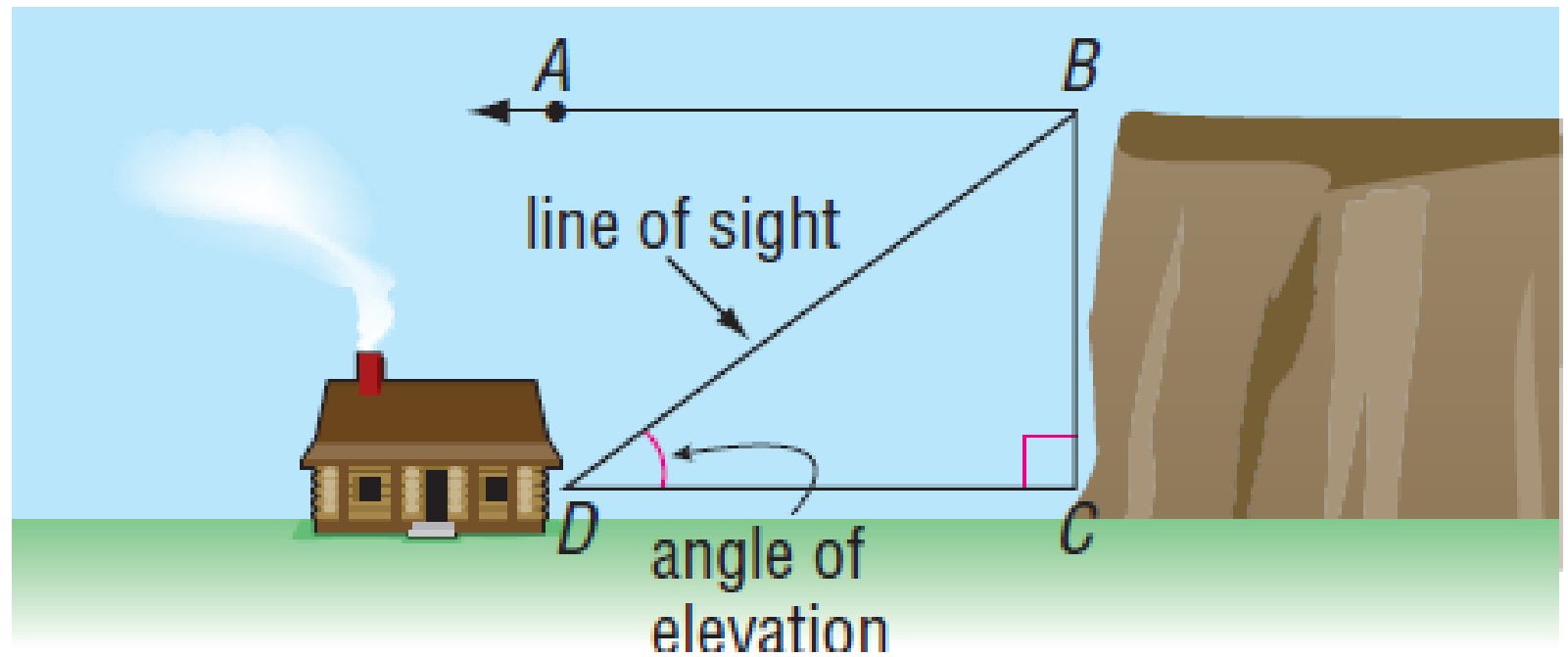


# Angles of Elevation and Depression



# Angle of Elevation

- An angle of elevation is the angle formed by a horizontal line and an observer's line of sight to an object above the horizontal line.



