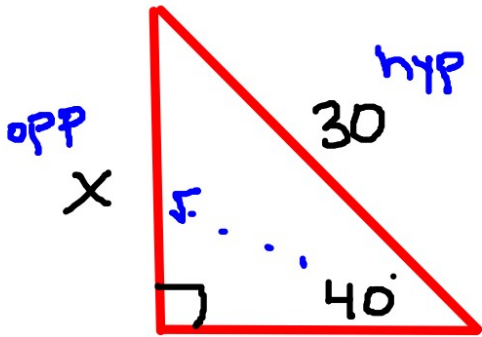


DRILL

① Solve for x :

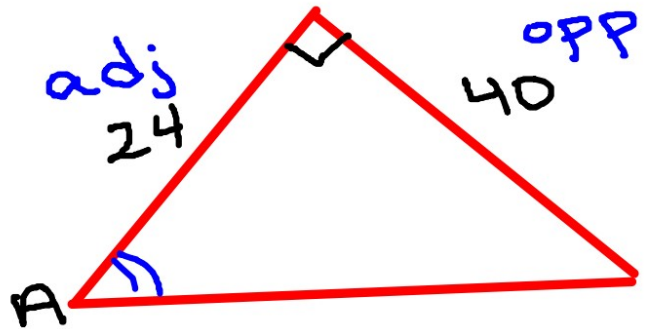


$$\sin 40^\circ = \frac{x}{30}$$

$$x = 30 \sin 40^\circ$$

$$x \approx 19.28$$

② Find $m\angle A$



$$\tan A = \frac{40}{24}$$

$$A = \tan^{-1}\left(\frac{40}{24}\right)$$

$$m\angle A \approx 59.04^\circ$$

Ex: $\sec A = \frac{34 \text{ hyp}}{15 \text{ adj}}$



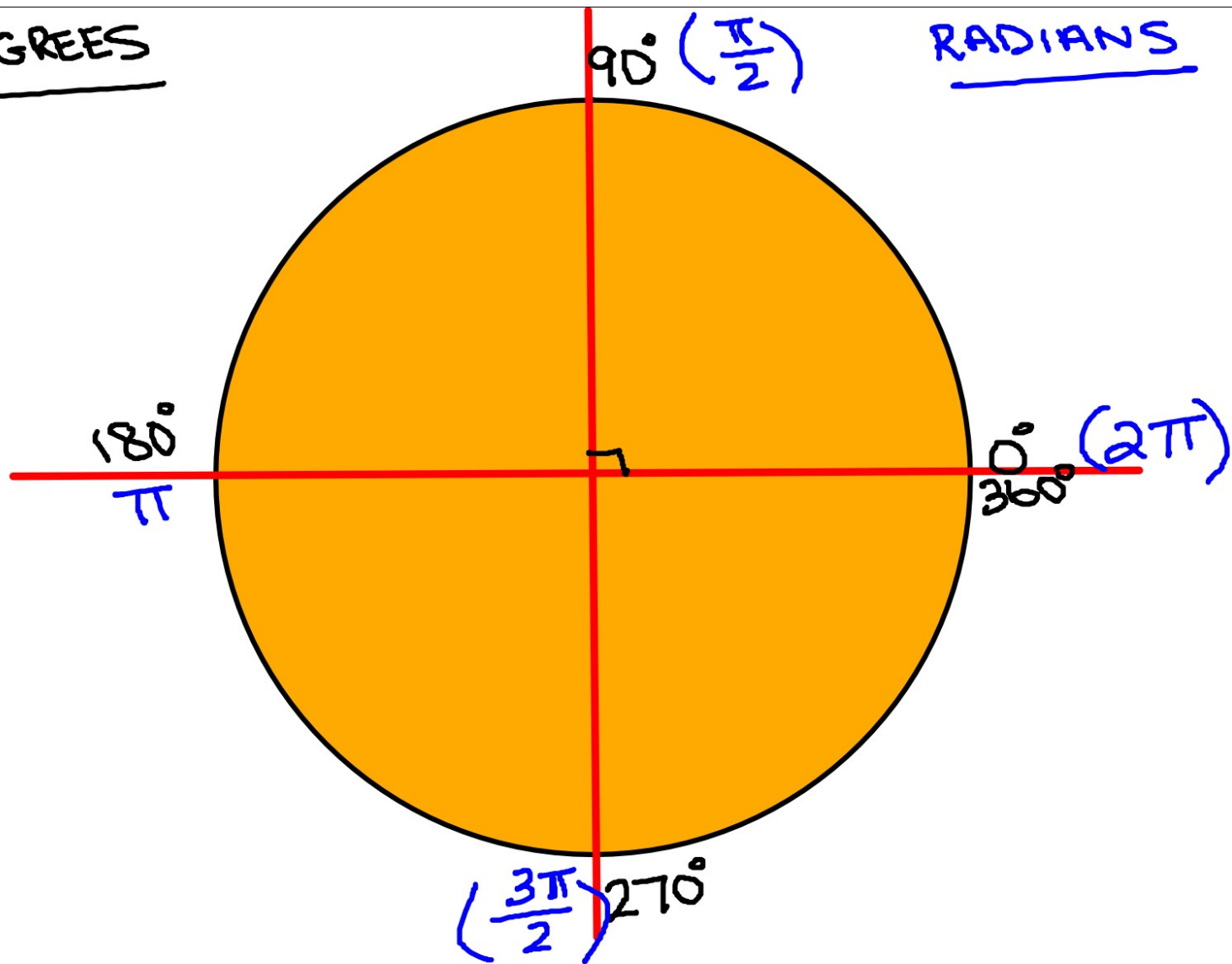
$$\cos A = \frac{15}{34}$$

$$A = \cos^{-1}\left(\frac{15}{34}\right)$$

$$A \approx 63.82^\circ$$

DEGREES

RADIANS



$$\frac{180^\circ(x)}{180^\circ} = \frac{\pi}{180^\circ} \quad x = \frac{\pi}{180}$$

* To go from **DEGREES** to **RADIANS**
we multiply by $\frac{\pi}{180^\circ}$

$$\frac{x}{\pi} = \frac{180^\circ}{\pi}$$

* To go from **RADIANS**
into **DEGREES** we
multiply by $\frac{180^\circ}{\pi}$

Ex: Convert from D \rightarrow R

$$\textcircled{1} \quad 45^\circ \left(\frac{\pi}{180} \right) = \frac{45\pi}{180} = \frac{\pi}{4}$$

$$\textcircled{2} \quad 300^\circ \left(\frac{\pi}{180} \right) = \frac{300\pi}{180} = \frac{5\pi}{3}$$

$$\textcircled{3} \quad 150^\circ \left(\frac{\pi}{180} \right) = \frac{150\pi}{180} = \frac{5\pi}{6}$$

