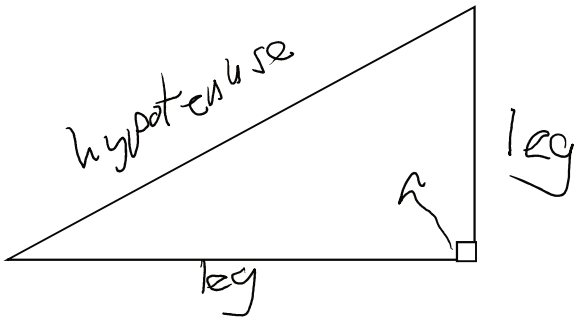
Math 8

Date_____ Name_____

1.2 Exploring the Pythagorean Relationship

A. What is a right triangle?

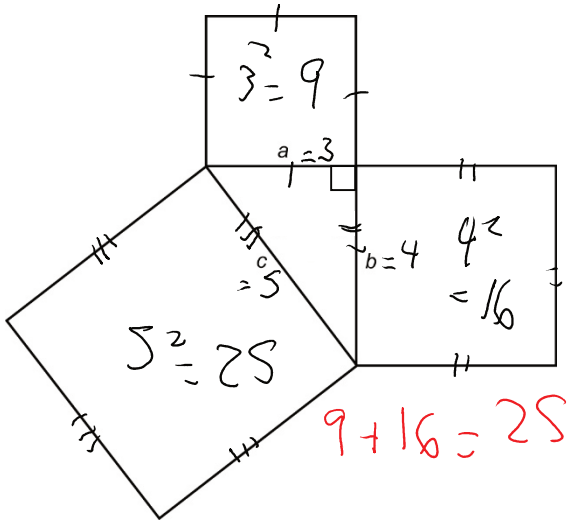
A triangle with a 90° angle (denoted with a square)

