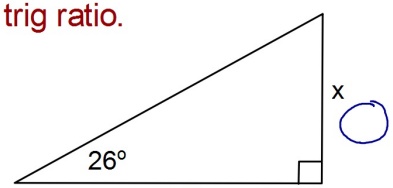
Finding a missing side using a trig ratio.

1. Decide if you are using Sin, Cos, or Tan
2. Write the Tan ratio as a fraction.
3. Create a proportion by setting this ratio equal to Tan26°.
4. Solve the proportion.



O

A

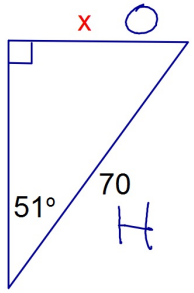
$\frac{x}{50}$

SOH CAH TOA

$\frac{\tan 26^\circ}{1} = \frac{x}{50}$

$x = 24.4$

Find the length of the side labeled x.



O

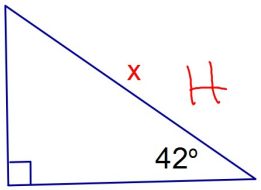
H

SOH CAH TOA

$\frac{\sin 51}{1} = \frac{x}{70}$

$x = 54.4$

Find the length of the side labeled x.



H

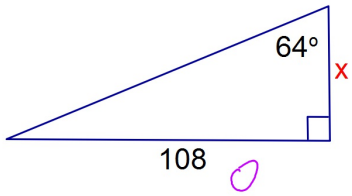
A

SOH CAH TOA

$\frac{\cos 42^\circ}{1} = \frac{17}{x}$

$x = 22.88$

Find the length of the side labeled x.



A

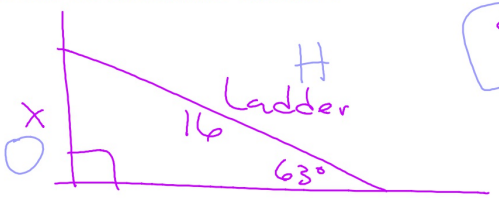
O

SOH CAH TOA

$\frac{\tan 64^\circ}{1} = \frac{108}{x}$

$x = 52.77$

A 16 foot ladder leans against a wall of a building. The ladder makes a 63° with the ground. How far up the wall can the ladder reach?

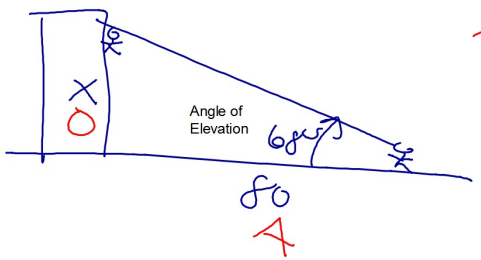


SOHCAHTOA

$\frac{\sin 63}{1} = \frac{X}{16}$

$X = 12.26$

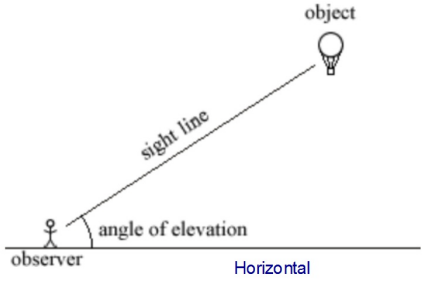
Draw and label a diagram to model the following situation:
You are on the ground 80 feet from a tall building. You see a window washer up on the building with an angle of elevation of 68°. Find how high up on the building the window washer is.



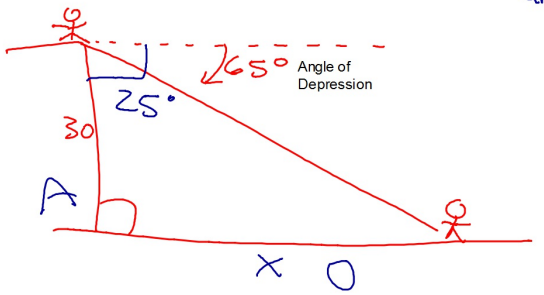
$\frac{\tan 68°}{1} = \frac{X}{80}$

$X = 198$

Angle of Elevation: Angle measured from the Horizontal upwards to an object.



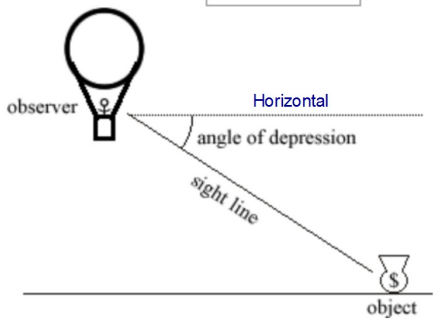
A worker is the roof of a 30 foot tall building and sees his co-worker on the ground with an angle of depression of 65°. Draw and label a diagram to model this situation. Find the distance the co-worker on the ground is from the building.



$\tan 25° = \frac{X}{30}$

$X = 13.99$ Ft

Angle of Depression: Angle measured from the horizontal to an object.



You can now finish Hwk #32.

Sec 11-7

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Problems 3-5, 13-15, 19, 20