Radians \rightarrow Degrees

$$\textcircled{1} \quad \frac{3\cancel{\pi}}{4} \cdot \left(\frac{180}{\cancel{\pi}} \right) = 135^\circ$$

$$\textcircled{2} \quad \frac{7\cancel{\pi}}{3} \left(\frac{180}{\cancel{\pi}} \right) = 420^\circ$$

$$\textcircled{3} \quad \frac{11\cancel{\pi}}{6} \left(\frac{180}{\cancel{\pi}} \right) = 330^\circ$$

DEGREES / MINUTES / SECONDS
(60) (3600)

$$\begin{array}{l} 1^\circ = 60' \text{ (min)} \\ 1^\circ = 3600'' \text{ (sec)} \end{array} > \begin{array}{l} 1' = 60'' \\ \text{(min)} \quad \text{(sec)} \end{array}$$

Ex: Convert $40^\circ 18' 52''$ into Degrees

$$40 + \frac{18}{60} + \frac{52}{3600} \approx 40.314^\circ$$

Ex: $\underline{28}^{\circ} \underline{39}' \underline{40}'' = 28 + \left(\frac{39}{60}\right) + \left(\frac{40}{3600}\right)$
 $\approx 28.661^{\circ}$

DMS \rightarrow DEGREES

Convert 48.6125° into DMS

- * Multiply the decimal by 60 to get minutes
- * Take the new decimal & multiply by 60

$$\underline{48}^{\circ} \quad \underline{36}' \quad \underline{45}''$$

* Convert 82.5125° into DMS

$82^\circ 30' 45''$

$$.5125(60) = \underline{\underline{30.75'}}$$

$$.75(60) = 45''$$