

$$\begin{aligned} (-3)^2 + a^2 &= 8^2 \\ 9 + a^2 &= 64 \end{aligned}$$

DRILL

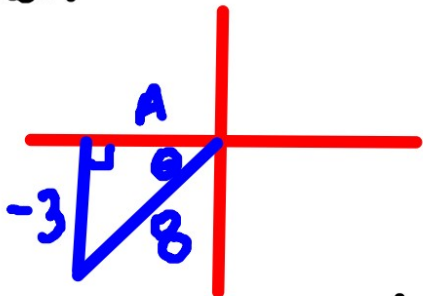
$$\begin{aligned} \sqrt{a^2} &= \sqrt{55} \\ a &= \sqrt{55} \end{aligned}$$

① If $\sin \theta = -\frac{3}{8}$ and $\cos \theta < 0$

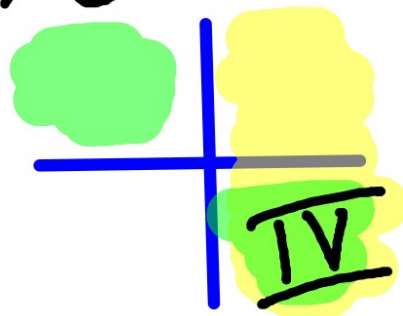
then what is the value of $\tan \theta$?

$$\tan \theta = \frac{-3}{\sqrt{55}} \cdot \frac{\sqrt{55}}{\sqrt{55}} = \frac{-3\sqrt{55}}{55}$$

$$\frac{-3\sqrt{55}}{55}$$

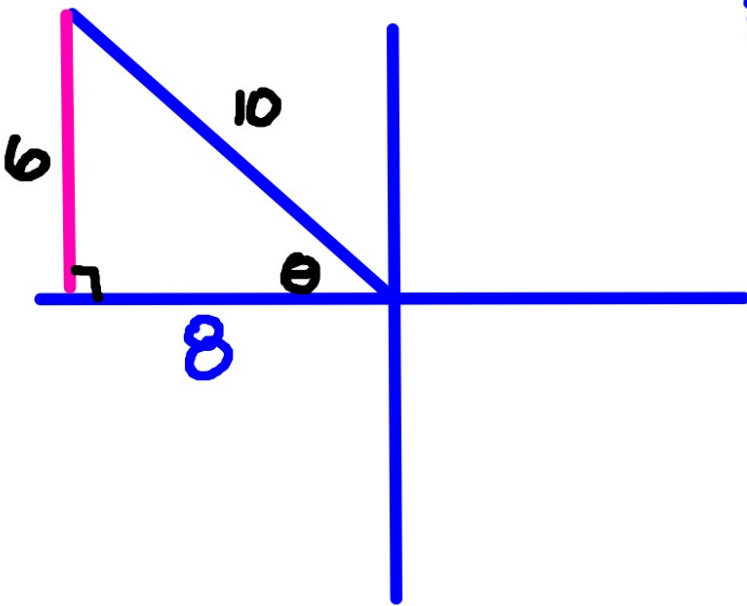


② Which Quadrant is $\sec \theta > 0$ and $\cot \theta < 0$?



Ex: $\csc \theta = \frac{10}{6}$ and $\sec \theta < 0$
($\sin \theta$) $\neq 0$ ($\cos \theta$)
Find $\cot \theta$

$$\begin{aligned}6^2 + x^2 &= 10^2 \\36 + x^2 &= 100 \\x^2 &= 64 \\x &= 8\end{aligned}$$

