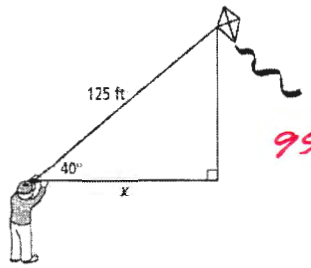
Name Answers Date

8.8 – Right Triangle Trigonometry

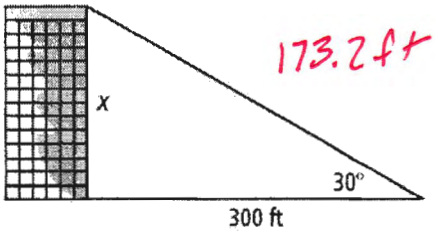
Find the value of x. Round to the nearest tenth.

1)



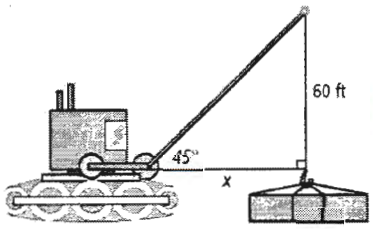
95.8 ft.

2)



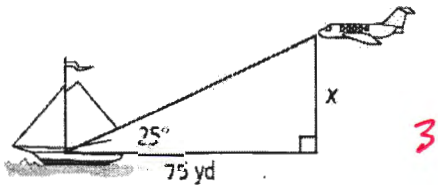
173.2 ft

3)



60 ft

4)



35 yd.

5) A person is standing 40 ft from a flagpole and can see the top of the pole at a 35° angle of elevation. The person's eye level is 4 ft from the ground. What is the height of the flagpole to the nearest foot?

32 ft.

6) An eagle perched 40 ft up in a tree looks down at a 35° angle and spots a vole. How far is the vole from the eagle to the nearest tenth of a foot?

69.7 ft.

7) You stand 40 ft from a tree. The angle of elevation from your eyes (5 ft above the ground) to the top of the tree is 47°. How tall is the tree? Round your answer to the nearest foot.

48 ft

8) An airplane is flying at an altitude of 10,000 ft. The airport at which it is scheduled to land is 50 mi away. Find the average angle at which the airplane must descend for landing. Round your answer to the nearest degree.

2°

9) A lake measures 600 ft across. A lodge stands on one shore. From your point on the opposite shore, the angle of elevation to the top of the lodge is 4°. How high above the lake does the lodge stand? Round your answer to the nearest foot.

42 ft

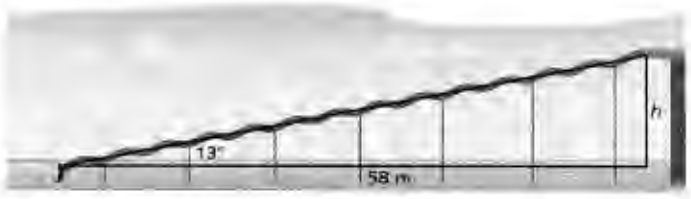
10) A library needs to build an access ramp for wheelchairs. The main entrance to the library is 8 ft above sidewalk level. If the architect designs the slope of the ramp in such a way that the angle of elevation is 5°, how long must the access ramp be? Round your answer to the nearest foot.

92 ft

11) You stand 40 ft from a tree. The angle of elevation from your eyes (5 ft above the ground) to the top of the tree is 47°. How tall is the tree? Round your answer to the nearest foot.

12) An airplane is flying at an altitude of 10,000 ft. The airport at which it is scheduled to land is 50 mi away. Find the average angle at which the airplane must descend for landing. Round your answer to the nearest degree.

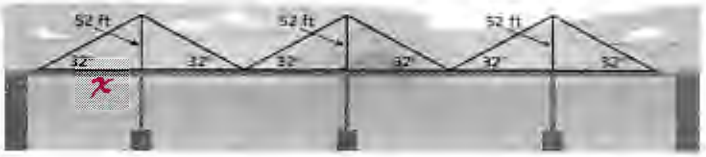
13) You are measuring the height of a water slide. You stand 58 meters from the base of the slide. You measure the angle of elevation from the ground to the top of the water slide to be Find the height h of the slide to the nearest meter.



$\tan 13° = \frac{h}{58}$

13 m

14) Use the diagram to find the distance across the suspension bridge. Round your answer to the nearest foot.



$\tan 32° = \frac{52}{x}$

$x \approx 83$ ft

83
× 6
499

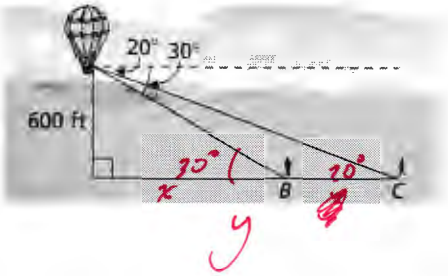
≈ 499 ft across

15) Use the diagram to find the acute angle formed by Washington Boulevard and Willow Way. Round your answer to the nearest tenth.

$\tan x = \frac{2.8}{5.4}$

$x \approx 27.4°$

16) You are in a hot air balloon that is 600 feet above the ground. You can see two people. The angles of depression to person B and to person C are and respectively.



a. How far is person B from the point on the ground below the hot air balloon?

$\tan 30° = \frac{600}{x}$

$x \approx 1039.2$

b. How far is person C from the point on the ground below the hot air balloon?

$\tan 20° = \frac{600}{y}$ $y \approx 1648.5$

c. How far apart are the two people?

$1648.5 - 1039.2$

≈ 609.3 ft.