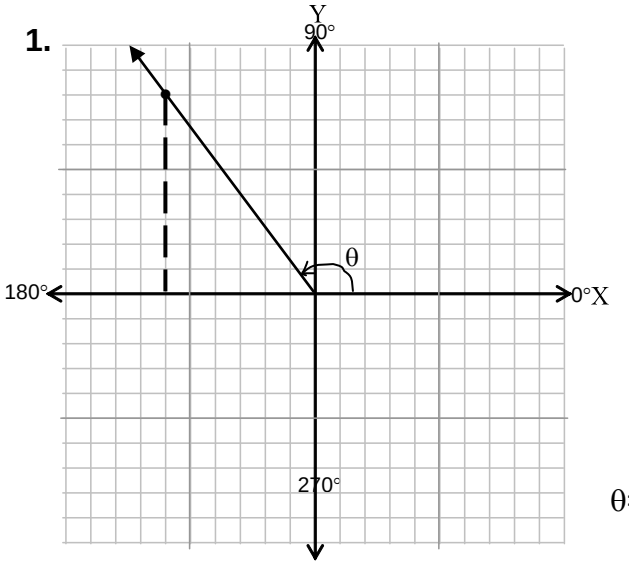
Trig: Angles on Coordinate Plane Name: Date: Per.

*Graph the point. Draw the **terminal side** of angle θ containing the given point in standard position.*
*Draw a small arc to show the rotation from the **initial side** (positive x-axis) to the **terminal side**.*
Draw reference triangle on the x-axis. Find values of $\sin\theta$, $\cos\theta$, $\tan\theta$, and the degree measure of angle θ.

1.



(-6, 8)

$x^2 + y^2 = r^2$
$(-6)^2 + 8^2 = r^2$
$36 + 64 = r^2$
$100 = r^2$
$r = \sqrt{100} \Rightarrow \boxed{r = 10}$ *r is always positive*

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

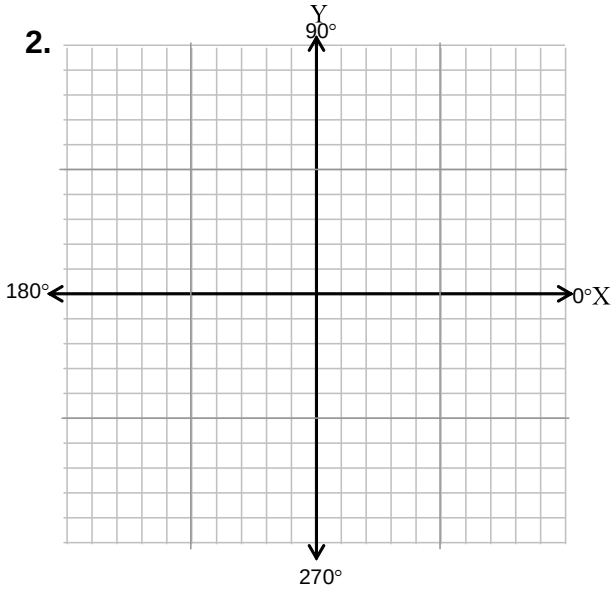
$\sin\theta = \frac{8}{10}$ $\quad \cos\theta = \frac{-6}{10}$ $\quad \tan\theta = \frac{8}{-6}$

$\boxed{\sin\theta = \frac{4}{5}}$ $\quad \boxed{\cos\theta = \frac{-3}{5}}$ $\quad \boxed{\tan\theta = \frac{4}{-3}}$

$\theta = \sin^{-1}\left(\frac{4}{5}\right) \approx 53°$ $\quad \theta = \cos^{-1}\left(\frac{-3}{5}\right) \approx 127°$ $\quad \theta = \tan^{-1}\left(\frac{4}{-3}\right) \approx -53°$

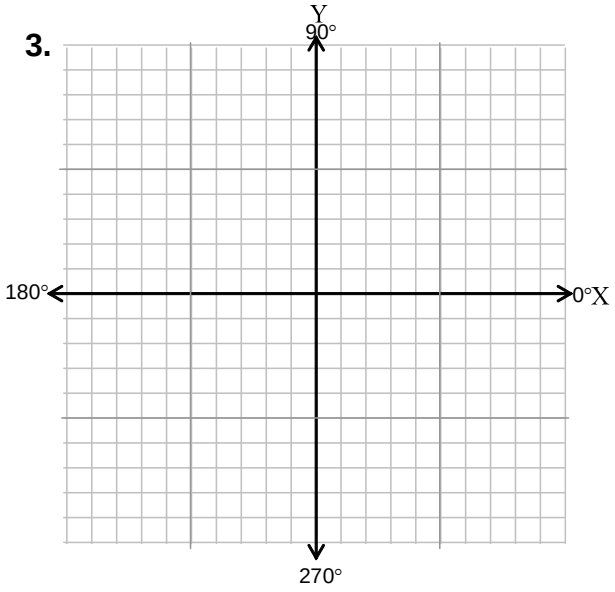
reference angle is 53°, $\therefore$ $\boxed{\theta \approx 180 - 53° \approx 127°}$

2.