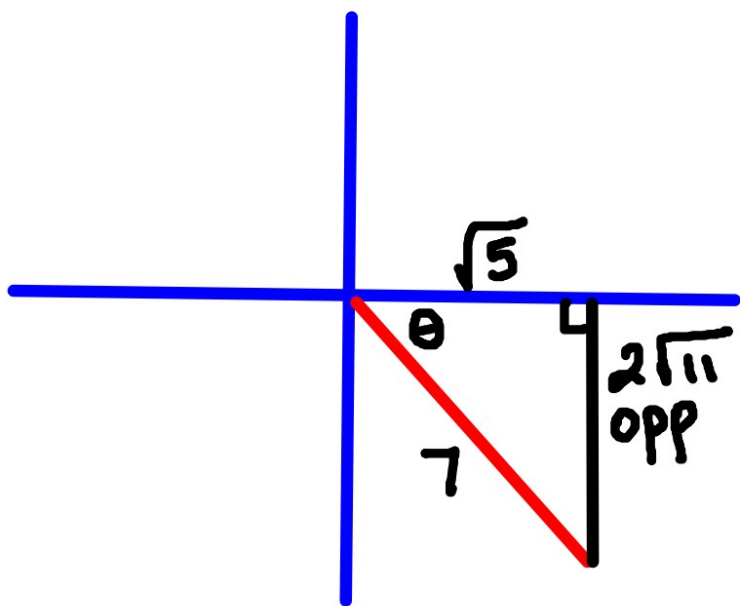


$$\cot \theta = \frac{8}{6} = \boxed{\frac{4}{3}}$$

Ex:

$$\cos \theta = \frac{\sqrt{5}}{7} \frac{A}{H} \quad \& \quad \cot \theta < 0$$

$$\text{Find } \sin \theta = \boxed{\frac{2\sqrt{11}}{7}}$$



$$\sqrt{5}^2 + b^2 = 7^2$$

$$5 + b^2 = 49$$

$$b^2 = 44$$

$$b = \sqrt{44} = \sqrt{4} \sqrt{11} = \underline{\underline{2\sqrt{11}}}$$

Ex:

$$\sqrt{54} \wedge \\ \sqrt{9} \sqrt{6} \\ = \boxed{3\sqrt{6}}$$

$$\sqrt{72} \wedge \\ \sqrt{36} \sqrt{2} \\ \boxed{6\sqrt{2}}$$

$$\frac{8}{\sqrt{54}} \cdot \frac{\sqrt{54}}{\sqrt{54}} = \frac{\cancel{8}\sqrt{54}}{\cancel{54} 27} = \frac{4\sqrt{54}}{27} = \frac{4(\cancel{3}\sqrt{6})}{9\cancel{27}}$$

$$\frac{8}{\sqrt{54}} = \frac{8}{3\sqrt{6}} \cdot \frac{\sqrt{6}}{\sqrt{6}} = \frac{8\sqrt{6}}{9\cancel{18}} = \frac{4\sqrt{6}}{9}$$

$$3\sqrt{6} \cdot \sqrt{6} = 3(6) = 18$$

Find Ref α 's for each angle below:

① $-\frac{5\pi}{3}$

Ref α is: $\frac{\pi}{3}$ ✓

② $\frac{7\pi}{2}$

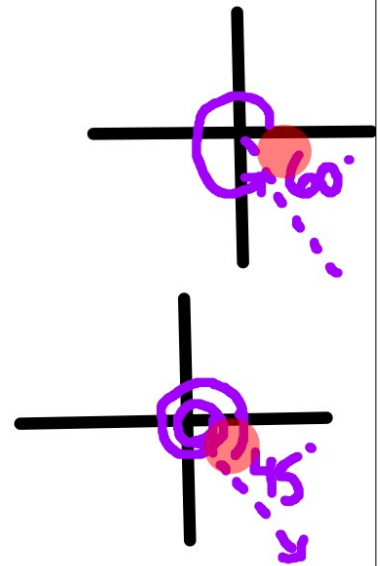
Ref α is: $\frac{\pi}{2}$ ✓

③ 300°

Ref α is: 60° ✓

④ -765°

Ref α is: 45° ✓



<u>Ref\angle:</u>	0	$\frac{\pi}{6}$	$\frac{\pi}{4}$	$\frac{\pi}{3}$	$\frac{\pi}{2}$
	0	30	45	60	90
$\sin \theta$	0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	1
$\cos \theta$	1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	0
$\tan \theta$	0	$\frac{\sqrt{3}}{3}$	1	$\sqrt{3}$	undef.

Terminal side
goes through

$(8, -14)$
x y