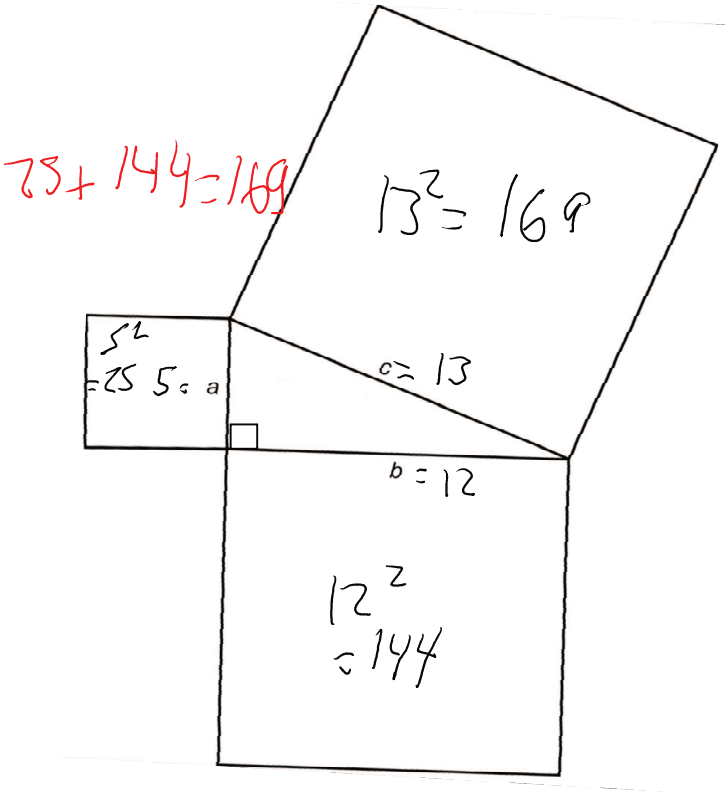


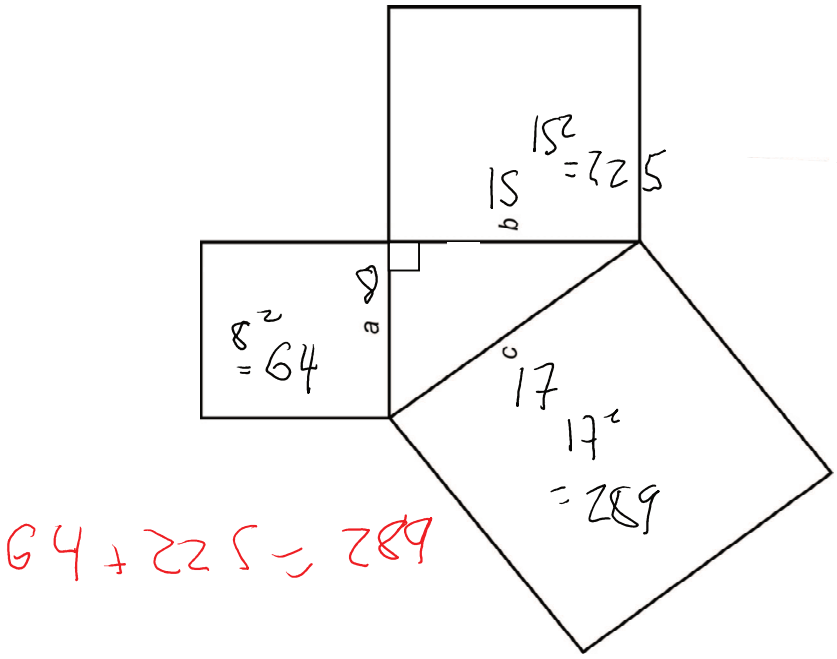
B. The sides have names.

Hypotenuse – the longest side
– the side opposite (across) from the right angle
Legs – the other two sides

C. The side lengths are related to squares.





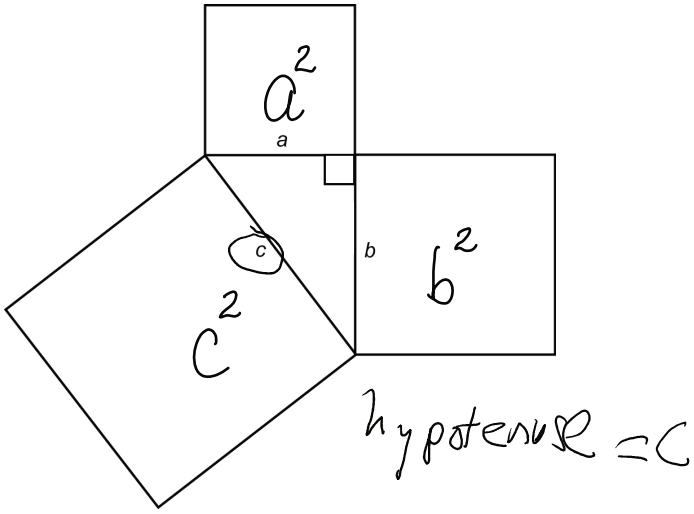


D. The side lengths are related to each other.

This relationship is called the Pythagorean Relationship.

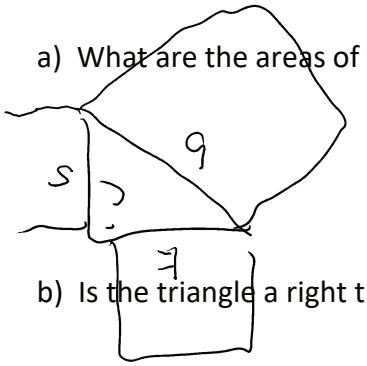
The sum of the squares of the legs equals the square of the hypotenuse.

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



<u>Identify a Right Triangle</u>

A triangle has side lengths of 5 cm, 7 cm, and 9 cm.



a) What are the areas of the three squares that can be drawn on the sides of the triangle?

5^2 7^2 9^2

25 49 81

$25 + 49 = 74 \neq 81$

b) Is the triangle a right triangle? Explain your answer.

No, pythagoras is<u>n't</u> satisfied

A triangle has side lengths of 12 cm, 16 cm, and 20 cm.

a) What are the areas of the three squares that can be drawn on the sides of the triangle?

12^2 16^2 20^2

$144 + 156$ 400

$300 \neq 400$

b) Is the triangle a right triangle? Explain.

No, pythagoras is<u>n't</u> satisfied.

Practice pg. 17/ # 1, 2, 5 – 6, 9, 10, 14, 16, 17, **<u>19, 20</u>**