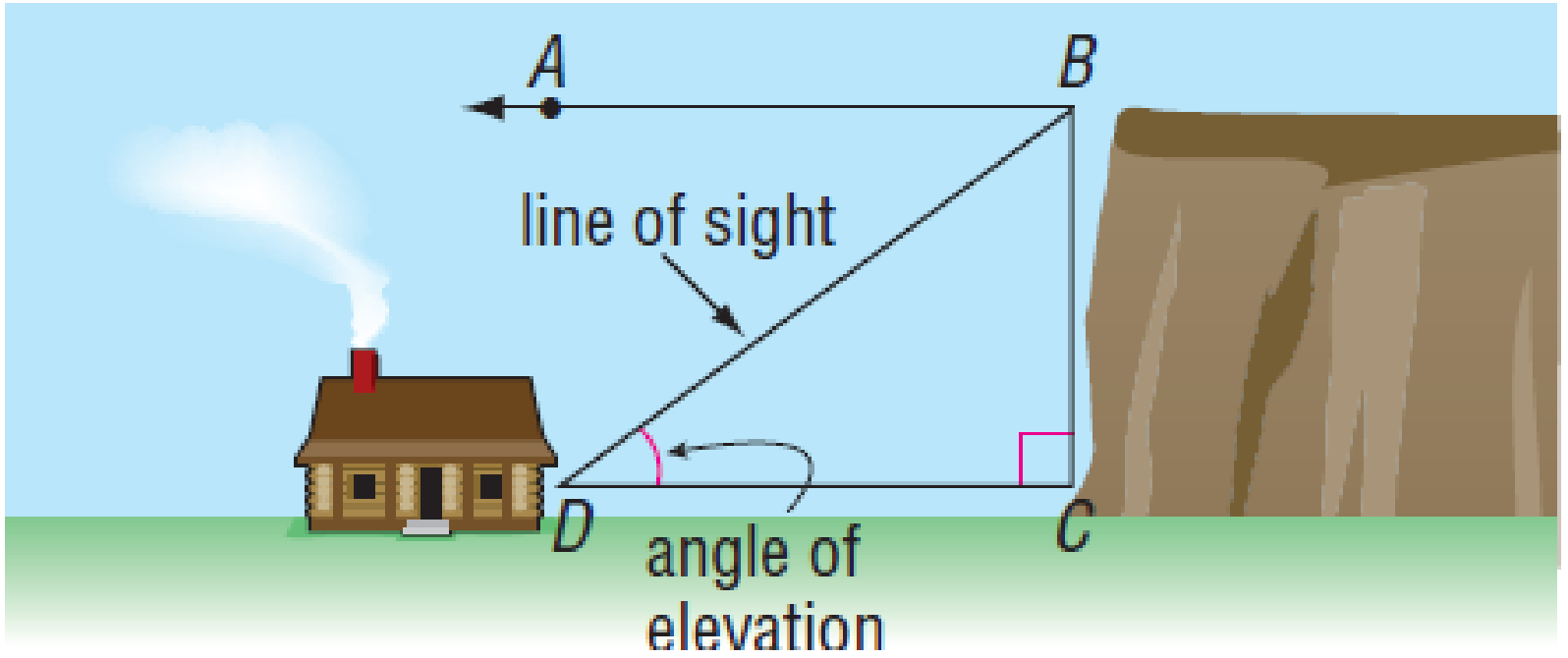
Angles of Elevation and Depression

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.

