

Name Key

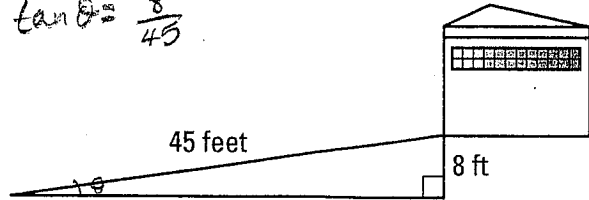
► LESSON MASTER 10-2 B page 2

Uses Objective F: Solve real-world problems using the trigonometry of right triangles.

12. A garage is 8 feet above the level street. The driveway from the street to the garage is 45 feet long. Find the driveway's angle of incline.

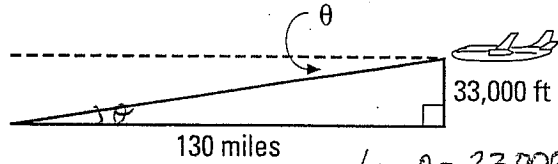
$\approx 10.1^\circ$

$\tan \theta = \frac{8}{45}$



13. A plane flying at 33,000 ft is 130 miles from the airport when it begins to descend. If the angle of descent is constant, find this angle.

$\approx 2.75^\circ$

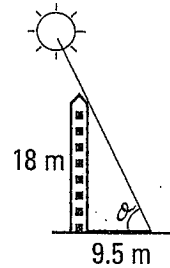


$\tan \theta = \frac{33,000}{130,5280}$

$\theta = \tan^{-1} \left(\frac{33,000}{130,5280} \right)$

14. If a tower 18 meters high casts a shadow 9.5 meters long, what is the angle of elevation of the sun?

62.18°



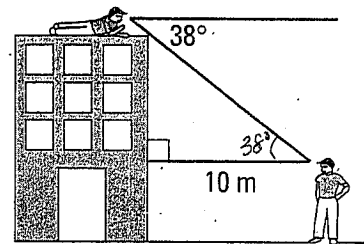
$\tan \theta = \frac{18}{9.5}$

$\theta = \tan^{-1} \left(\frac{18}{9.5} \right)$

15. A person on top of a building finds there is a 38° angle of depression to the head of an assistant who is 170 cm tall. If the assistant is 10 meters from the building, how tall is the building?

9.5 m

$\frac{\tan 38^\circ = x}{10}$
 $10 \cdot \tan 38^\circ = x$



16. The base of a 24-ft ladder is placed 8 ft from a building.

- a. What angle does the ladder make with the level ground?

$\approx 70.5^\circ$

- b. How high above the ground is the top of the ladder?

22.6 ft

$\cos \theta = \frac{8}{24}$
 $\theta = \cos^{-1} \left(\frac{8}{24} \right)$

