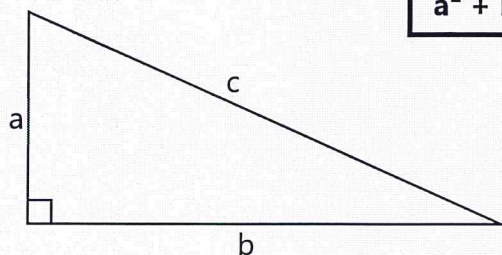Name_____Date_____

The Pythagorean Theorem

$$a^2 + b^2 = c^2$$
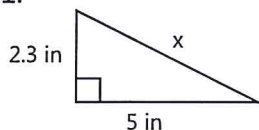
Example:
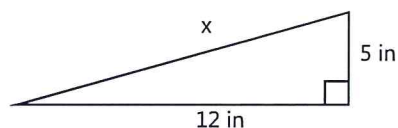
39 in
52 in
x
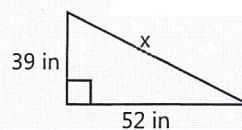
$$39^2 + 52^2 = x^2$$
$$1521 + 2704 = x^2$$
$$4225 = x^2$$
$$\sqrt{4225} = \sqrt{x^2}$$
$$65 \text{ in} = x$$

c
a
b

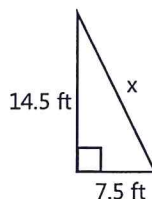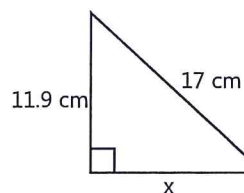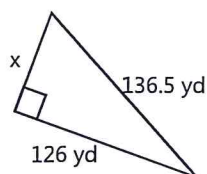Directions: Solve each problem using the Pythagorean Theorem. Round answers to the nearest tenth.

1.
2.3 in
5 in
x

2.
x
5 in
12 in

3.
14.5 ft
7.5 ft
x

4.
11.9 cm
17 cm
x

5.
x
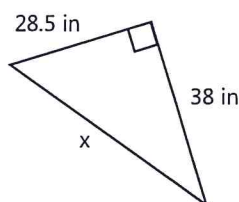136.5 yd
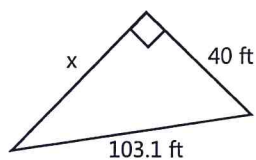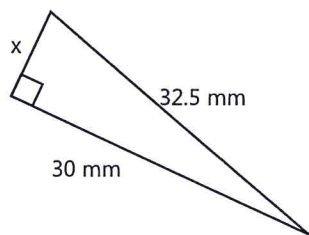126 yd

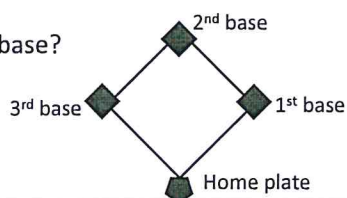6.
28.5 in
38 in
x

7.
x
40 ft
103.1 ft

8.
x
32.5 mm
30 mm

9. A baseball diamond has four right angles and four equal sides. Each side is 90 feet.

What is the shortest distance between home plate and second base?

Round your answer to the nearest tenth.

2nd base
3rd base
1st base
Home plate

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Pythagorean Theorem Word Problems

Directions: Solve each problem. Round your answer to the nearest tenth and show all of your work.

1. On a coordinate plane, $\triangle$DEF has vertices D(1, 2), E(7, 2) and F(1, 9). What is the distance between point E and F?

2. The city planning committee is discussing making a bike path extension in its city park. They have a $5050 budget for the proposed project. The cost to construct the path is $2.20 per foot. The path would be a straight line from the fountain to the large oak tree. In the right triangle formed, the height is 880 ft and the base is 2112 ft. How much will the path cost? Will this work with the city planning budget? Why or why not?

880 ft

2112 ft
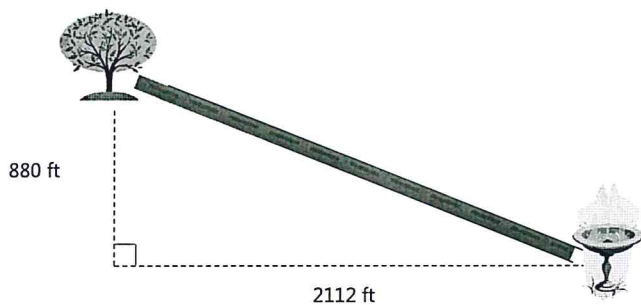
3. A bird feeder stands perpendicular to the ground. In the afternoon sun, the bird feeder's shadow is half its height. If the distance between the top of the bird feeder and the top of the shadow is 19 feet, how tall is the bird feeder and how long is its shadow?

4. In order for entrances to be accessible to all, ramps are being put in place in two different buildings. One will be smaller than the other, however, both ramps must be proportional in a 3:1 ratio. Two measurements are provided below. What are the measurements of the other sides?

23.4 ft

?

?

3 ft

?

?