

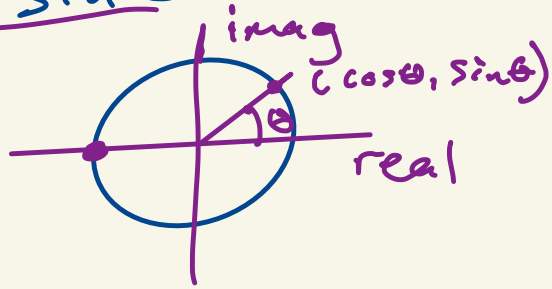
Euler's Complex Exponential Formula

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

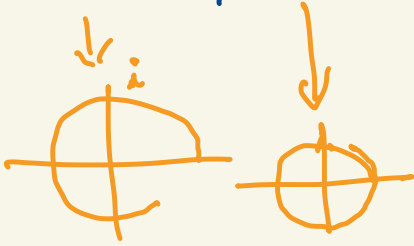
$$e^{i\theta} = \cos \theta + i \sin \theta$$

if $\theta = \pi$

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



$$2^{i\theta}, 3^{i\theta}$$



$$y = c^{i\theta}$$

$$\ln y = i\theta \ln c$$

$$y = e^{i\theta \ln c}$$

Multiply Complex Numbers

$$a * b = (a.r + i a.i)(b.r + i b.i)$$

$$\text{real} = a.r * b.r - a.i * b.i$$

$$\text{imaginary} = a.r * b.i + a.i * b.r$$

$$e^{i\theta} = \lim_{n \rightarrow \infty} \left(1 + \frac{i\theta}{n}\right)^n$$