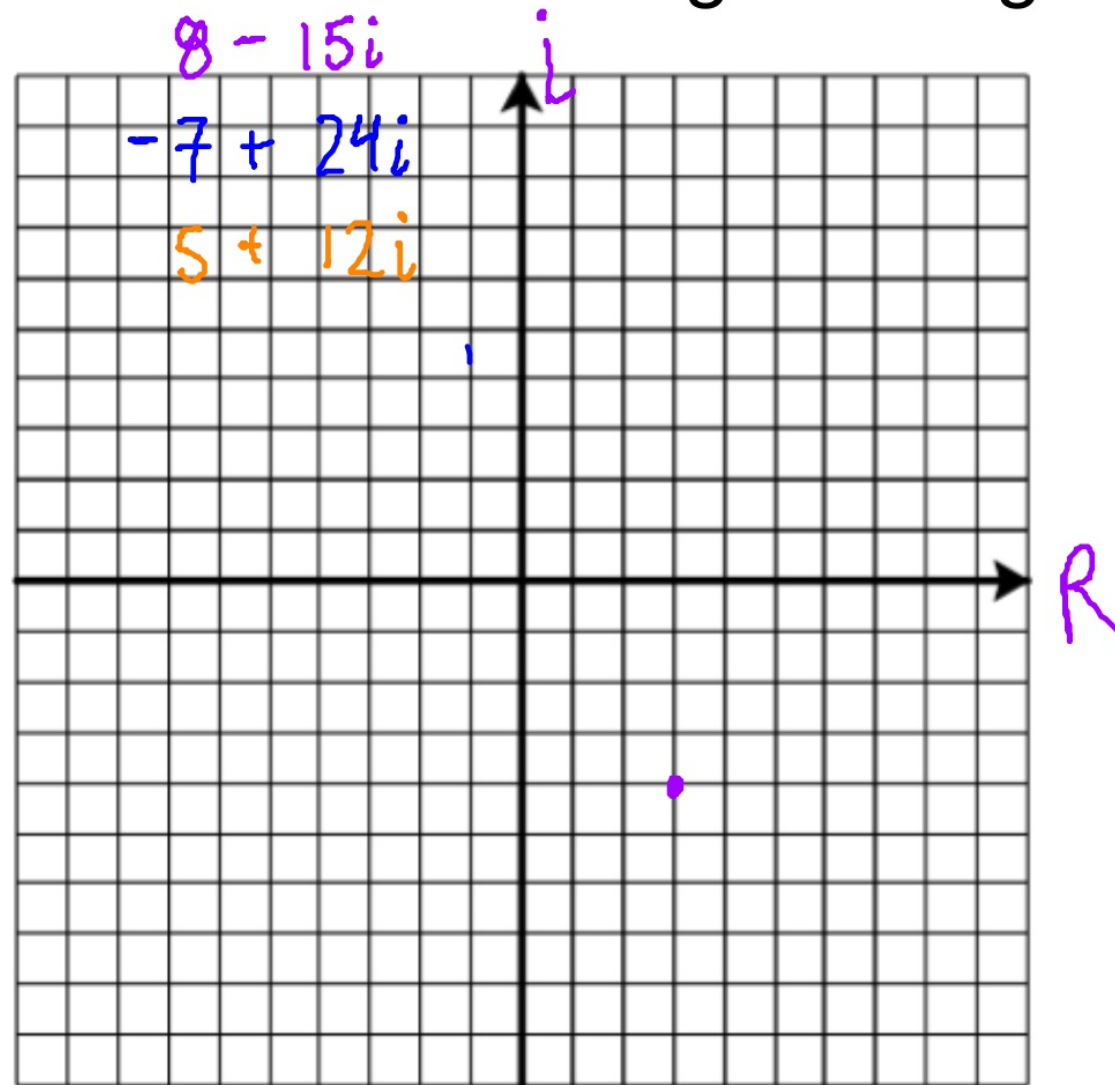
$$e^{i\theta} = \cos \theta + i \sin \theta$$

