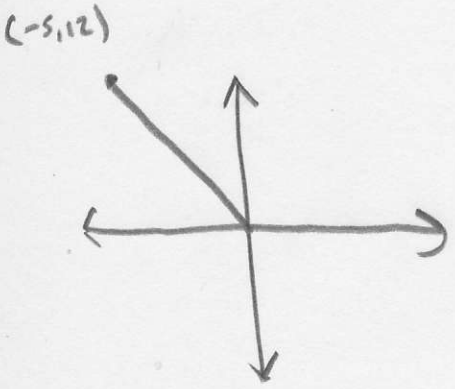
Math 112 Quiz #2 Key

① Find six trig functions for θ.



$r = \sqrt{(-5)^2 + (12)^2} = \sqrt{169} = 13$

$\sin\theta = 12/13$ $\quad \csc\theta = 13/12$

$\cos\theta = -5/13$ $\quad \sec\theta = 13/-5$

$\tan\theta = 12/-5$ $\quad \cot\theta = -5/12$

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② Determine the value of trig functions.

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

$\sin\theta = \frac{1}{\csc\theta} = \frac{1}{2}$ $\quad \csc\theta = 2$

$\cos\theta = \frac{1}{\sec\theta} = \frac{-\sqrt{3}}{2}$ $\quad \sec\theta = \frac{-2}{\sqrt{3}}$

$\tan\theta = \frac{\sin\theta}{\cos\theta} = \frac{-1}{\sqrt{3}}$ $\quad \cot\theta = -\sqrt{3}$

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③ Prove $\tan(\theta) = \frac{\sin(\theta)}{\cos(\theta)}$

$$\frac{\sin\theta}{\cos\theta} = \frac{\frac{y}{r}}{\frac{x}{r}} = \frac{\frac{y}{r}(r)}{\frac{x}{r}(r)} = \frac{y}{x} = \tan(\theta)$$