Warm up:

Simplify.

1) $4(3x - 5) = 12x - 20$

2) $3(2x + 7) = 6x + 21$

3) $-8(9x - 2) = -72x + 16$

4) $5(x + 6) = 5x + 30$

HW Solutions

(3) (0, 4) (−3, −7)

$\Delta x = 0 - (-3) = 3$

$\Delta y = 4 + (+7) = 11$

$3^2 + 11^2 = x^2$

$9 + 121$

$\sqrt{130} = \sqrt{x^2}$

$11.40 = x$

② (-2, 6) (6, 10)

$\Delta x = -2 - 6 = -8 \Rightarrow 8$

$\Delta y = 10 - 6 = 4$

$8^2 + 4^2 = x^2$

$64 + 16$

$\sqrt{80} = \sqrt{x^2}$

$8.94 = x$

(1) (4,5) (9,10)

$9-4=5$

$10-5=5$

$5^2+5^2=x^2$

$25+25$

$\sqrt{50}=\sqrt{x^2}$

$7.07=x$

③ $(1, 2)$ $(-2, 11)$

$1-(-2)=3$

$11-2=9$

$3^2+9^2=x^2$

$9+81=x^2$

$\sqrt{90}=\sqrt{x^2}$

$9.49 = x$

(6) (3, 8) (−1, 12)

$3-(-1)=4$

$12-8=4$

$4^2+4^2=x^2$

$16+16=x^2$

$\sqrt{32}=\sqrt{x^2}$

$5.66=x$

$2(3x+4)$
$6x+8$

$$(x + 5)(3x + 4)$$

$$3x(x+5) + 4(x+5)$$

$$3x^2 + 15x + 4x + 20$$

$$3x^2 + 19x + 20$$

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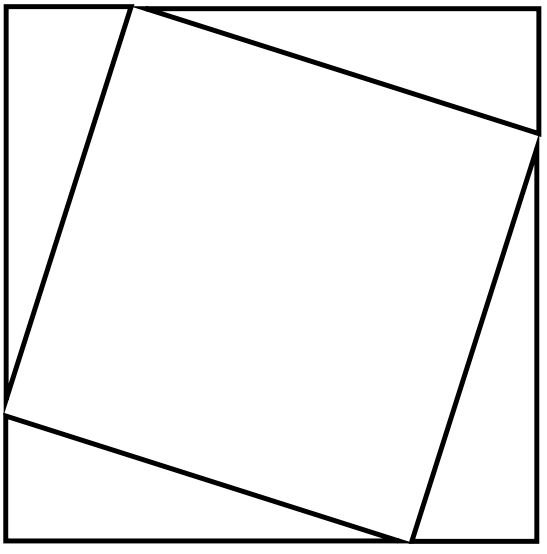
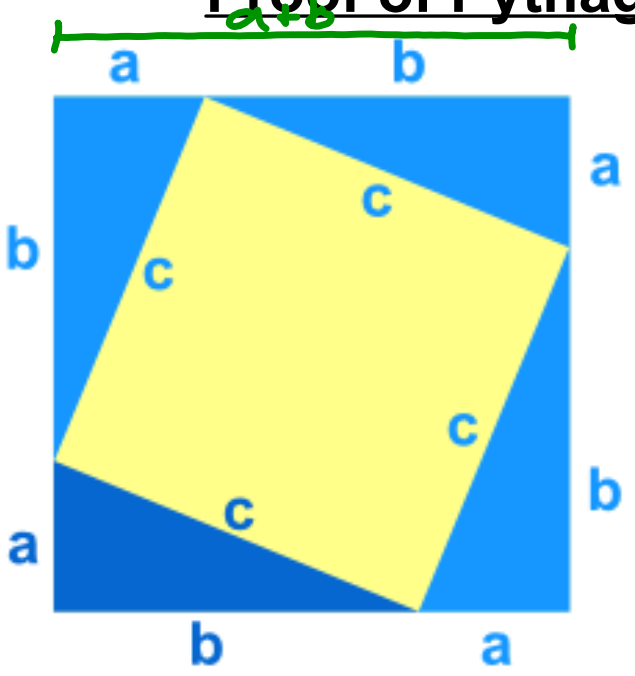


