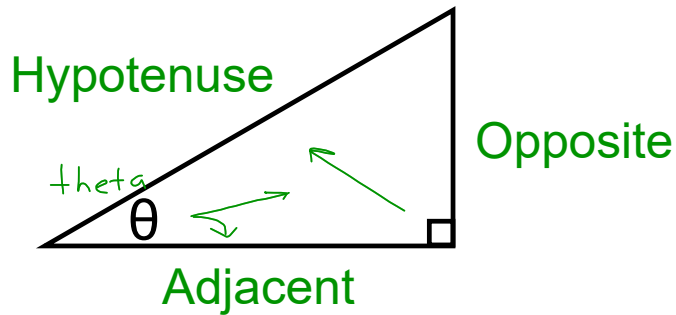


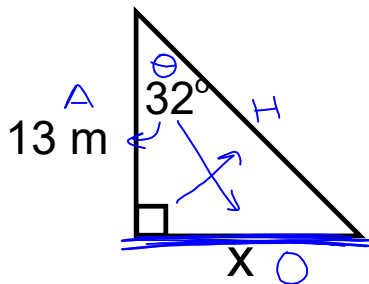
## Determine Sides using Trig Ratios



Definition	Abbreviation	Ratio
Sine	sin	$\sin \theta = \frac{O}{H}$
Cosine	cos	$\cos \theta = \frac{A}{H}$
Tangent	tan	$\tan \theta = \frac{O}{A}$

Ex. Determine the missing side for each triangle:

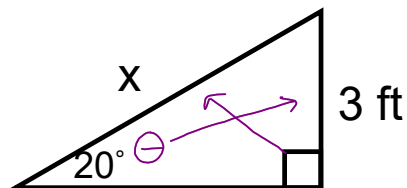
SOH CAH TOA



$$\begin{aligned} \theta &= 32 & \tan \theta &= \frac{O}{A} \\ O &= 13 & (13) \tan 32 &= \frac{x}{13} \\ A &= x & & \\ H &= & & \\ & & 8.1 \text{ m} &= x \\ & & x &= 8.1 \text{ m} \end{aligned}$$

Calculator Steps

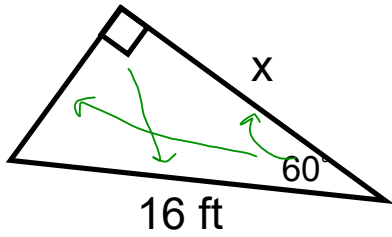
1 3 x tan 3 2 =



$$\begin{aligned} \theta &= 20 & \sin \theta &= \frac{O}{H} \\ O &= 3 & & \\ A &= & (x) \sin 20 &= \frac{3}{x} \\ H &= x & & \\ & & x \sin 20 &= 3 \\ & & \sin 20 & (\sin 20) \\ & & x &= 8.8 \text{ ft} \end{aligned}$$

Calculator Steps

3 ÷ ( sin 2 0 ) =



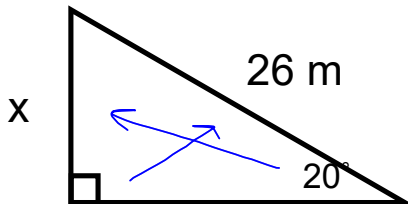
$$\theta = 60$$
~~$$\theta =$$~~

$$(16) \cos 60 = \frac{x}{16} (16)$$

$$A = x$$

$$H = 16$$

$$x = 8 \text{ ft}$$



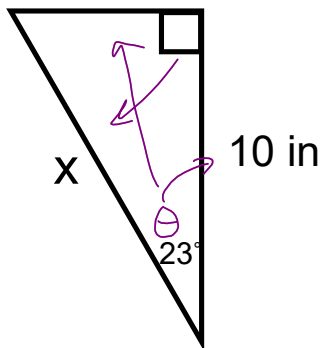
$$\theta = 20$$
~~$$\theta =$$~~

$$(26) \sin 20 = \frac{x}{26} (26)$$

$$O = x$$
~~$$A =$$~~

$$H = 26$$

$$8.9 \text{ m} = x$$



$$\theta = 23$$
~~$$\theta =$$~~

$$\cos 23 = \frac{10}{x}$$

$$A = 10$$

$$H = x$$

$$x = \frac{10}{\cos 23}$$

$$x = 10.9 \text{ in}$$

10.86  
round up  
when  
greater than 5

Tan  
WS