Module 8   Points, Lines, Angles, and Triangles
Lesson 7   Right Triangles

Set 1

1 Find the length of the hypotenuse.

8 ft   ?

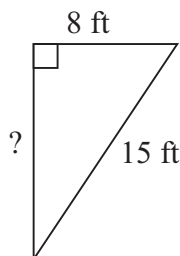6 ft
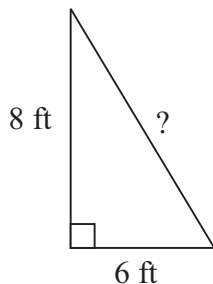
$$a^2 + b^2 = c^2$$
$$6^2 + 8^2 = c^2$$
$$36 + 64 = c^2$$
$$100 = c^2$$
$$10 = c$$

10 feet

2 A garden is in the shape of a right triangle as shown. The length of the hypotenuse is 15 feet. The length of one leg is eight feet. Find the length of the missing side. Round to the nearest tenth.

8 ft

?   15 ft

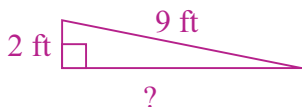$$8^2 + b^2 = 15^2$$
$$64 + b^2 = 225$$
$$b^2 = 161$$
$$b = \sqrt{161}$$
$$b \approx 12.7$$

About 12.7 feet

3 Tom is building a skateboard ramp. The surface of the ramp will be nine feet long, and the top of the ramp will be two feet off the ground. What will the horizontal length of the ramp be? Round to the nearest hundredth of a foot.

2 ft   9 ft
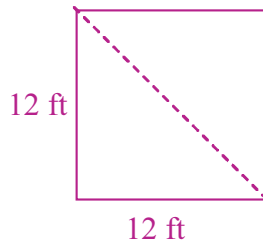
?

$$a^2 + 2^2 = 9^2$$
$$a^2 + 4 = 81$$
$$a^2 = 77$$
$$a \approx 8.77$$

About 8.77 feet

4 A square bedroom measures 12 feet on each side. What is the distance between the opposite corners of the room? Round to the nearest foot.

$$a^2 + b^2 = c^2$$
$$12^2 + 12^2 = c^2$$
$$144 + 144 = c^2$$
$$288 = c^2$$
$$17 \approx c$$

About 17 feet

Set 2

1 The lengths of the sides of a triangle are seven meters, nine meters, and 11 meters. Is it a right triangle?

$$a^2 + b^2 = c^2$$
$$7^2 + 9^2 \stackrel{?}{=} 11^2$$
$$49 + 81 \stackrel{?}{=} 121$$
$$130 \neq 121$$

No

2 Roger has three straight sticks. Their lengths are nine inches, 40 inches, and 41 inches. Can Roger form a right triangle with his sticks if he places them tip to tip?

$$a^2 + b^2 = c^2$$
$$9^2 + 40^2 \stackrel{?}{=} 41^2$$
$$81 + 1,600 \stackrel{?}{=} 1,681$$
$$1,681 = 1,681$$

Yes