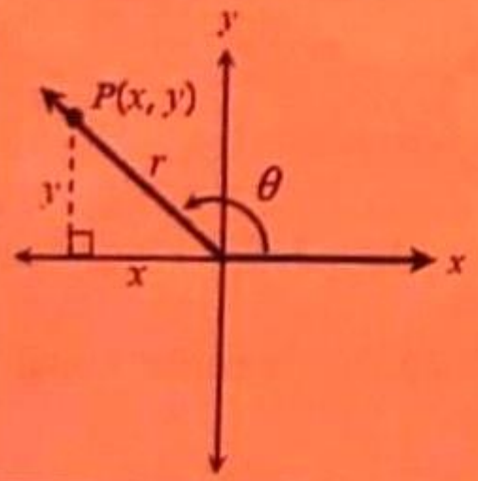
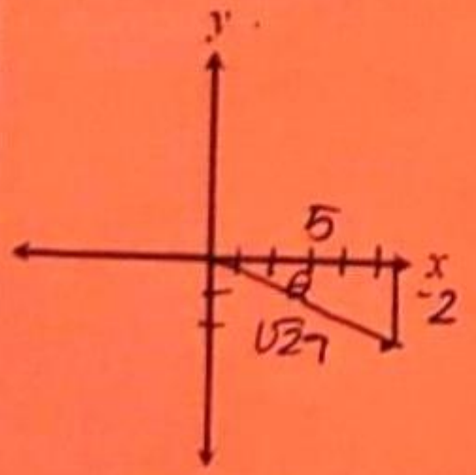
Trigonometric Functions



Let θ be an angle in standard form and $P(x, y)$ be a point on the terminal side of θ. The distance from P to the the origin, r, can be found using the formula:

$$r = \sqrt{x^2 + y^2}$$

$\sin\theta = \frac{y}{r}$	$\cos\theta = \frac{x}{r}$	$\tan\theta = \frac{y}{x}$
$\csc\theta = \frac{r}{y}$	$\sec\theta = \frac{r}{x}$	$\cot\theta = \frac{x}{y}$



$r = \sqrt{(-2)^2 + (5)^2} = \sqrt{29}$

Directions: $P(5, -2)$ is a point on the terminal side of θ in standard form. Find the exact values of the trigonometric functions of θ.

$\sin\theta = \frac{-2}{\sqrt{29}} = \frac{-2\sqrt{29}}{29}$	$\cos\theta = \frac{5}{\sqrt{29}} = \frac{5\sqrt{29}}{29}$	$\tan\theta = \frac{-2}{5}$
$\csc\theta = \frac{\sqrt{29}}{-2}$	$\sec\theta = \frac{\sqrt{29}}{5}$	$\cot\theta = \frac{-5}{2}$