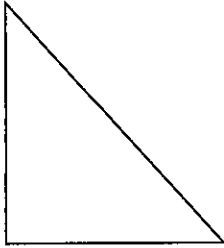


The Pythagorean Theorem

- ❖ The Pythagorean Theorem is used when working with _____ triangles.
It can be used to:
 - Prove that a triangle is a _____ triangle.
 - To find a _____ of a right triangle.
- ❖ The important thing about working with the Pythagorean Theorem is that you must be able to identify the _____ or the longest side. The other sides are known as _____.



The side opposite the right angle is always the _____.

❖ Formula: _____ or

❖ Steps: 1) Write out the formula

$$a^2 + b^2 = c^2$$

2) Substitute the given values

$$3^2 + 4^2 = c^2$$

3) Square the numbers

$$9 + 16 = c^2$$

4) Solve the remaining equation

$$\sqrt{25} = \sqrt{c^2}$$

5) Take the $\sqrt{\quad}$ of both sides to get your final answer

$$5 = c$$

** Label your final answer with the correct unit in a word problem

** Remember $\sqrt{x^2} = x$

** Press: _____ to get the $\sqrt{\quad}$ sign

Name: _____

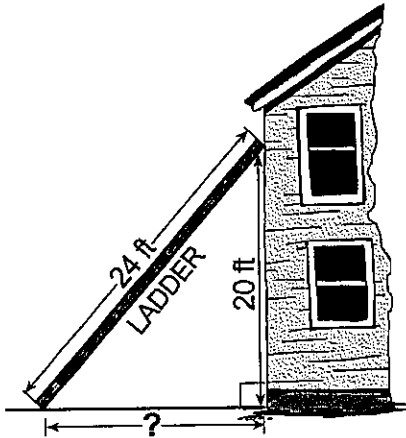
Mrs. Roubos

Date: _____

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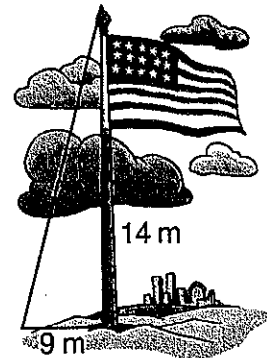
Pythagorean Theorem Classwork

- 1) A 24-ft ladder is leaning against the side of a building.



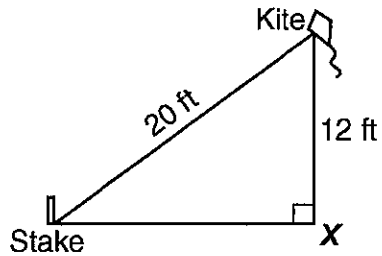
If the top of the ladder reaches 20 ft up the building, how far is the bottom of ladder from the base of the building? *[Round your answer to the nearest foot.]*

- 2) In the figure below, the height of the flag pole is 14 meters. A wire runs from the top of the pole and is bolted to the ground 9 meters from the pole.



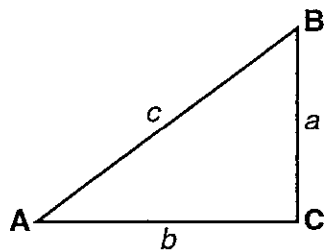
If the wire is tight, how long is the wire? *[Express your answer to the nearest hundredth of a meter.]*

- 3) The accompanying diagram shows a kite that has been secured to a stake in the ground with a 20-foot string. The kite is located 12 feet from the ground, directly over point X .



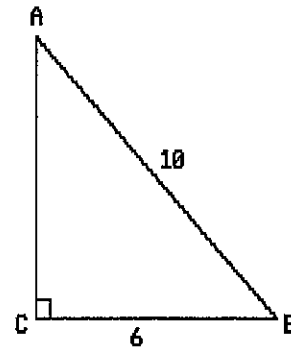
What is the distance, in feet, between the stake and point X ? [Show all work.]

- 4) In the diagram below, $\triangle ABC$ is a right triangle with right angle C .

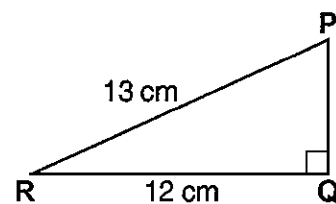


If $a = 3$ and $b = 4$, what is the measure of c ?

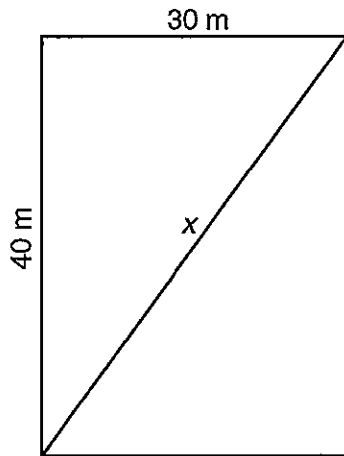
- 5) In the accompanying diagram, $\triangle ABC$ is a right triangle with the right angle at C . If $AB = 10$ and $BC = 6$, find AC .



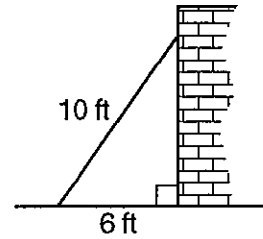
- 6) In the right triangle below, what is the length of side PQ ?



- 7) A rectangular field measures 30 m by 40 m. What is the length of the diagonal, x , from one corner to the opposite corner?



- 8) A wall is supported by a brace 10 feet long, as shown in the diagram below.



If one end of the brace is placed 6 feet from the base of the wall, how many feet up the wall does the brace reach?