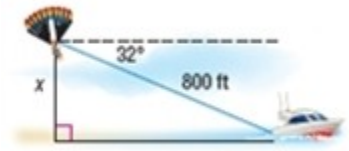
4-1 Right Triangle Trigonometry

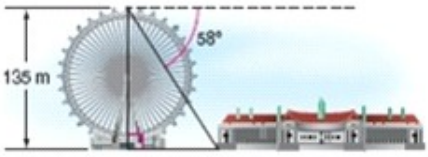
39. **PARASAILING** Kayla decided to try parasailing. She was strapped into a parachute towed by a boat. An 800-foot line connected her parachute to the boat, which was at a 32º angle of depression below her. How high above the water was Kayla?



ANSWER:

424 ft

40. **OBSERVATION WHEEL** The London Eye is a 135-meter-tall observation wheel. If a passenger at the top of the wheel sights the London Aquarium at a 58º angle of depression, what is the distance between the aquarium and the London Eye?



ANSWER:

84 m

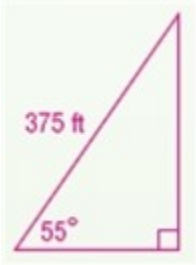
41. **ROLLER COASTER** On a roller coaster, 375 feet of track ascend at a 55º angle of elevation to the top before the first and highest drop.

a. Draw a diagram to represent the situation.

b. Determine the height of the roller coaster.

ANSWER:

a.



b. 307 ft

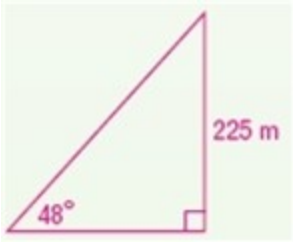
42. **SKI LIFT** A company is installing a new ski lift on a 225-meter-high mountain that will ascend at a 48º angle of elevation.

a. Draw a diagram to represent the situation.

b. Determine the length of cable the lift requires to extend from the base to the peak of the mountain.

ANSWER:

a.



b. 303 m

43. **BASKETBALL** Both Derek and Sam are 5 feet 10 inches tall. Derek looks at a 10-foot basketball goal with an angle of elevation of 29°, and Sam looks at the goal with an angle of elevation of 43°. If Sam is directly in front of Derek, how far apart are the boys standing?

ANSWER:

about 3.1 ft

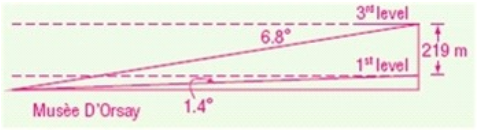
44. **PARIS** A tourist on the first observation level of the Eiffel Tower sights the Musée D'Orsay at a 1.4º angle of depression. A tourist on the third observation level, located 219 meters directly above the first, sights the Musée D'Orsay at a 6.8º angle of depression.

a. Draw a diagram to represent the situation.

b. Determine the distance between the Eiffel Tower and the Musée D'Orsay.

ANSWER:

a.



b. 2310 m

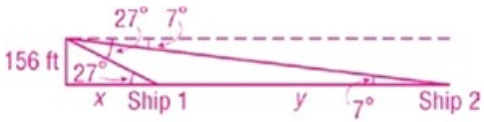
45. **LIGHTHOUSE** Two ships are spotted from the top of a 156-foot lighthouse. The first ship is at a 27º angle of depression, and the second ship is directly behind the first at a 7º angle of depression.

a. Draw a diagram to represent the situation.

b. Determine the distance between the two ships.

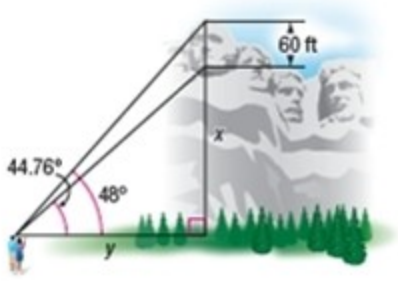
ANSWER:

a.



b. 964 ft

46. **MOUNT RUSHMORE** The faces of the presidents at Mount Rushmore are 60 feet tall. A visitor sees the top of George Washington's head at a 48º angle of elevation and his chin at a 44.76º angle of elevation. Find the height of Mount Rushmore.

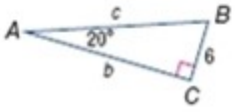


ANSWER:

about 500 ft

Solve each triangle. Round side lengths to the nearest tenth and angle measures to the nearest degree.

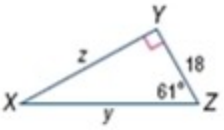
47.



ANSWER:

$B = 70°, b \approx 16.5, c \approx 17.5$

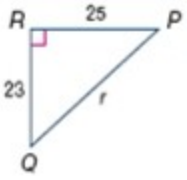
48.



ANSWER:

$X = 29°, y \approx 37.1, z \approx 32.5$

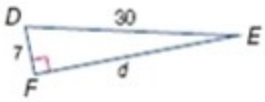
49.



ANSWER:

$P \approx 43°, Q \approx 47°, r \approx 34.0$

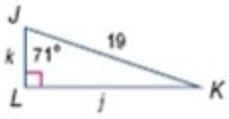
50.



ANSWER:

$D \approx 77°, E \approx 13°, d \approx 29.2$

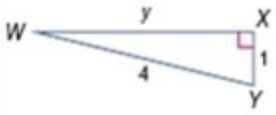
51.



ANSWER:

$K \approx 19°, j \approx 18.0, k \approx 6.2$

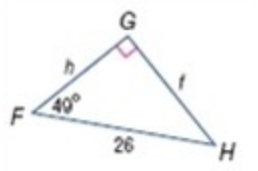
52.



ANSWER:

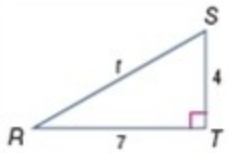
$W \approx 14°, Y \approx 76°, y \approx 3.9$

4-1 Right Triangle Trigonometry

53. 

ANSWER:

$H = 41°, f \approx 19.6, h \approx 17.1$

54. 

ANSWER:

$R \approx 30°, S \approx 60°, t \approx 8.1$