

## 13.1 and 13.2 Right Triangle Trigonometry

**\*\*You must have a calculator today!\*\***

Trigonometry comes from the ancient Greek language and means measurement of triangles.

3 Basic Trig ratios:

1. sine (sin)
2. cosine (cos)
3. tangent (tan)

We can use an acronym to help us solve right triangles

SOH  
iPY  
ePP.  
Get-ss  
Get-ss

CAH  
odY  
sjaP.  
ncc  
eent

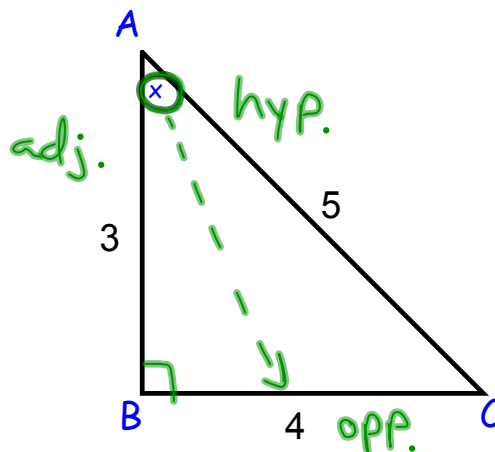
TOA  
pd  
P.j.  
t-ss  
t-ss

$$\sin(\text{ang.}) = \frac{\text{Opp.}}{\text{hyp.}}$$
$$\cos(\text{ang.}) = \frac{\text{adj.}}{\text{hyp.}}$$
$$\tan(\text{ang.}) = \frac{\text{Opp.}}{\text{adj.}}$$

Everything is based off angle given ( $x$  or  $\Theta$ )

SOH CAH TOA

$$\sin(x) = \frac{4}{5}$$
$$\cos(x) = \frac{3}{5}$$
$$\tan(x) = \frac{4}{3}$$



When solving for:

1) Side - round to 3 decimals

2) Angle - round to whole #

**\*\*Calculator MUST be in degree mode\*\***

## SOHCAHTOA

Solve for x.



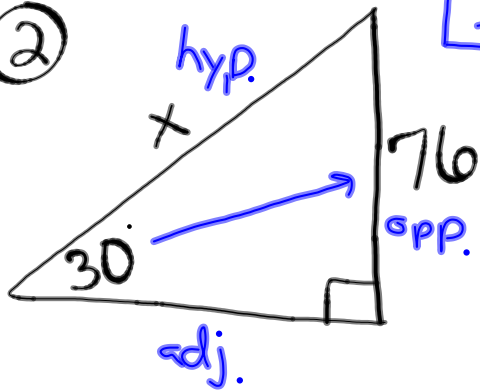
$$[\tan(5)] = \frac{2}{x}$$

$$x = \frac{2}{\tan(5)}$$

$$x = 22.86$$

\* If x is on bottom,  
switch x  
& trig.

②



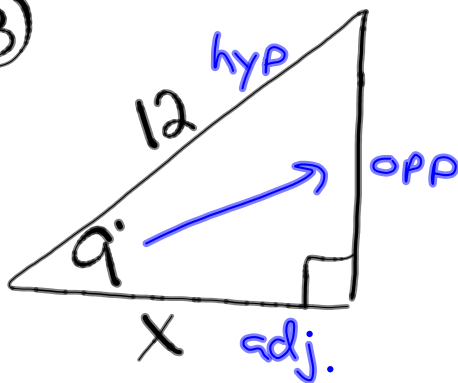
SOH CAH TOA

$$\sin(30) = \frac{76}{x}$$

$$x = \frac{76}{\sin(30)}$$

$$x = 152$$

③



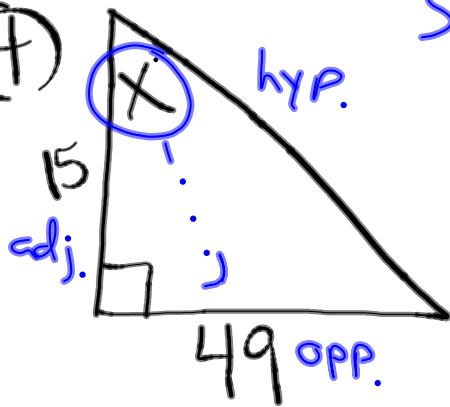
SOH CAH TOA

$$12(\cos(9)) = \left(\frac{x}{12}\right) \cdot 12$$

$$12 \cdot \cos(9) = x$$

$$11.852 = x$$

④



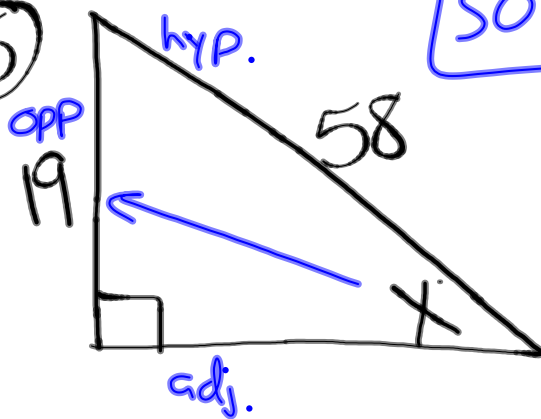
SOH CAH **TOA**

$$\underline{\tan(x)} = \frac{49}{15}$$

$$x = \tan^{-1}\left(\frac{49}{15}\right)$$

$$x = 73^\circ$$

⑤



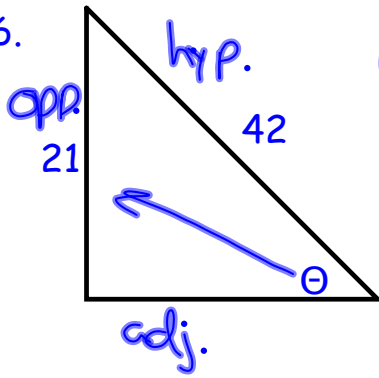
**SOH** CAH TOA

$$\underline{\sin(x)} = \frac{19}{58}$$

$$x = \sin^{-1}\left(\frac{19}{58}\right)$$

$$x = 19^\circ$$

6.



SOH CAH TOA

$$\sin(\theta) = \frac{21}{42}$$

$$\theta = \sin^{-1}\left(\frac{21}{42}\right)$$

$$\theta = 30^\circ$$

## Homework

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