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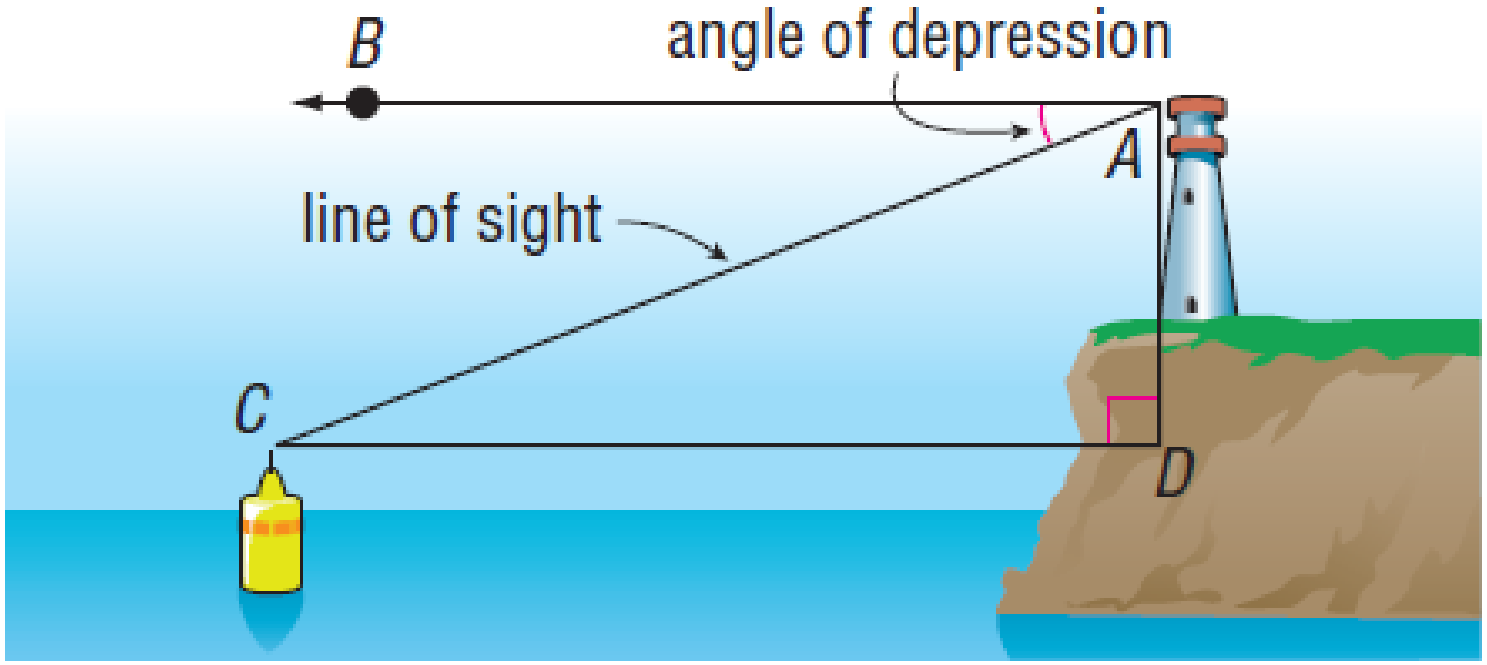
- $\tan x = \frac{7.6}{18.2}$
- $x = \tan^{-1} \frac{7.6}{18.2}$
- $x = 22.7$

