THE PYTHAGOREAN THEOREM

LEARNING GOAL

1. I know what a^2, b^2, and c^2 mean in the context of the pythagorean theorem.
2. I can use the pythagorean theorem $a^2 + b^2 = c^2$ to find the lengths of the hypotenuse of a right triangle.

RESPOND TO FEEDBACK ON YOUR WORK

Directions: If you have a Schoology message from Mr. Durden about your work, choose one question and answer it in the space below.

TAKE NOTES (PART 1)

Directions: Watch the video called "The Pythagorean Theorem" (see Schoology assignment) and take notes on this slide and the next slide.

a. What variables represent the 3 sides of the right triangle?

_____ , _____ , _____

b. What variables represent the 2 sides that make up the right angle?

_____ , _____

c. What variable represents the longest side called the hypotenuse?

_____

d. From the following list, circle the shape of the colored area that sits on each side of the triangle.

Circle / Rectangle / Square / Rhombus

TAKE NOTES (PART 2)

Directions: Watch the video called "The Pythagorean Theorem" (see Schoology assignment) and take notes on this slide and the previous slide.

Complete the following statement that defines the Pythagorean Theorem:

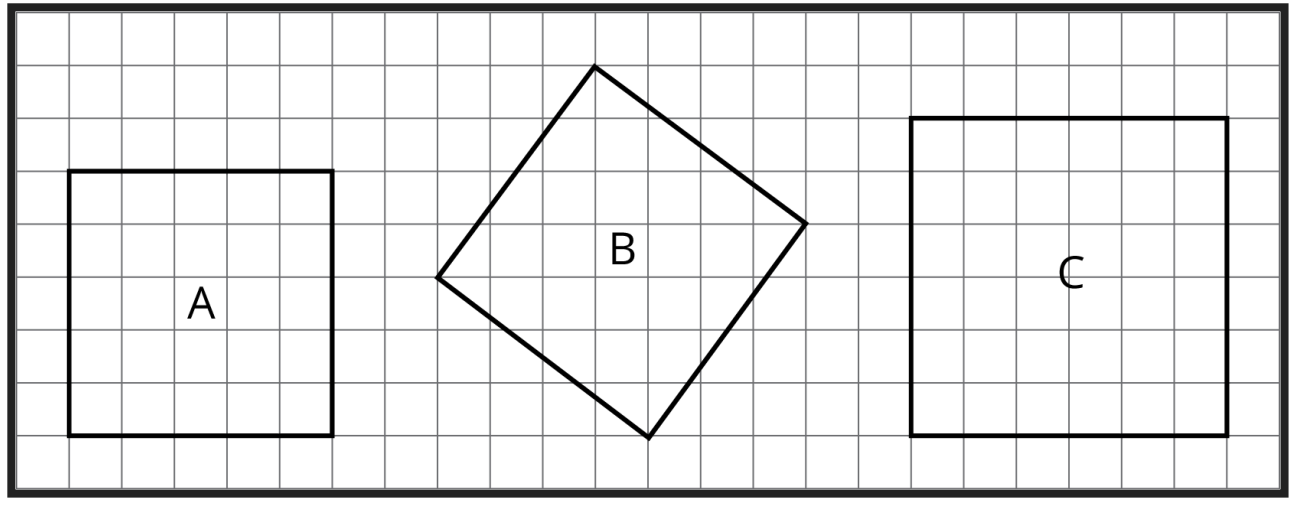
The square of the length of side ___ plus the square of the length of side ___ equals the square of the length side ___ .

Write your statement from above using the variables ***a***, ***b,*** and ***c***:

$$\_\_\_^2 + \_\_\_^2 = \_\_\_^2$$

USE THE PYTHAGOREAN THEOREM

Directions: Use the pythagorean theorem to answer the questions below.



1. What is the side length of the middle square? What is its area? Watch the video "Pythagorean Theorem Example" on this assignment and fill in the empty spaces below.

$$^{2} + \quad ^{2} = c^{2}$$
$$+ \quad = c^{2}$$
$$= c$$

THE PYTHAGORAS PUZZLER (OPTIONAL)

Directions: Watch the video The Pythagoras Puzzler (https://tpt.pbslearningmedia.org/resource/mgbh.math.g.pythagpuz/pythagoras-puzzler/) at this link (https://tpt.pbslearningmedia.org/resource/mgbh.math.g.pythagpuz/pythagoras-puzzler/) and see if you can solve a similar puzzle which is posted on today's assignment in schoology. Take a screenshot of your solved puzzle and paste it in the space below.

4. Given the following values for *a* and *b*, determine the length of side ***c***, to 2 decimal places,

a. If $a = 5$ and $b = 8$,

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

$\_\_\_\_^2 + \_\_\_\_^2 = c^2$

$\_\_\_\_\_ + \_\_\_\_\_ = c^2$

$\_\_\_\_\_ = c^2$

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

$\_\_\_\_\_ = c$

b. If $a = 7$ and $b = 4$,

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

$\_\_\_\_^2 + \_\_\_\_^2 = c^2$

$\_\_\_\_\_ + \_\_\_\_\_ = c^2$

$\_\_\_\_\_ = c^2$

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

$\_\_\_\_\_ = c$

c. If $a = 5$ and $b = 5$,

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

$\_\_\_\_^2 + \_\_\_\_^2 = c^2$

$\_\_\_\_\_ + \_\_\_\_\_ = c^2$

$\_\_\_\_\_ = c^2$

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

$\_\_\_\_\_ = c$

d. If $a = 2$ and $b = 10$,

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

$\_\_\_\_^2 + \_\_\_\_^2 = c^2$

$\_\_\_\_\_ + \_\_\_\_\_ = c^2$

$\_\_\_\_\_ = c^2$

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

$\_\_\_\_\_ = c$

5. A student performed the following steps using the Pythagorean Theorem. **Circle** the step where the student made an error and write the corrected solution (including all steps) to the right of the student's work. Use the following example to help you answer the upcoming questions.

Eg: If ***a* = 4** and ***b* = 6**

$4^2 + 6^2 = c^2$

$8 + 12 = c^2$

$20 = c^2$

$\sqrt{20} = \sqrt{c^2}$

$4.47 = c$

Corrected Solution:

$4^2 + 6^2 = c^2$

$16 + 36 = c^2$

$52 = c^2$

$\sqrt{52} = \sqrt{c^2}$

$7.21 = c$

*Refer to example on previous page.

a. If ***a*** **= 5** and ***b*** **= 8**

Corrected Solution:

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

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

$13 = c^2$

$\sqrt{13} = \sqrt{c^2}$

$3.61 = c$

b. If ***a*** **= 2** and ***b*** **= 9**

Corrected Solution:

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

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

$4 + 18 = c^2$

$22 = c^2$

$\sqrt{22} = \sqrt{c^2}$

$4.69 = c$

c. If ***a*** **= 3** and ***b*** **= 6**

Corrected Solution:

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

$3^2 + 6^2 = c^2$

$9 + 36 = c^2$

$45 = c^2$

$\sqrt{45} = \sqrt{c^2}$

$45 = c$

d. If ***a*** **= 10** and ***b*** **= 10**

Corrected Solution:

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

$10^2 + 10^2 = c^2$

$10 + 10 = c^2$

$20 = c^2$

$\sqrt{13} = \sqrt{c^2}$

$10 = c$