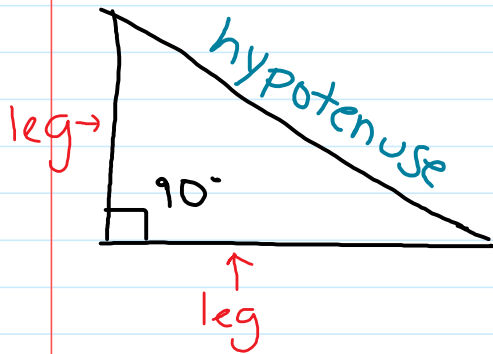


3.2 Exploring the Pythagorean Relationship

April 21, 2016 9:53 AM

Right triangle



- right angle (90°)
- marked with a square

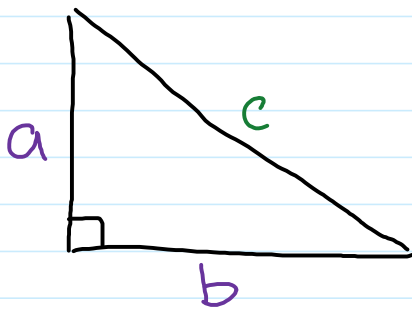
* longest side is called hypotenuse (hyp)

Pythagorean Theorem

the relationship between the lengths of the sides of a right triangle

formula:

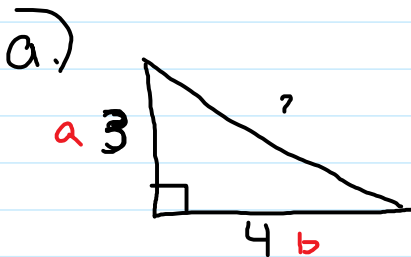
$$a^2 + b^2 = c^2$$



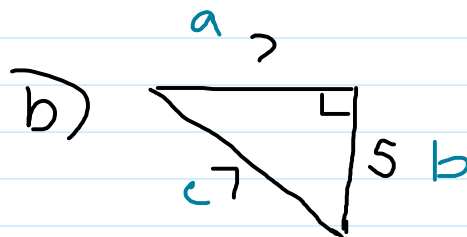
can be either of the legs!

always the hyp

Ex. #1



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



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

rearrange the equation

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

$$9 + 16 = c^2$$

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

$$\boxed{5 = c}$$

$$b^2 = c^2 - a^2$$

or

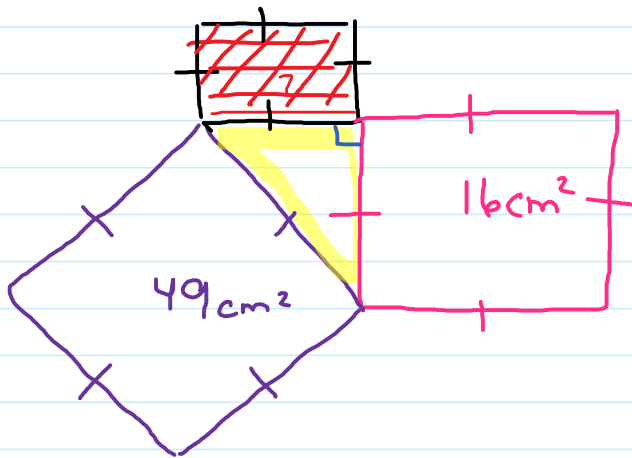
$$a^2 = c^2 - b^2$$

$$a^2 = 7^2 - 5^2$$

$$a^2 = 49 - 25$$
$$\sqrt{a^2} = \sqrt{24}$$

$$\boxed{a = 4.89} \approx \boxed{49}$$

Ex #2



$$a^2 = c^2 - b^2$$
$$= 7^2 - 4^2$$

$$= 49 - 16$$

$$\sqrt{a^2} = \sqrt{33}$$

$$\boxed{a = 5.7}$$

area 5.7×5.7

$$= \boxed{33}$$

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