Digits Lesson 12-2/12-3/12-4
Pythagorean Theorem

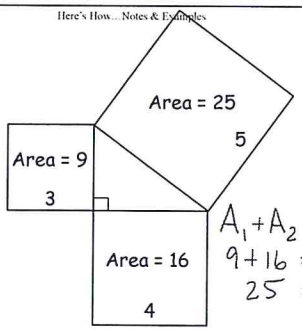
10/1/2019

1

Goal: I will be able to **use the Pythagorean Theorem to find the missing side of a right triangle.**

Tool Bag
Formulas, equations, Vocabulary, etc

Here's How... Notes & Examples



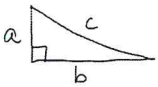
$A_1 + A_2 = A_3$
$9 + 16 = 25$
$25 = 25$

2

Pythagorean Theorem

for a right triangle

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



"c" is ALWAYS opposite the right angle (90°) and the largest side

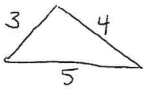
3

Example — Find the missing side

$a^2 + b^2 = c^2$
$3^2 + 9^2 = x^2$
$9 + 81 = x^2$
$90 = x^2$
$\sqrt{90} = \sqrt{x^2}$
$\sqrt{90} = x$

4

Example — Is this a right triangle?



$a^2 + b^2 = c^2$
$3^2 + 4^2 = 5^2$
$9 + 16 = 25$
$25 = 25$
true, so it IS a right triangle

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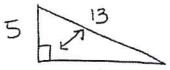
You Try — What is x?



$a^2 + b^2 = c^2$
$x^2 + 5^2 = 13^2$
$x^2 + 25 = 169$
$x^2 + 25 - 25 = 169 - 25$
$x^2 = 144$
$\sqrt{x^2} = \sqrt{144}$
$x = 12$

6

You Try — Is this a right triangle?

$a^2 + b^2 = c^2$
$5^2 + 7^2 = 8^2$
$25 + 49 = 64$
$74 = 64$
NO!!! Not a right triangle