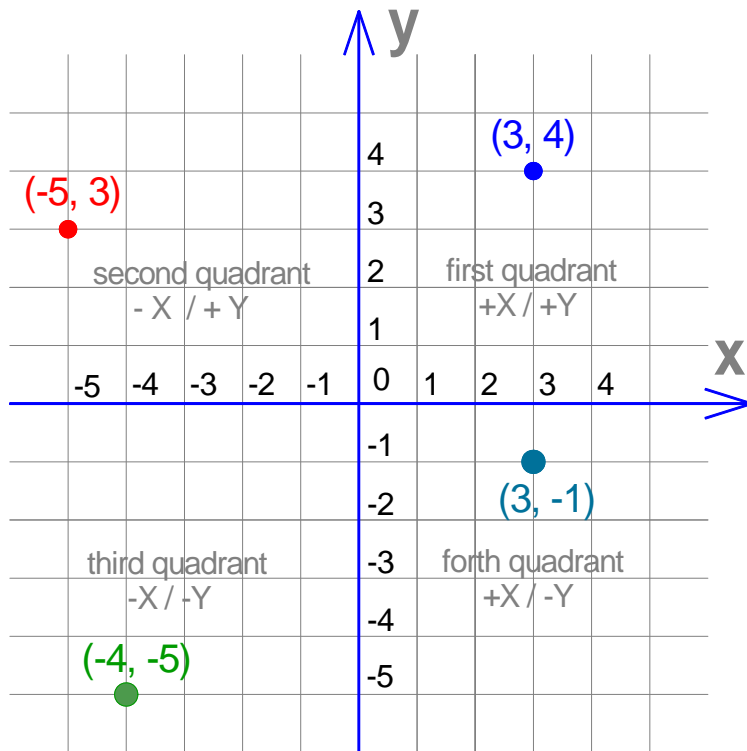


# Rectangular & Polar Coordinates

Rectangular coordinates and polar coordinates are two different ways of using two numbers to locate a point on a plane.



Rectangular Coordinates

Rectangular Coordinates

Polar Coordinates

$$(3, 4) = (5, 53.13^\circ)$$

$$(-5, 3) = (5.831, 143.13^\circ)$$

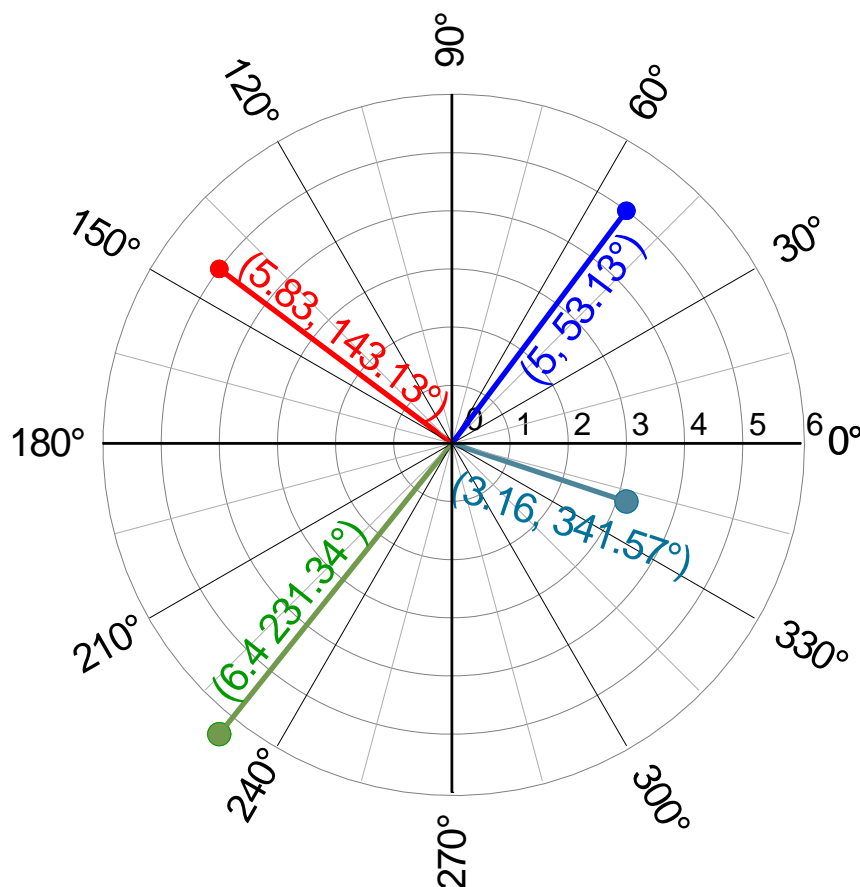
$$(-4, -5) = (6.4, 231.34^\circ)$$

$$(3, -1) = (3.16, 341.57^\circ)$$

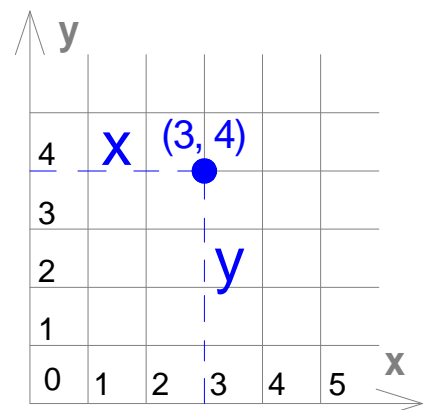
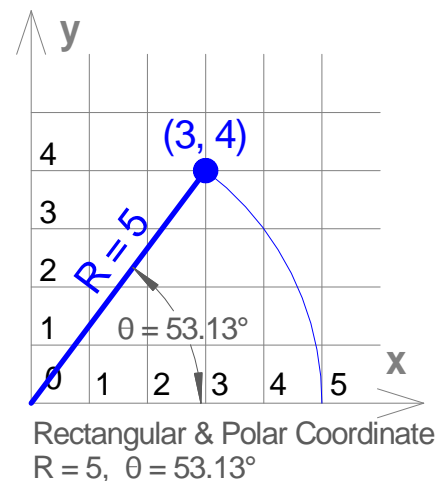
The relationships between rectangular coordinates (x,y) and polar coordinates (R,  $\theta$ ), are as follows:

$$y = R \sin \theta \quad \text{and} \quad x = R \cos \theta$$

$$R^2 = x^2 + y^2 \quad \text{and} \quad \tan \theta = y/x$$



Polar Coordinates



Rectangular Coordinate