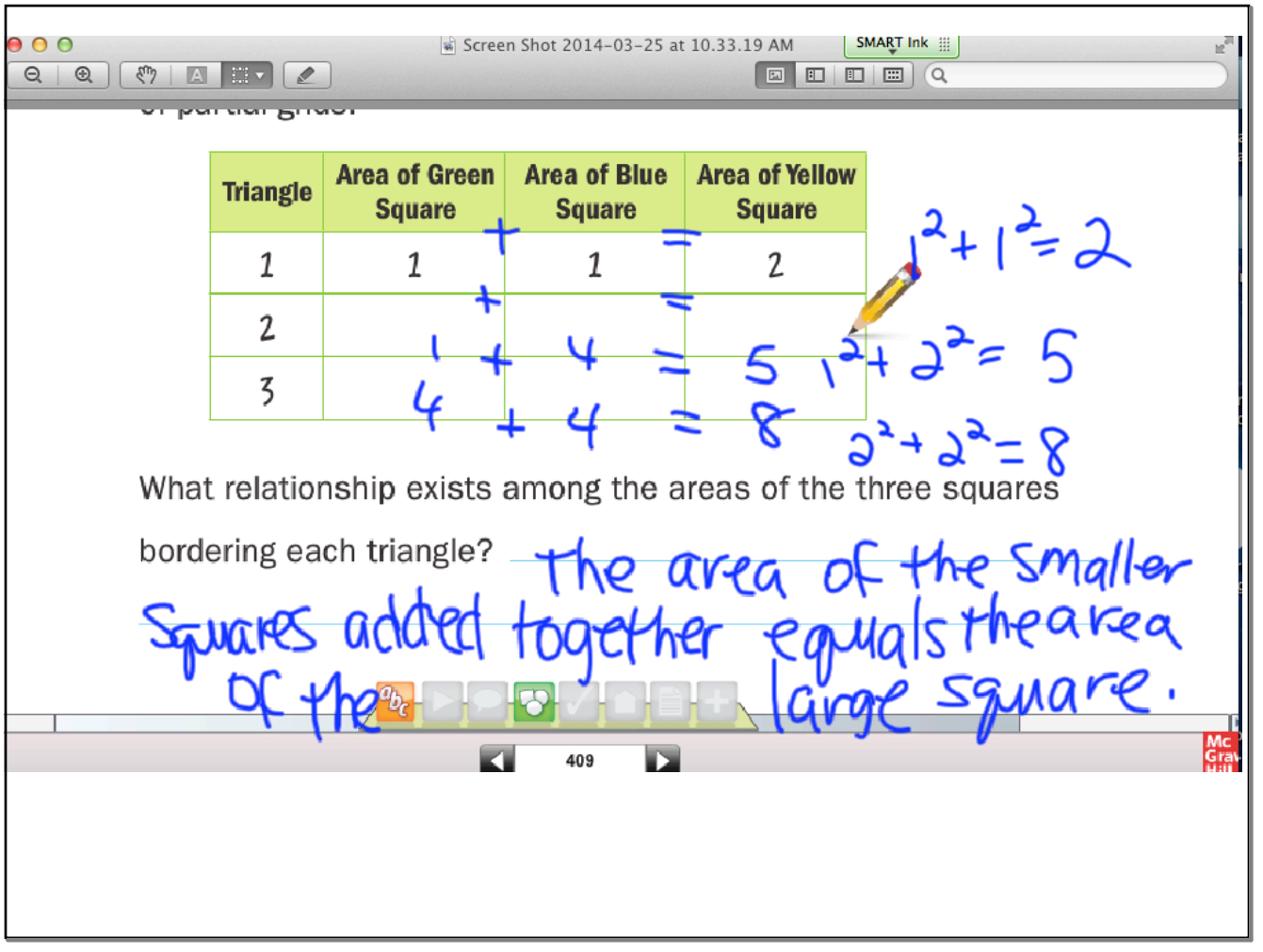
L5-5 The Pythagorean Theorem

of partial grids.

