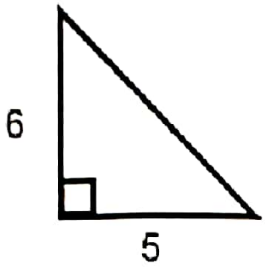
Exam Review ~ 8th Algebra, Semester 1

Name: _____

Pythagorean Theorem

1. (1 point) Find the length of the hypotenuse. Round your answer to the nearest tenth.



$5^2 + 6^2 = c^2$

$25 + 36 = c^2$

$\sqrt{61} = \sqrt{c^2}$

$7.8 = c$

2. (2 points) Do the following side lengths form a right triangle? Show your work.

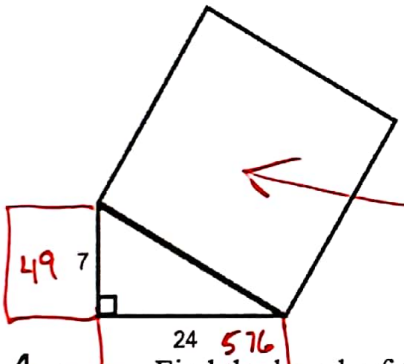
$a = 7, b = 9, c = 13$

$7^2 + 9^2 = 13^2$

$49 + 81 = 169$

No → $130 = 169$

3. (2 points) Find the area of the square. Use pictures to find the answer.



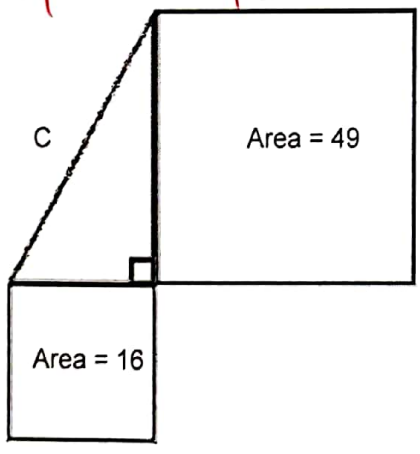
$7^2 + 24^2 = c^2$

$49 + 576 = c^2$

$625 = c^2$

c^2 is the area of the square.

4. (2 points) Find the length of the hypotenuse. Use pictures to find the answer.

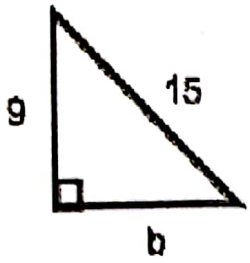


$16 + 49 = c^2$

$\sqrt{65} = \sqrt{c^2}$

$8.1 = c$

5. (2 points) Find the missing side length. Round to the nearest **tenth** if necessary. SHOW WORK



$9^2 + b^2 = 15^2$

$81 + b^2 = 225$

$-81 \quad -81$

$\sqrt{b^2} = \sqrt{144}$

$b = 12$

6. (3 points) You're locked out of your house and the only open window is on the second floor, 20 feet above the ground. You need to borrow a ladder from one of your neighbors. There's a bush along the edge of the house, so you'll have to place the ladder 7 feet from the house. What length of ladder do you need to reach the window?

Draw a diagram, then solve.

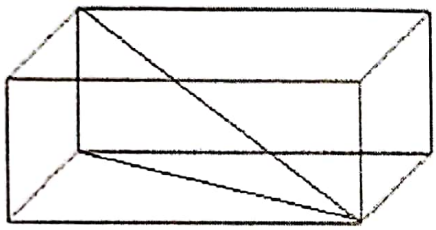
$7^2 + 20^2 = c^2$

$49 + 400 = c^2$

$\sqrt{449} = \sqrt{c^2}$

$21.2 \text{ ft} = c$

7. (2 points) The width of a rectangular prism is 5, the height is 8, and the length is 12. First label the diagram, then find the length of the diagonal of the entire prism. Round to the nearest tenth if necessary.



$5^2 + 8^2 = c^2$

$25 + 64 = c^2$

$\sqrt{89} = \sqrt{c^2}$

$9.4 = c$

$9.4^2 + 12^2 = c^2$

$89 + 144 = c^2$

$\sqrt{233} = \sqrt{c^2}$

$15.3 = c$

8. (2 points) A given cylinder has a radius of 9 cm and height of 40 cm. Label the diagram and then find the length of the diagonal.

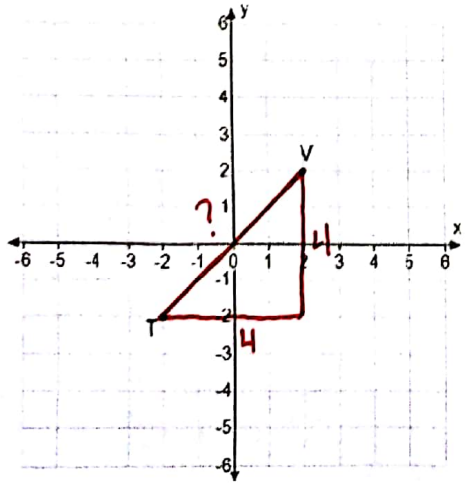
$9^2 + 40^2 = c^2$

$81 + 1600 = c^2$

$\sqrt{1681} = \sqrt{c^2}$

$41 \text{ cm} = c$

9. (3 points) What is the distance between T and V? Draw a right traingle on the grid and then find the distance.



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

$16 + 16 = c^2$

$\sqrt{32} = \sqrt{c^2}$

$5.7 = c$