# Fire in Pythagorville

1. A fire breaks out at the Pythagorville Math Museum. The fire department is called to the scene. Over the scanner, WABC hears of the fire and dispatches their helicopter to the scene for a live report. How much further must the Pythagorville Fire Department travel by road than the WABC helicopter travels by air? Explain your reasoning.

2. Once the PFD arrives at the scene, they discover the fire on the third floor of the museum. They calculate that the third floor window is 35 feet from the base of the building. Using the hook and ladder fire engine they must extend the ladder to fight the fire. The ladder is anchored to the top of the truck at a height of seven feet and the truck is parked twenty-one feet from the base of the building. How long will their ladder be once fully extended to the window? Explain your reasoning.

35 ft

7 ft
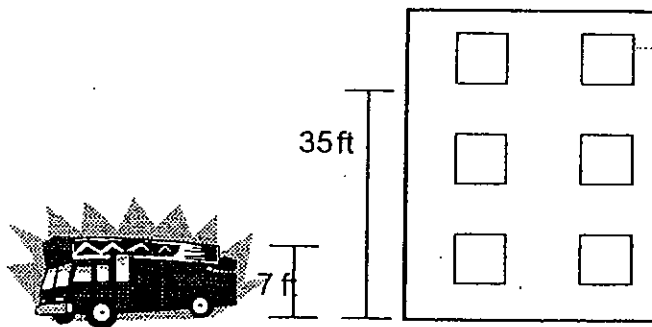
3. A firefighter discovers a victim on the third floor of the Math Museum. The museum is forty-eight feet across and each floor is fourteen feet in height. They exit the inferno through a window that leads to the fire escape. How far has the fire fighter carried the victim when they safely reach the ground? Explain your reasoning.

14 ft

48 ft
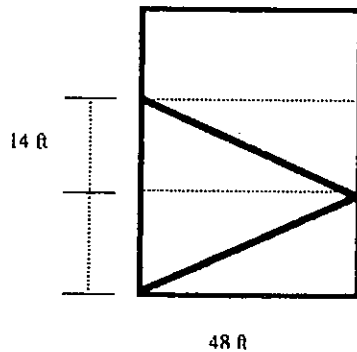
If a firefighter can carry a victim at a rate of six feet per second, how long will it take them to reach the ground? Explain your reasoning.

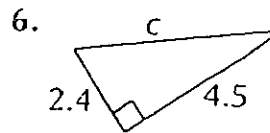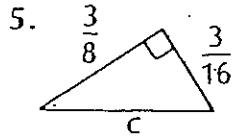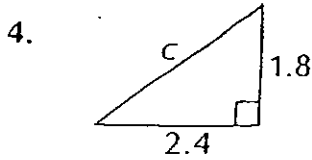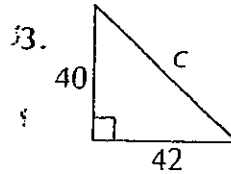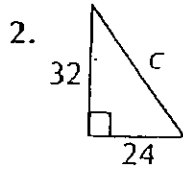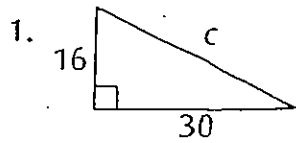The victim is airlifted to Pythagorville Hospital. From the museum, the hospital is five blocks east. The airlift helicopter travels thirteen blocks northeast. What are the coordinates of the hospital?
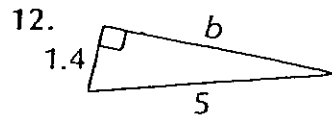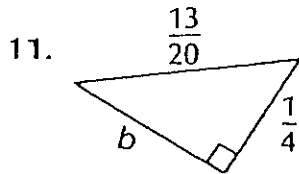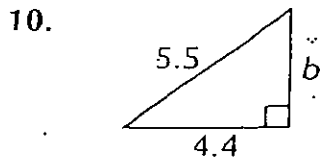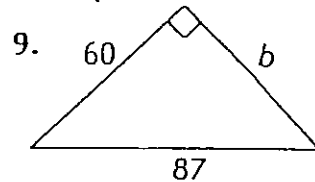
Name : _____

Date : _____

The length of the hypotenuse is c units. Solve for c.

1.

16, c, 30

2.

32, c, 24

3.

40, c, 42

4.

c, 1.8, 2.4

5.

$\frac{3}{8}$, $\frac{3}{16}$, c

6.

c, 2.4, 4.5

The length of the leg is b units. Solve for b.

7.

b, 29, 21

8.

b, 39, 36

9.

60, b, 87

10.

5.5, b, 4.4

11.

$\frac{13}{20}$, b, $\frac{1}{4}$

12.

1.4, b, 5
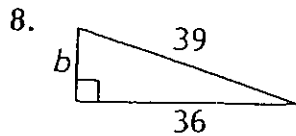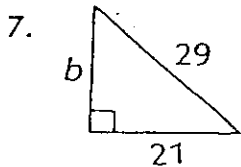
Approximate the missing length to the nearest tenth for each right angle.

13. side = 5 cm; side = 2 cm; hypotenuse ≈ ■ cm

14. hypotenuse = 4 m; two congruent sides ≈ ■ cm each

15. two sides = 100 cm each; hypotenuse ≈ ■ cm

16. hypotenuse = 45 m; side ≐ 30 cm, side ≈ ■ cm

Solve.

17. Marilyn hiked 9 km north and 12 km east. How far was she from her starting point?

12 km
9 km
?

18. The foot of a 5 m ladder is placed 3 m from a wall. How high up the wall does the ladder reach?

5 m
3 m

19. A rectangular field measures 320 m by 240 m. What is the length of its diagonal?
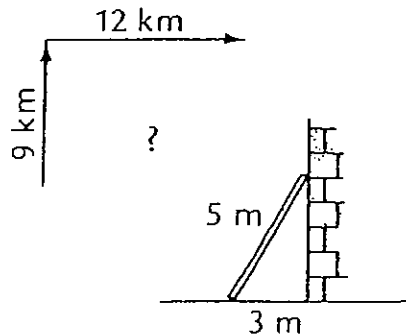
20. If the square of the longest side of a triangle is equal to the sum of the squares of the other two sides, the triangle is right-angled. Draw a triangle for each to see if it is right-angled.

a. 5 cm, 12 cm, 13 cm

b. 4.2 cm, 5.6 cm, 6 cm

c. 4.8 cm, 1.4 cm, 5 cm

d. 1.6 cm, 1.2 cm, 2 cm