

## Day 23 - Right Triangle Trig

Example 1: Find the exact value of all 6 trig functions given an angle in standard position and the terminal side goes through the point  $(-4, 1)$

$$\cos \theta = -\frac{4}{\sqrt{17}}$$

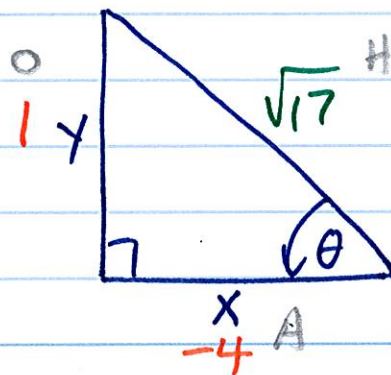
$$\sec \theta = -\frac{\sqrt{17}}{4}$$

$$\sin \theta = \frac{1}{\sqrt{17}}$$

$$\csc \theta = \frac{\sqrt{17}}{1}$$

$$\tan \theta = -\frac{1}{4}$$

$$\cot \theta = -\frac{4}{1}$$

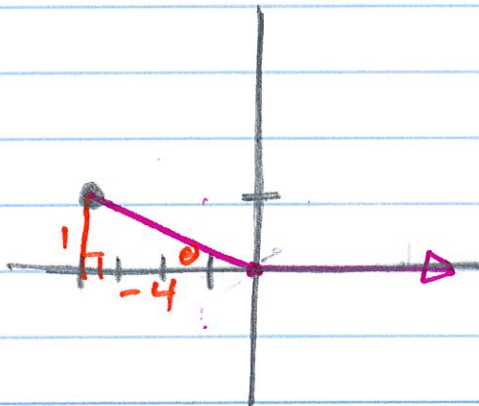


$$a^2 + b^2 = c^2$$

$$(1)^2 + (-4)^2 = c^2$$

$$17 = c^2$$

$$\sqrt{17} = c$$



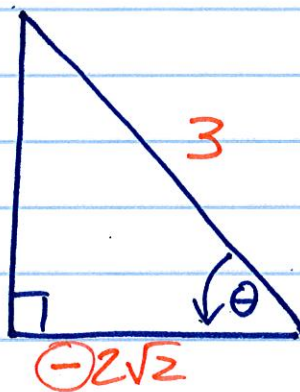
Example 2: If  $\theta$  terminates in the given quadrant and has the given function value, find all 6 trig functions.

Quadrant III ;  $\csc \theta = -3$

$$\cos \theta = -\frac{2\sqrt{2}}{3} \quad \sec \theta = -\frac{3}{2\sqrt{2}}$$

$$\frac{\theta}{H} \sin \theta = -\frac{1}{3} \quad \csc \theta = -3$$

$$\tan \theta = +\frac{1}{2\sqrt{2}} \quad \cot \theta = +\frac{2\sqrt{2}}{1}$$



$$\begin{aligned} a^2 + b^2 &= c^2 \\ (-1)^2 + b^2 &= (3)^2 \\ 1 + b^2 &= 9 \\ \sqrt{b^2} &= \sqrt{8} < \sqrt{4} \\ b &= 2\sqrt{2} \end{aligned}$$