## Examples

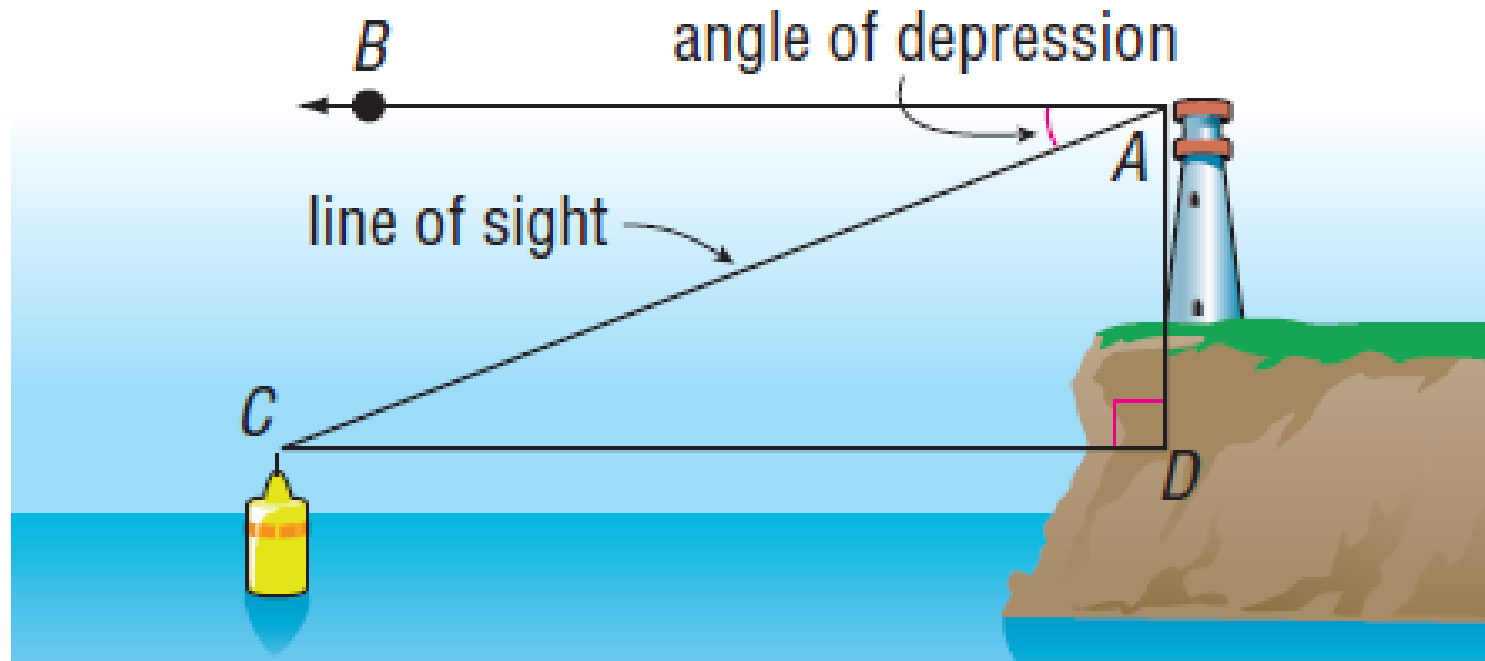
- Find the angle of elevation of the Sun when a 7.6-meter flagpole casts an 18.2-meter shadow. Round to the nearest tenth of a degree.

## Examples

- Find the angle of elevation of the Sun when a 7.6-meter flagpole casts an 18.2-meter shadow. Round to the nearest tenth of a degree.
- $\tan x = \frac{7.6}{18.2}$
- $x = \tan^{-1} \frac{7.6}{18.2}$
- $x = 22.7$