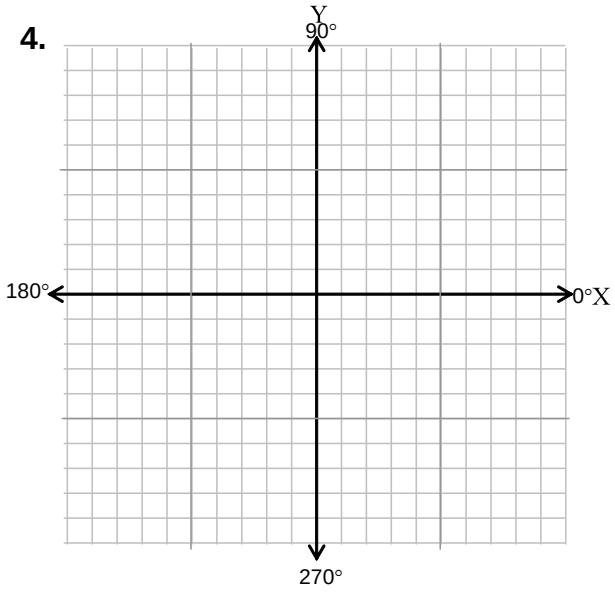
(-8, -6)

3.



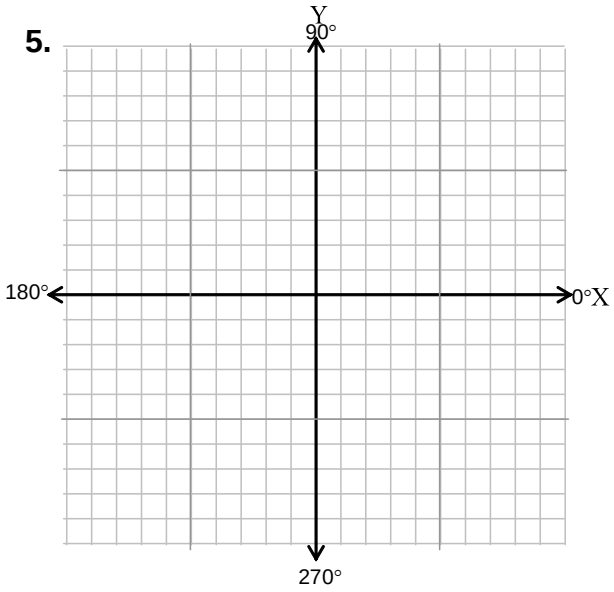
(7, 7)

4.



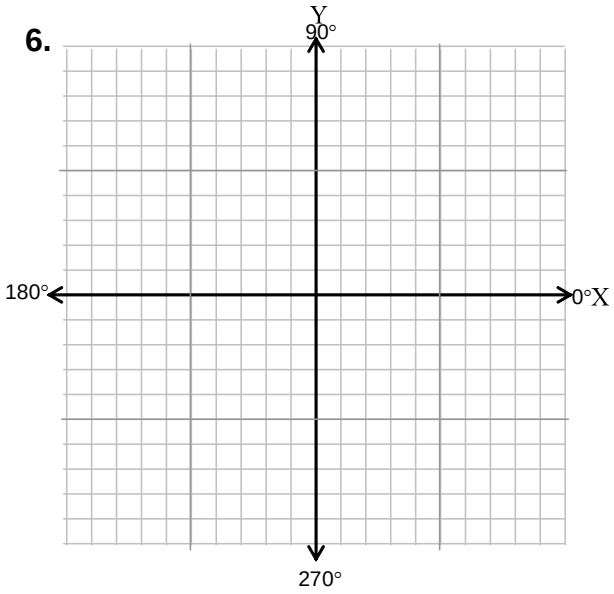
(8, -6)

5.



(-5,-5)

6.



(9, 0)