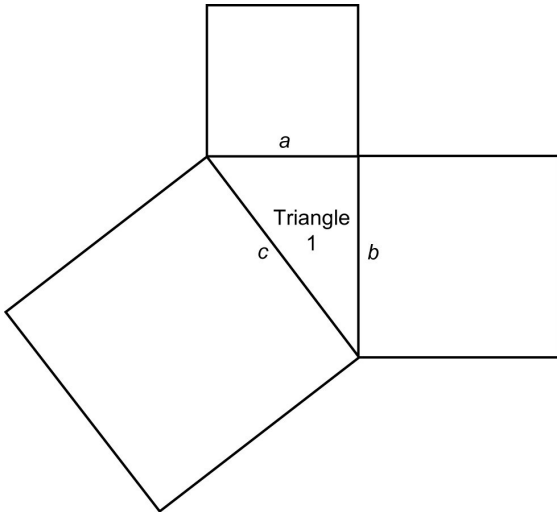


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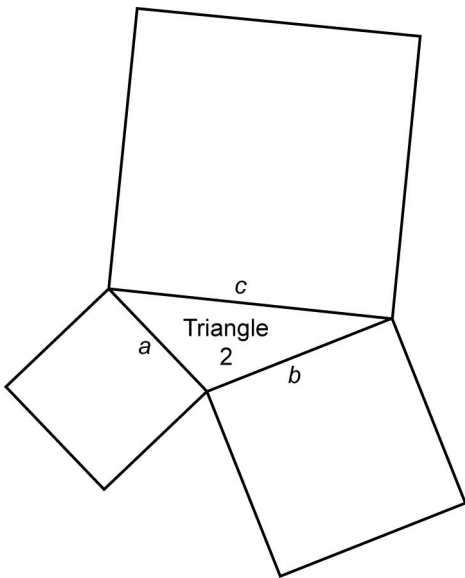
KEY

3.2 Notes: Exploring the Pythagorean Relationship



For the right triangle shown, complete the table:

Side	Side Length	Area of Square
a	6	36
b	8	64
c	10	100



For the obtuse triangle shown, complete the table:

Side	Side Length	Area of Square
a	5	25
b	7	49
c	10	100

Vocabulary check:

What is the difference between an acute, obtuse and right triangle?

- acute - all angles less than 90°
- obtuse - one angle greater than 90°
- right - one angle exactly 90°

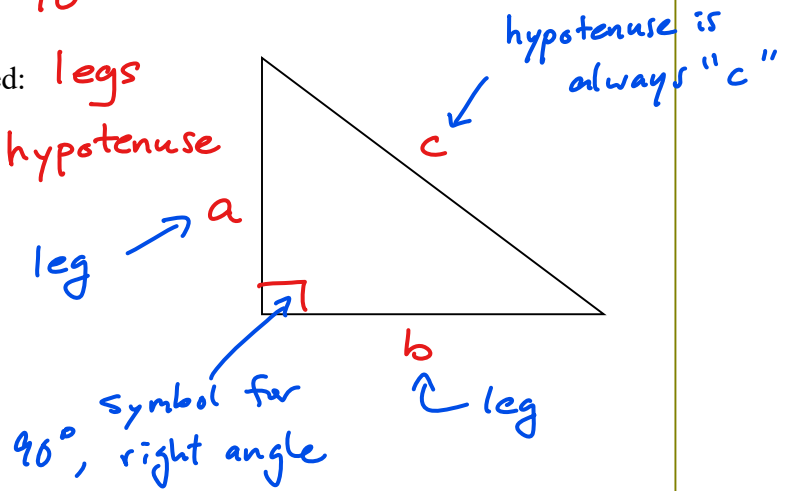
What do you notice about the area of the squares in the right triangle compared to the area of the squares in the obtuse triangle?

***** In the right triangle, the areas of the two smaller squares add to equal the area of the larger square. i.e. $a^2 + b^2 = c^2$

***** In the obtuse triangle, this is not true.

A right triangle:

- Has one angle that measures: 90°
- The two shorter sides are called: **legs**
- The longest side is called the: **hypotenuse**



The Pythagorean Relationship states:

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

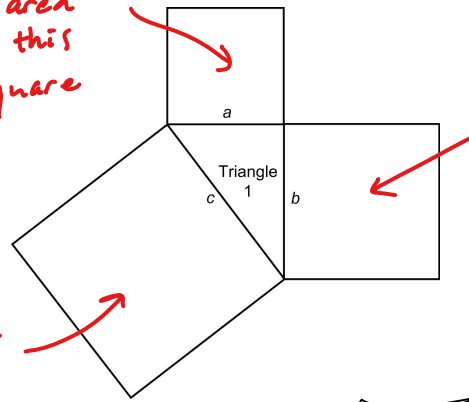
"The sum of the areas of the squares of the legs of a right triangle

is equal to the square of the hypotenuse."

c^2 is the area of this square

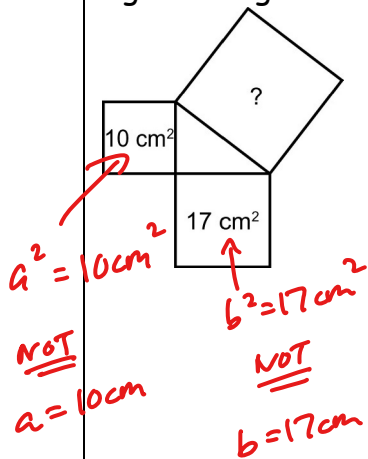
a^2 is the area of this square

b^2 is the area of this square



→ FIND c^2 NOT c

Find the area of the missing square for the right triangle shown below:



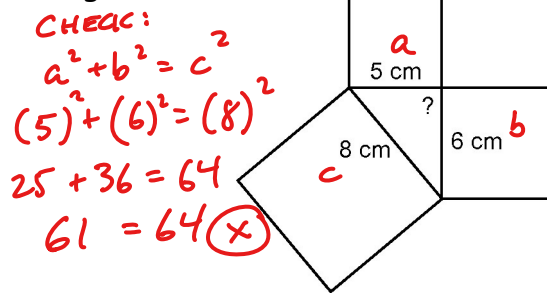
$$a^2 + b^2 = c^2$$

$$10 + 17 = c^2$$

$$27 = c^2$$

$$\boxed{27 \text{ cm}^2 = c^2}$$

Is the triangle shown below a right triangle:



Explain your answer: **No.** If it was a right triangle, then $a^2 + b^2$ would equal c^2 , but it does not.

∴ not a right triangle.