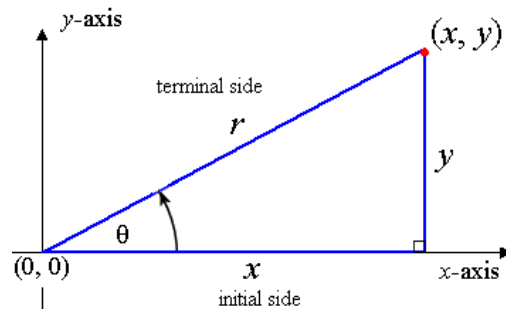**The Definition of the Trigonometric Functions:** Let (x, y) be a point on the terminal side of an angle θ

- θ in standard position
- $(x, y) \neq (0, 0)$
- Set $r = \sqrt{x^2 + y^2}$

Fill in the blanks.

$\sin \theta =$ o/h = y/r $\csc \theta =$ h/o = r/y

$\cos \theta =$ a/h = x/r $\sec \theta =$ h/a = r/x

$\tan \theta =$ o/a = y/x $\cot \theta =$ a/o = x/y

Find the six trig functions for an angle, θ, whose terminal side passes through $(-2, 3)$.

x = -2
y = 3

r = sqrt(a^2+b^2)   sinθ = o/h = 3/sqrt(13)
r = sqrt(-2^2+3^2)   cosθ = a/h = -2/sqrt(13)
r = sqrt(4+9)   tanθ = o/a = 3/-2
r = sqrt(13)   cscθ = h/o = sqrt(13)/3
                                     secθ = h/a = sqrt(13)/-2
                                     cotθ = a/o = -2/3