Triangle	Area of Green Square		Area of Blue Square		Area of Yellow Square
1	1	+	1	=	2
2	1	+	4	=	5
3	4	+	4	=	8

What relationship exists among the areas of the three squares bordering each triangle?

the area of the smaller squares added together equals the area of the large square.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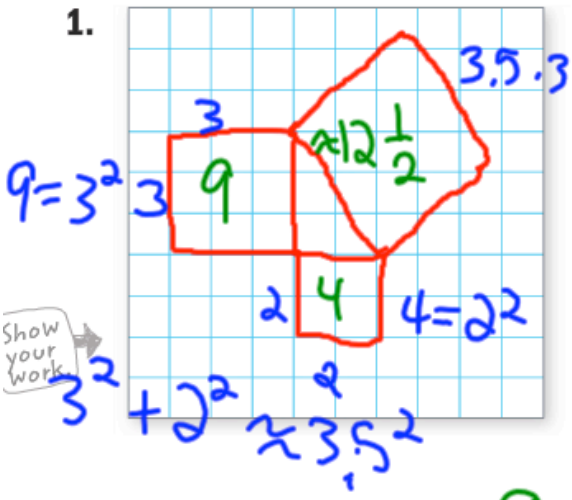
SMART Ink
Triangle
Area of Green Square
Area of Blue Square
Area of Yellow Square
1
1 + 1 = 2
2
1 + 4 = 5
3
4 + 4 = 8
$1^2 + 1^2 = 2$
$1^2 + 2^2 = 5$
$2^2 + 2^2 = 8$
What relationship exists among the areas of the three squares bordering each triangle?
the area of the smaller squares added together equals the area of the large square.
409

1.



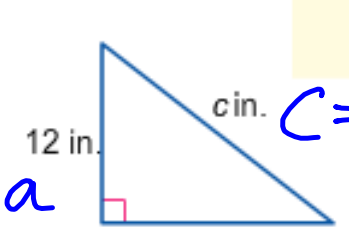
2.

Area of square 1 = 9

Area of square 2 = 4

Area of square 3 = 12.5

Write an equation you could use to find the length of the missing side of the right triangle shown. Then find the missing length. Round to the nearest tenth if necessary.



$c = 20$ in.

a

b

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

legs hypotenuse

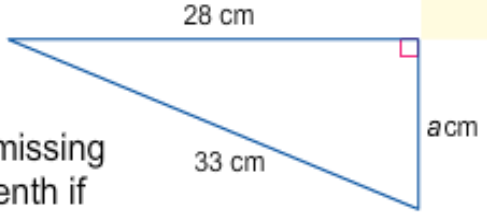
$12^2 + 16^2 = c^2$

$144 + 256 = c^2$

$\sqrt{400} = \sqrt{c^2}$

$20 = c$

Write an equation you could use to find the length of the missing side of the right triangle shown. Then find the missing length. Round to the nearest tenth if necessary.



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

$a^2 + 28^2 = 33^2$

$a^2 + 784 = 1089$

$-784 \quad -784$

$\sqrt{a^2} = \sqrt{305}$

$a \approx 17.46$

3. The measures of three sides of a triangle are 5 inches, 12 inches, and 13 inches. Determine whether the triangle is a right triangle.

Converse of the Pythagorean Theorem -
Use the theorem to prove that a △ is a ◺

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

$5^2 + 12^2 = 13^2$

$25 + 144 = 169$

$169 = 169$ ✓

∴ 5-12-13 △ is a ◺

The measures of three sides of a triangle are 24 inches, 7 inches, and 25 inches. Determine whether the triangle is a right triangle.

$a^2 + b^2 \stackrel{?}{=} c^2$

$24^2 + 7^2 \stackrel{?}{=} 25^2$

$576 + 49 = 625$

$625 \stackrel{\checkmark}{=} 625$

$\therefore$ 24-7-25 $\triangle$ is a