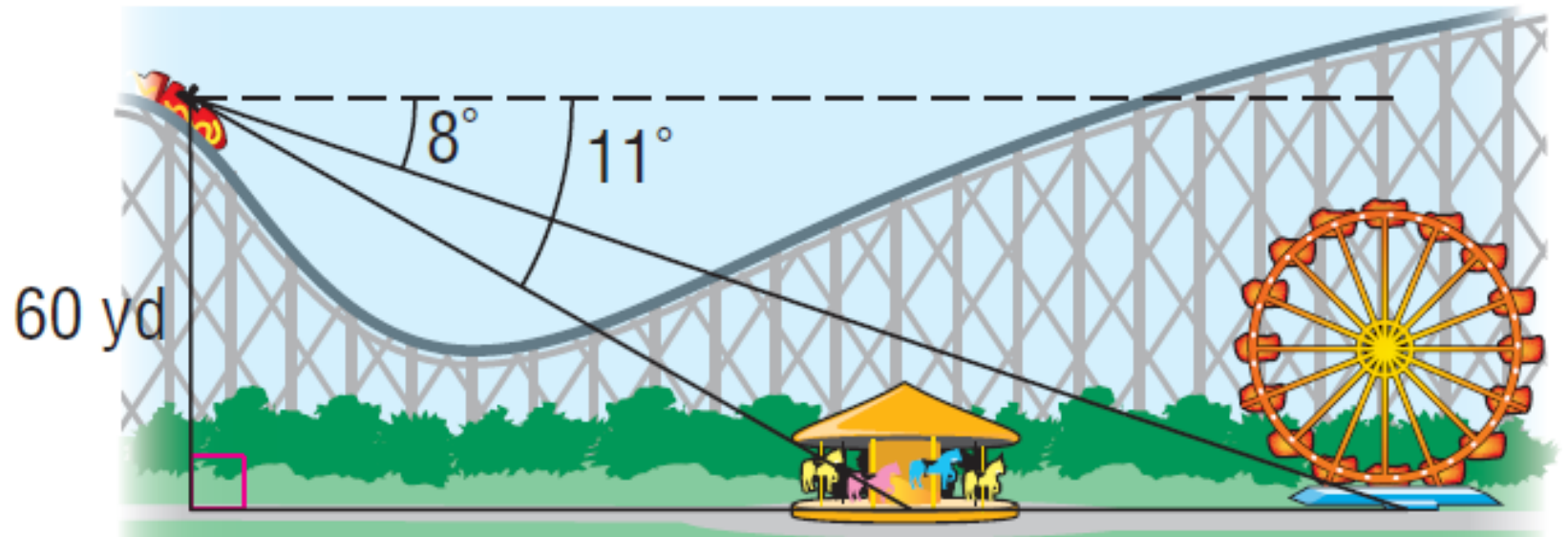
# Angle of Depression

- An angle of depression is the angle formed by a horizontal line and an observer's line of sight to an object below the horizontal line.

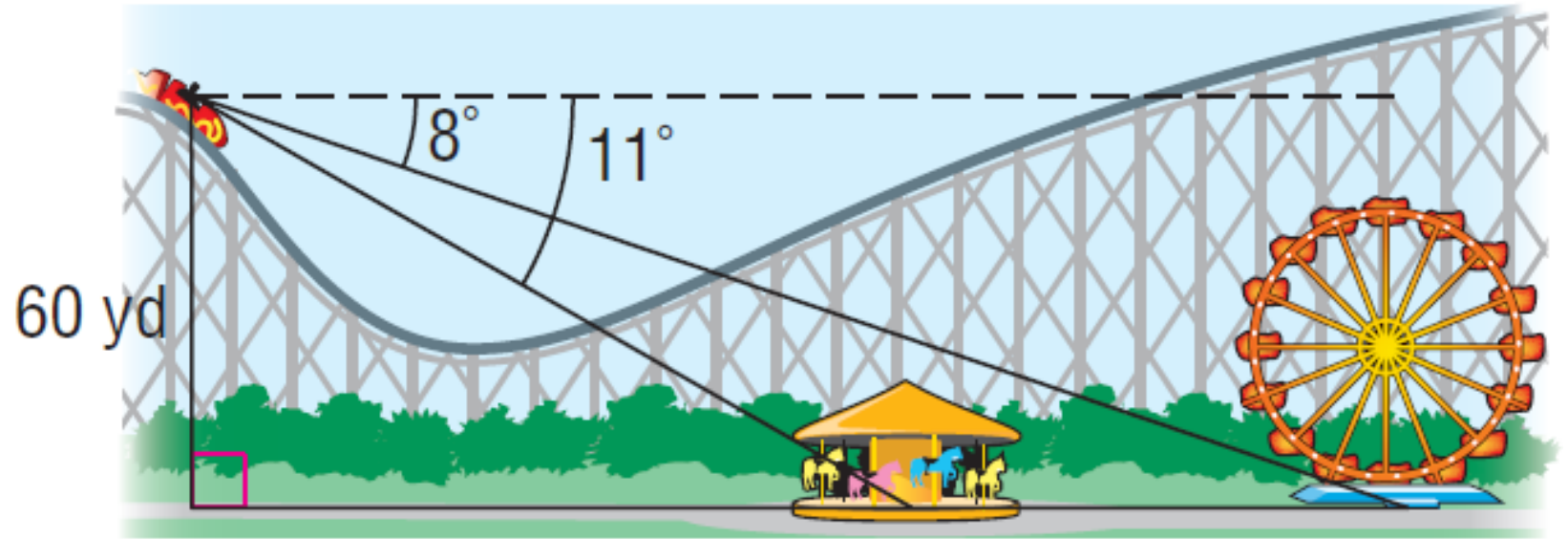


## Examples

- From the top of a roller coaster, 60 yards above the ground, a rider looks down and sees the merry-go-round and the Ferris wheel. If the angles of depression are  $11^\circ$  and  $8^\circ$ , respectively, how far apart are the merry-go-round and the Ferris wheel?



# Examples



- Ferris Wheel –  $\tan 8 = 60/x$ ;  $x = 60/\tan 8 = 426.9$
- Merry-go-round –  $\tan 11 = 60/y$ ;  $y = 60/\tan 11 = 308.7$
- Distance =  $426.9 - 308.7 = 118.2$  yds