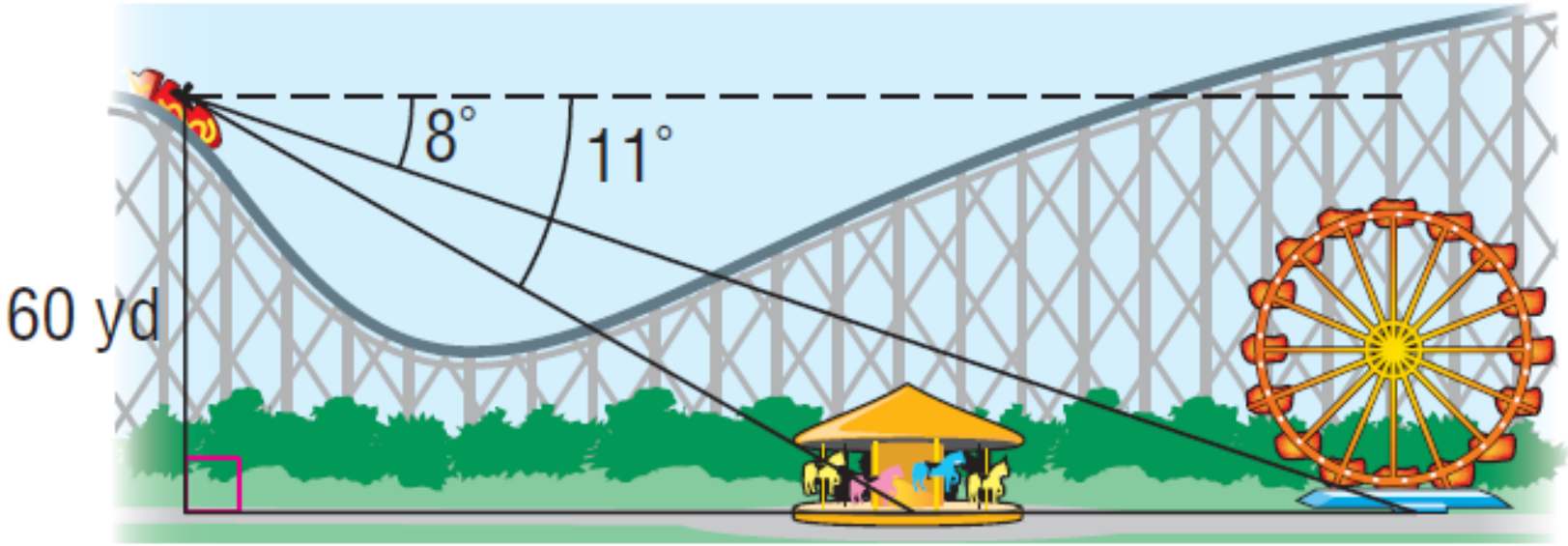
Angle of Depression

- 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.

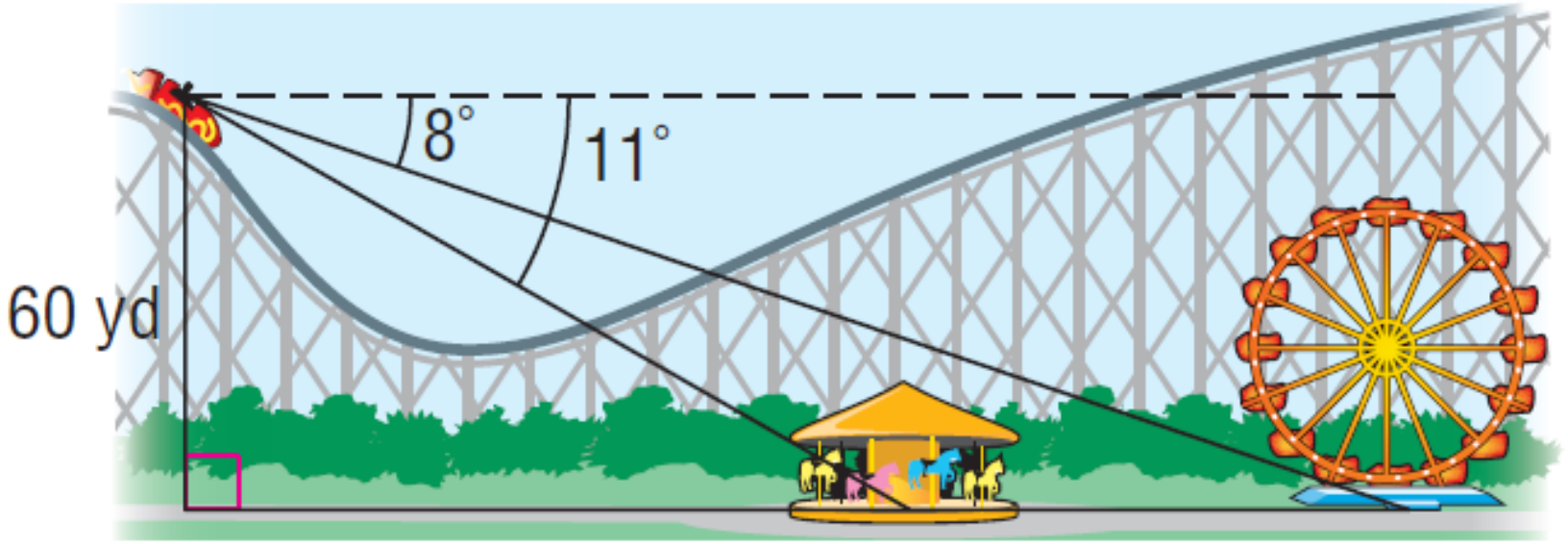


Examples

- 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° and 8°, 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