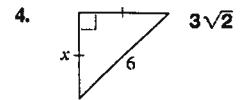
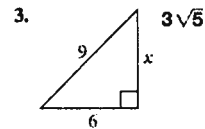
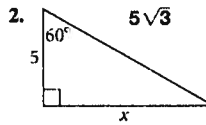
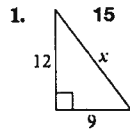


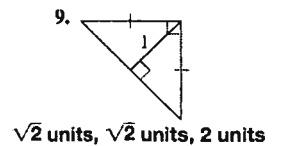
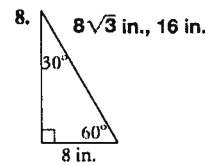
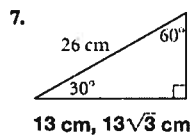
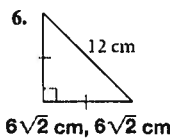
◆ Lessons 8-1 and 8-2

Find the value of x . If your answer is not a whole number, leave it in simplest radical form.



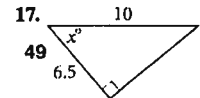
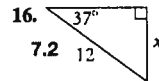
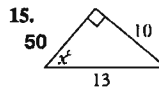
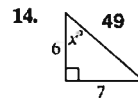
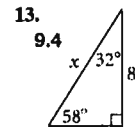
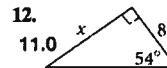
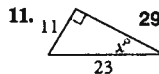
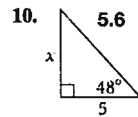
5. A rectangular lot is 165 feet long and 90 feet wide. How many feet of fencing are needed to make a diagonal fence for the lot? Round to the nearest foot. 188 ft

Find the missing side lengths. Give answers in radical form if necessary.

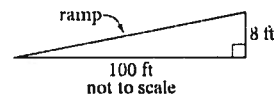


◆ Lessons 8-3 and 8-4

Find the value of x . Round lengths of segments to the nearest tenth and angle measures to the nearest degree.

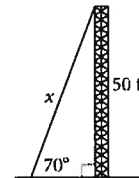


18. An architect includes wheelchair ramps in her plans for the entrance to a new museum. She wants the angle that the ramp makes with level ground to measure 4° . Will the dimensions shown in the figure work? If not, what change should she make? No; sample: In the plan, change 100 ft to 114.5 ft.



19. A 12-ft ladder is propped against a vertical wall. The top end is 11 ft above the ground. What is the measure of the angle formed by the ladder with the ground? about 66.4°

20. How long is the guy wire shown in the figure if it is attached to the top of a 50-ft antenna and makes a 70° angle with the ground? Round to the nearest tenth. 53.2 ft

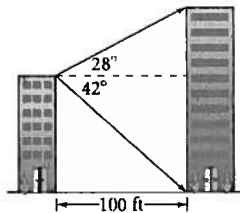


21. A 15-ft ladder is propped against a vertical wall and makes a 72° angle with the ground. How far is the foot of the ladder from the base of the wall? Round to the nearest tenth. **4.6 ft**

Lesson 8-5

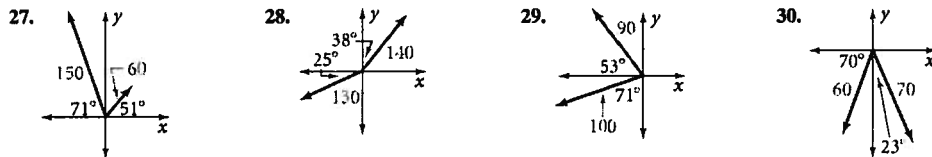
Solve each problem. Round your answers to the nearest foot.

22. A couple is taking a balloon ride. After 25 minutes aloft, they measure the angle of depression from the balloon to its launch place as 16° . They are 180 ft above ground. Find the distance from the balloon to its launch place. **653 ft**
23. A surveyor is 300 ft from the base of an apartment building. The angle of elevation to the top of the building is 24° , and her angle-measuring device is 5 ft above the ground. Find the height of the building. **139 ft**
24. Oriana is flying a kite. She lets out 105 ft of string and anchors it to the ground. She determines that the angle of elevation of the kite is 48° . Find the height the kite is from the ground. **78 ft**
25. Two office buildings are 100 ft apart. From the edge of the shorter building, the angle of elevation to the top of the taller building is 28° , and the angle of depression to the bottom is 42° . How tall is each building? Round to the nearest foot. **90 ft; 143 ft**
26. A plane flying at 10,000 ft spots a hot air balloon in the distance. The balloon is 9000 ft above ground. The angle of depression from the plane to the balloon is 30° . Find the distance from the plane to the balloon. **2000 ft**



Lesson 8-6

(a) Describe each vector as an ordered pair. Give the coordinates to the nearest unit. (b) Write the resultant of each pair of vectors as an ordered pair. 27–30. See margin.



Write the sum of the two vectors as an ordered pair.

31. $\langle 5, 9 \rangle$ and $\langle -3, 2 \rangle$ 32. $\langle -1, 0 \rangle$ and $\langle 4, -6 \rangle$ 33. $\langle 2, 4 \rangle$ and $\langle 0, 9 \rangle$ 34. $\langle 4, -2 \rangle$ and $\langle -4, 2 \rangle$
 $\langle 2, 11 \rangle$ $\langle 3, -6 \rangle$ $\langle 2, 13 \rangle$ $\langle 0, 0 \rangle$
35. A helicopter lands 55 km west and 14 km north of the airport from which it departed. It followed a straight flight path. Find the magnitude and direction of the resultant vector $\langle -55, 14 \rangle$. **about 56.8 km; about 14.3° north of west**

