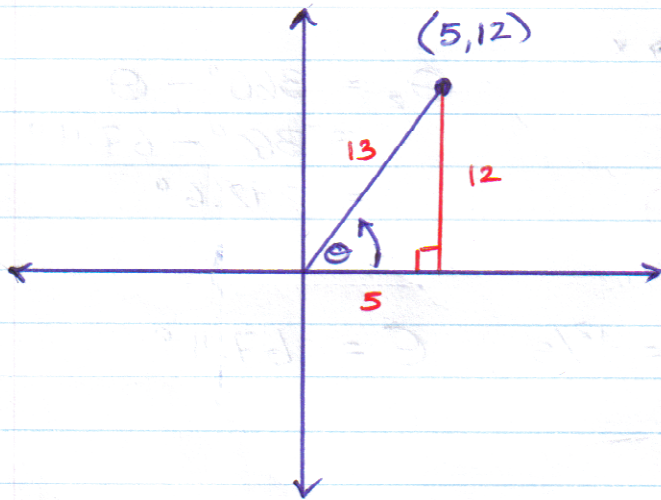


4.2: Co-Terminal and Related Angles.

- The point $A(5,12)$ is on the terminal arm of angle θ in standard position.

Find $\sin \theta$, $\cos \theta$:

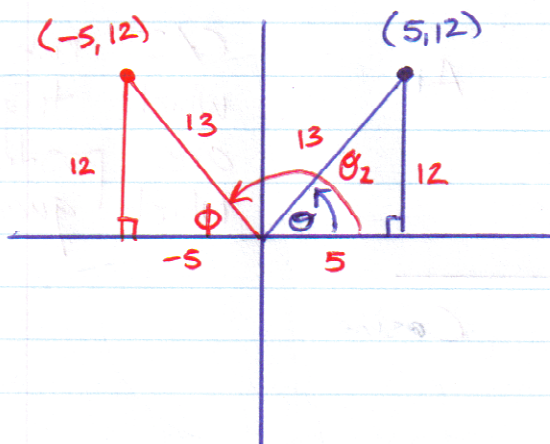


$$\begin{aligned}a^2 + b^2 &= c^2 \\5^2 + 12^2 &= c^2 \\25 + 144 &= c^2 \\169 &= c^2 \\13 &= c\end{aligned}$$

$$\sin \theta = \frac{12}{13} ; \cos \theta = \frac{5}{13} ; \tan \theta = \frac{12}{5}$$

- Find another angle between 0° and 360° that has the same sine, cosine and tangent values as θ .

→ $\sin \theta$



$$\theta = \phi$$

$$\therefore \text{another angle} = 180^\circ - \phi$$

$$\begin{aligned}\sin \theta &= \frac{12}{13} \\ \theta &= 67.3^\circ\end{aligned}$$

$$\begin{aligned}\therefore \text{other angle} &= \theta_2 = 180^\circ - 67.3^\circ \\ &= 112.7^\circ\end{aligned}$$