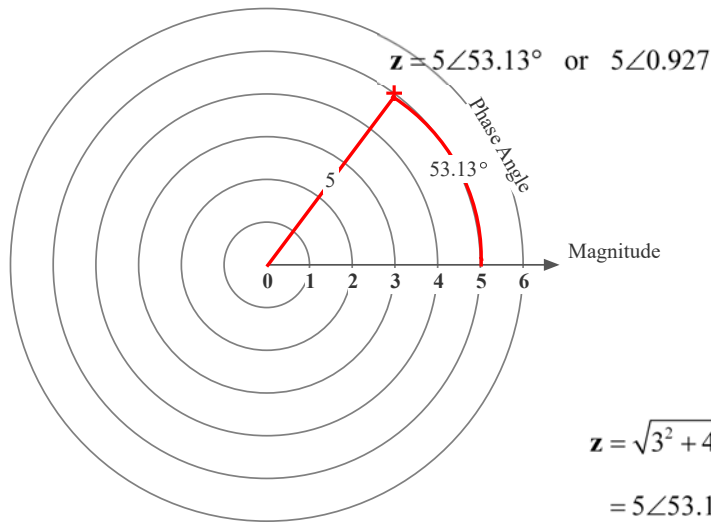


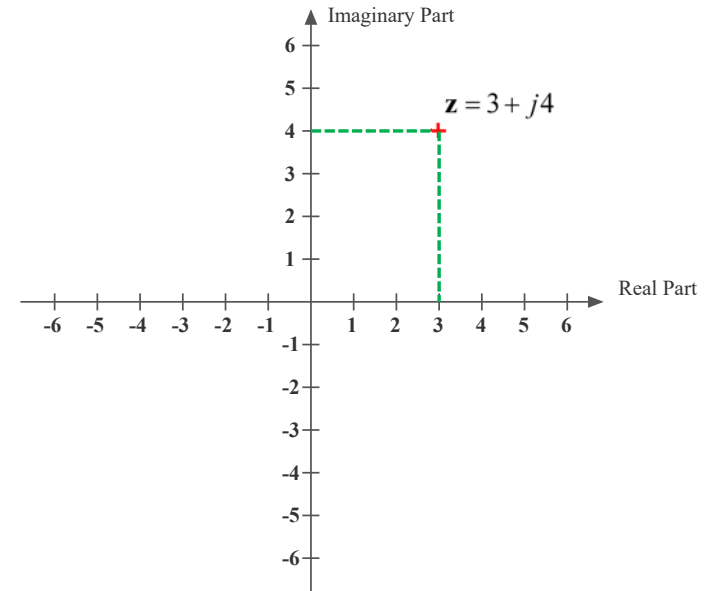
### Phasor Representation (Polar Coordinates)



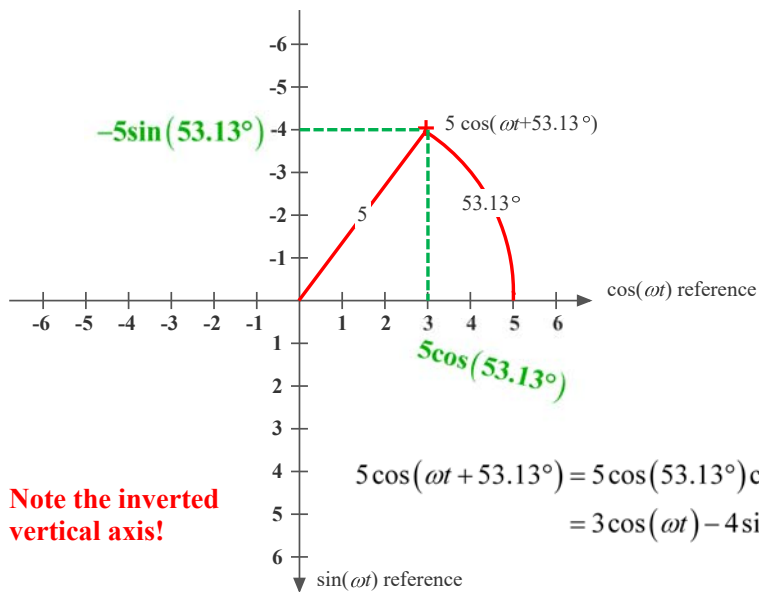
$$z = \sqrt{3^2 + 4^2} \angle \tan^{-1}\left(\frac{4}{3}\right)$$

$$= 5\angle 53.13^\circ \text{ or } 5\angle 0.927$$

### Complex Plane Representation (Cartesian or Rectangular Coordinates)



### Trigonometric Equivalent Relationship

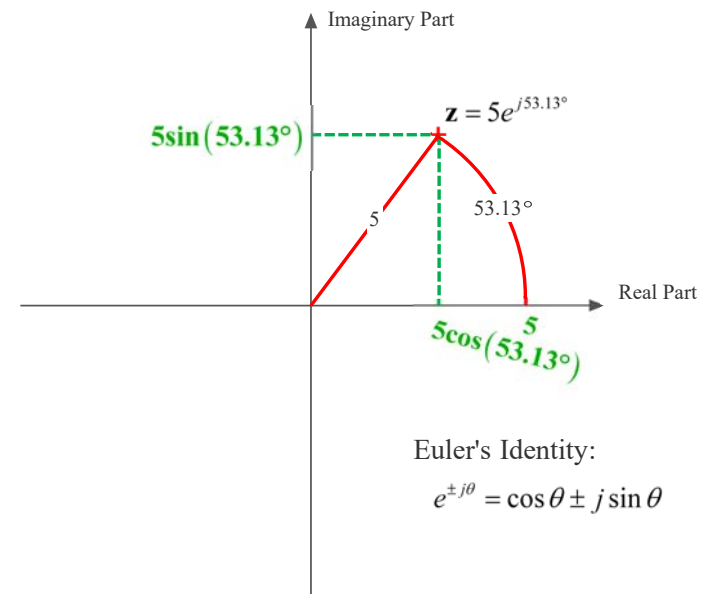


Note the inverted vertical axis!

$$5 \cos(\omega t + 53.13^\circ) = 5 \cos(53.13^\circ) \cos(\omega t) - 5 \sin(53.13^\circ) \sin(\omega t)$$

$$= 3 \cos(\omega t) - 4 \sin(\omega t)$$

### Exponential Representation



Euler's Identity:

$$e^{\pm j\theta} = \cos \theta \pm j \sin \theta$$