$$r \cdot e^{i\theta} = r(\cos \theta + i \sin \theta)$$

Argand Diagrams

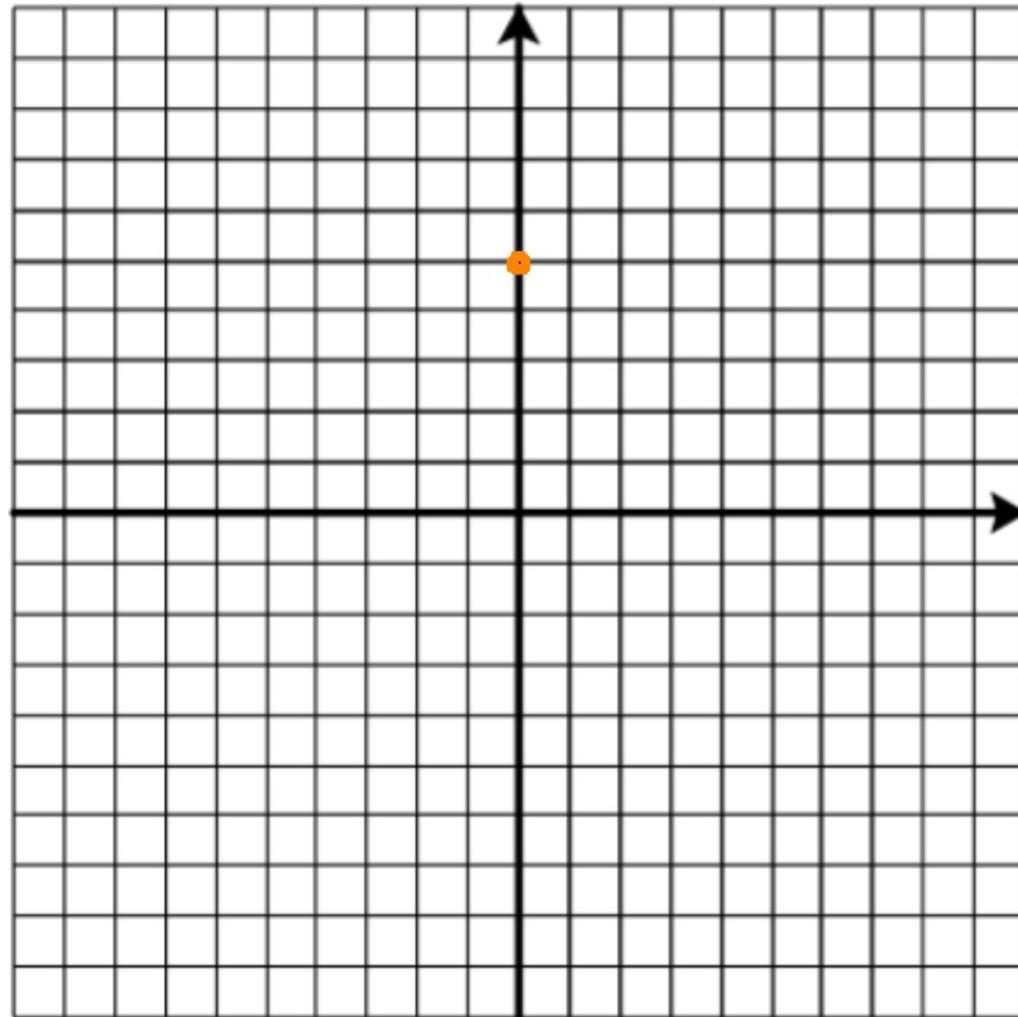
"complex coordinate plane"

*represent $z = 3 - 4i$ on an Argand diagram



Argand Diagrams

*represent $5e^{i\pi/2}$ on an Argand diagram

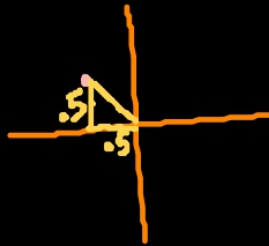


Write these complex numbers in the form $re^{i\theta}$

Non-calc

$$-0.5 + 0.5i$$

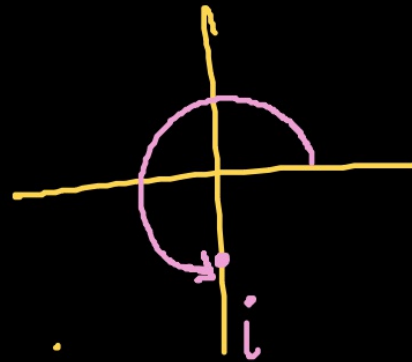
$$\frac{\sqrt{2}}{2} e^{3i\pi/4}$$



$$\sqrt{\frac{1}{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{2}$$

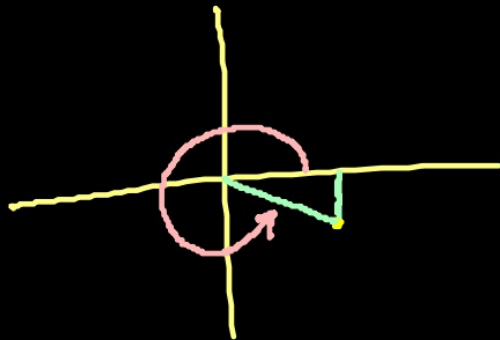
$$-4i$$

$$4 e^{3i\pi/2}$$



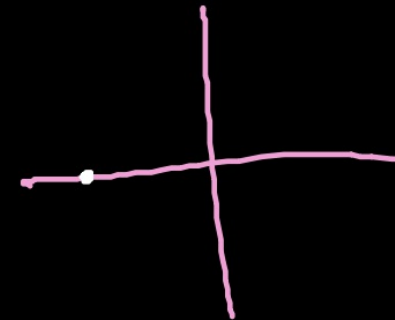
$$2\sqrt{3} - 2i$$

$$4 e^{11i\pi/6}$$



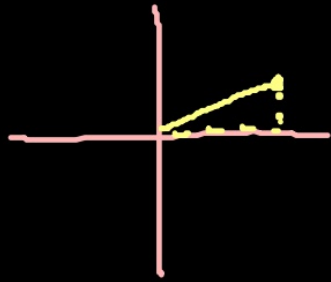
$$-5$$

$$5 e^{i\pi}$$



Write the following in Cartesian form

$$3e^{i\pi/6}$$



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

$$3\left(\cos\frac{\pi}{6} + i\sin\frac{\pi}{6}\right)$$

$$4e^{i\pi/4}$$

$$2\sqrt{2} + 2i\sqrt{2}$$

$$1 \cdot e^{2\pi i/3}$$

$$-\frac{1}{2} + \frac{i\sqrt{3}}{2}$$

$$2e^{3\pi i/2}$$

$$-2i$$

gv