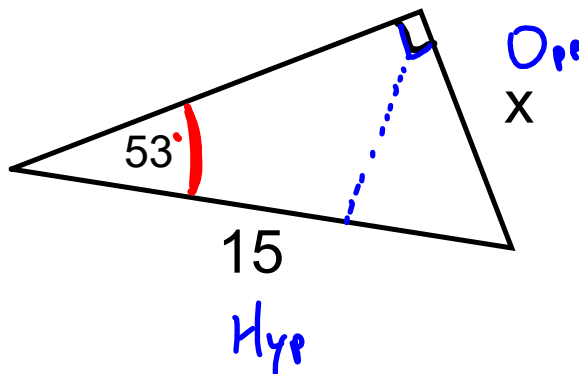


## Geometry - Right Triangle Trig Lesson 2: Inverse Trig Functions

Find the measure of the side length  $x$  for each triangle. Round to the nearest tenth. (Angles are in Degrees)

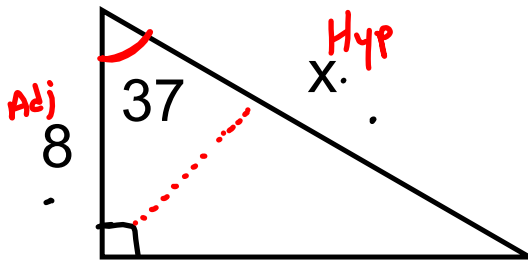


SOH CAH TOA

$$15 \cdot \sin 53^\circ = \frac{x}{15} \cdot 15$$

$$x = 15 \sin 53^\circ$$

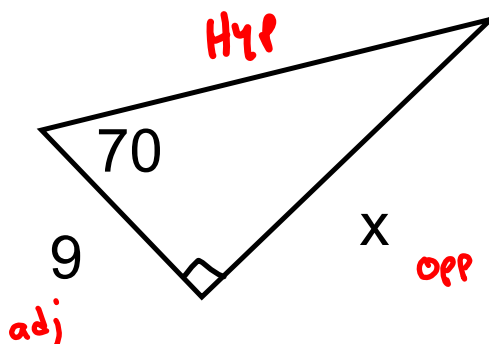
$$x \approx 11.97$$



$$x \cdot \cos 37^\circ = \frac{8}{x} \cdot x$$

$$\frac{x \cos 37^\circ}{\cos 37^\circ} = \frac{8}{\cos 37^\circ}$$

$$x = \frac{8}{\cos 37^\circ} \approx 10.0$$



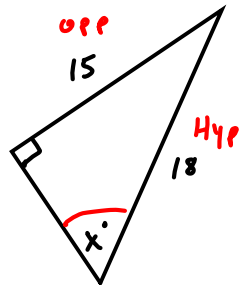
SOH CAH TOA

$$9 \cdot \tan 70^\circ = \frac{x}{9} \cdot 9$$

$$9 \tan 70^\circ = x \approx 24.7$$

## Right Triangle Trigonometry Day 2 - Inverse Trig Functions

Inverse Trig Functions:  
SOH CAH TOA



read as "inverse"  
 $\sin^{-1}$   $\cos^{-1}$   $\tan^{-1}$   
are used to solve for missing  
ANGLES instead of missing  
side lengths.

you still need to label the sides.

so... the setup would be...

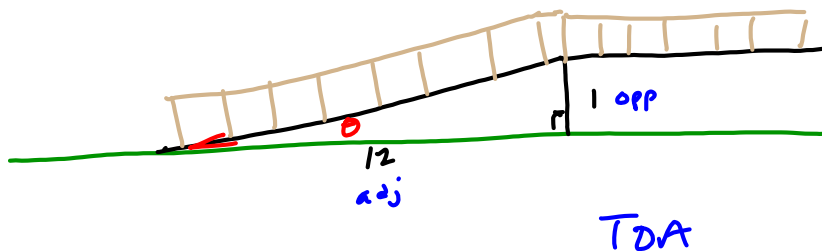
$$\sin x = \frac{15}{18}$$

to solve for the angle we swap the info.

$$\sin^{-1}\left(\frac{15}{18}\right) = x \quad \leftarrow \text{Do on Calculator}$$

$$x \approx 56.49^\circ$$

Ex: The ADA (Americans with Disabilities Act) requires wheelchair accessible ramps to have a ratio of 1:12, where every 1 foot incline must be 12 feet long. What is the angle of incline?



original setup:

$$\tan \theta = \frac{1}{12}$$

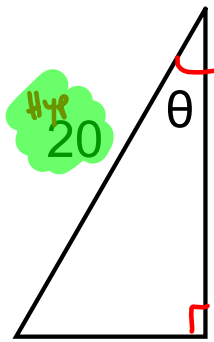
to solve for theta:

$$\tan^{-1}\left(\frac{1}{12}\right) = \theta$$

$$\theta \approx 4.76^\circ$$

Right Triangle Trigonometry Day 2 - Inverse Trig Functions

Find the measure of angle  $\theta$ .

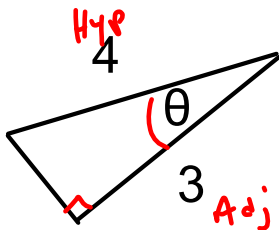


Soh

$$\sin^{-1}\left(\frac{8}{20}\right) = \theta$$

$$\theta \approx 23.6^\circ$$

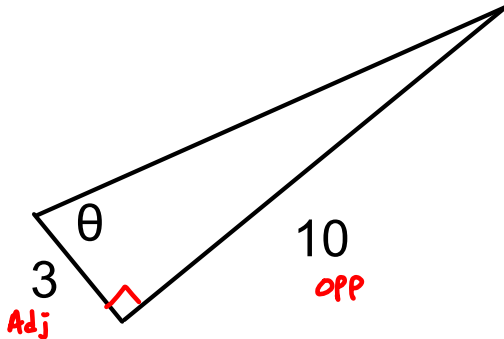
8  
opp



CAH

$$\cos^{-1}\left(\frac{3}{4}\right) = \theta$$

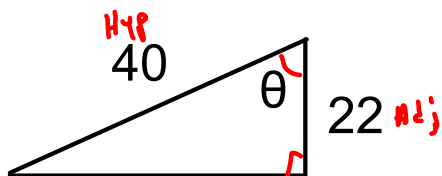
$$\theta \approx 41.4^\circ$$



TOA

$$\tan^{-1}\left(\frac{10}{3}\right) = \theta$$

$$\theta \approx 73.3^\circ$$



CAH

$$\cos^{-1}\left(\frac{22}{40}\right) = \theta$$

$$\theta \approx 56.6^\circ$$

## Right Triangle Trigonometry Day 2 - Inverse Trig Functions

Homework:

- Handout of Alg.3 5.2 Homework -

Numbers:

1-8 (Find Angle Theta)

75-79