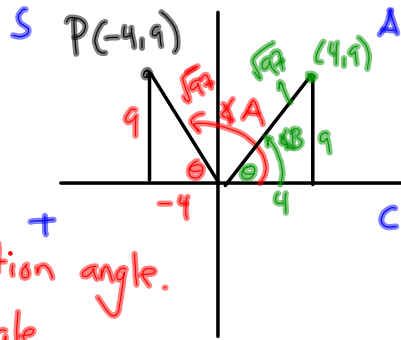


11. The point $P(-4, 9)$ is on the terminal arm of $\angle A$.
- Determine the primary trigonometric ratios for $\angle A$ and $\angle B$, such that $\angle B$ has the same sine as $\angle A$.
 - Use a calculator and a diagram to determine the measures of $\angle A$ and $\angle B$, to the nearest degree.



- $\angle A$ is the standard position angle.
- θ is the reference angle
- Point P is in QII , in this quadrant, Sine is positive.
- Where else is Sine positive? In QI !
- In QI , $\angle B$ is exactly the same as θ .

To find trig ratios for $\angle A$, use the Δ in QII :

To find trig ratios for $\angle B$, use the Δ in QI :

$$\begin{aligned} \sin A &= \frac{9}{\sqrt{97}} & \sin B &= \frac{9}{\sqrt{97}} \\ \cos A &= \frac{-4}{\sqrt{97}} & \cos B &= \frac{4}{\sqrt{97}} \\ \tan A &= \frac{9}{-4} & \tan B &= \frac{9}{4} \end{aligned}$$

To find the measures of $\angle A$ and $\angle B$:

$\angle B$: find $\angle B$. Use any trig ratio you'd like with

$\angle B$ in it:

$$\begin{aligned} \text{so, } \tan B &= \frac{9}{4} \\ B &= \tan^{-1}\left(\frac{9}{4}\right) \\ B &\doteq 66^\circ \end{aligned}$$

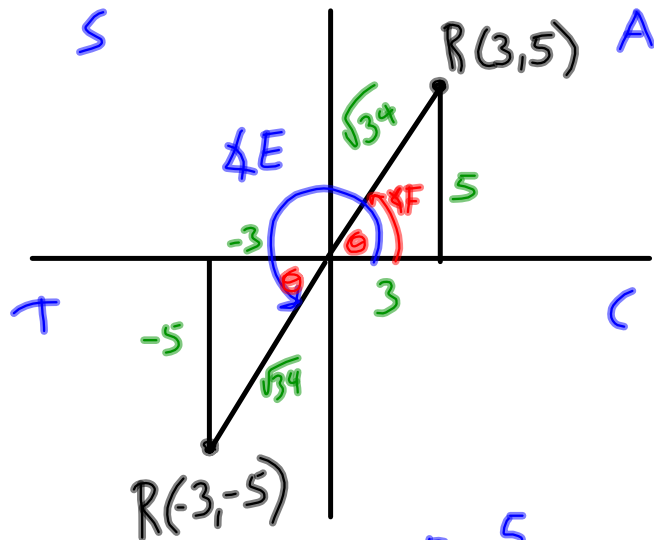
Now, $\angle A$ will be $180^\circ - \theta$ (look at picture)
and we already know that $\angle B$ is the same as θ , so:

$$\begin{aligned} \angle A &\doteq 180^\circ - 66^\circ \\ &\doteq 114^\circ \end{aligned}$$

12. The point $R(-3, -5)$ is on the terminal arm of $\angle E$.



- a) Determine the primary trigonometric ratios for $\angle E$ and $\angle F$ such that $\angle F$ has the same tangent as $\angle E$.
- b) Use a calculator and a diagram to determine the measures of $\angle E$ and $\angle F$, to the nearest degree.



$$\sin E = \frac{-5}{\sqrt{34}}$$

$$\cos E = \frac{-3}{\sqrt{34}}$$

$$\tan E = \frac{5}{3}$$

$$\sin F = \frac{5}{\sqrt{34}}$$

$$\cos F = \frac{3}{\sqrt{34}}$$

$$\tan F = \frac{5}{3}$$

find the angles: $\tan F = \frac{5}{3}$
 $F = \tan^{-1}\left(\frac{5}{3}\right)$
 $F = 59^\circ$

$$\begin{aligned} \angle E &= 180^\circ + \theta \\ &= 180^\circ + 59^\circ \\ &= 239^\circ \end{aligned}$$