Proof of Pythagorean Theorem



$(a+b)(a+b) = 4\cdot\frac{1}{2}ab + c^2$

$a(a+b) + b(a+b) = 2ab + c^2$

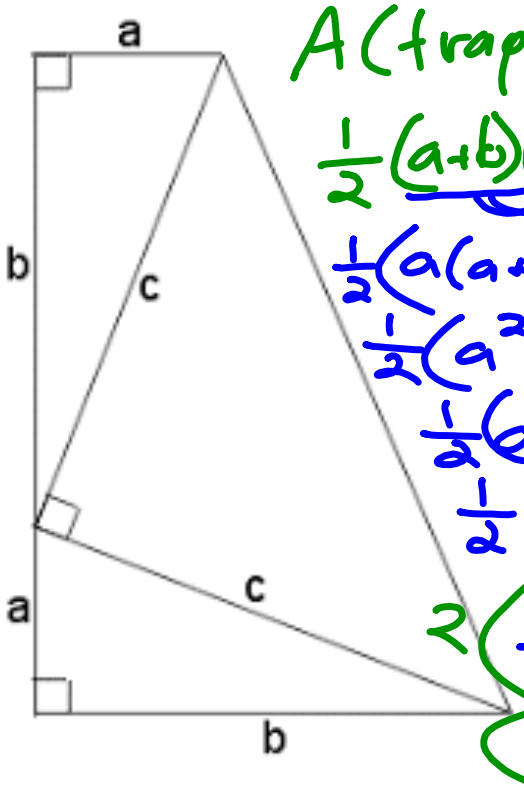
$a^2 + ab + ab + b^2 = 2ab + c^2$

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

$-2ab \quad -2ab$

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

James Garfield's Proof



$A(\text{trapezoid}) = \frac{1}{2}h(b_1+b_2)$

$\frac{1}{2}(a+b)(a+b) = 2\cdot\frac{1}{2}ab + \frac{1}{2}c^2$

$\frac{1}{2}(a(a+b)+b(a+b)) = ab + \frac{1}{2}c^2$

$\frac{1}{2}(a^2+ab+ab+b^2) = ab + \frac{1}{2}c^2$

$\frac{1}{2}(a^2+2ab+b^2) = ab + \frac{1}{2}c^2$

$\frac{1}{2}a^2 + ab + \frac{1}{2}b^2 = ab + \frac{1}{2}c^2$

$-ab \qquad -ab$

$2\left(\frac{1}{2}a^2 + \frac{1}{2}b^2\right) = \left(\frac{1}{2}c^2\right)2$

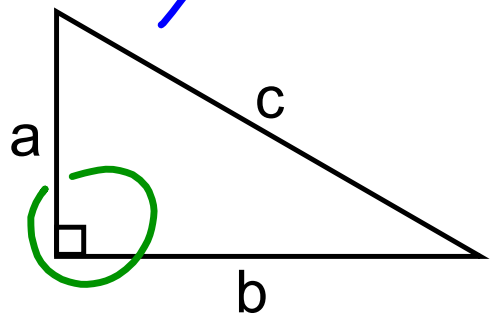
$a^2 + b^2 = c^2$

Proof of the Converse of the Pythagorean Theorem

$x + 5 = b$

$y + 5 = b$

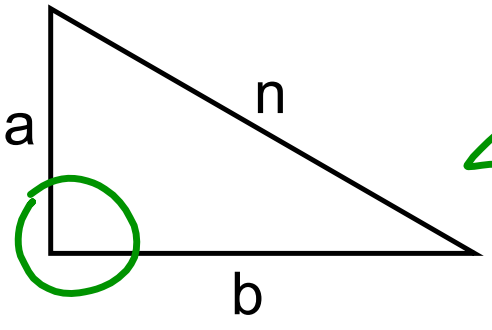
$x = y$



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

$c^2 = n^2$

$c = n$



$a^2 + b^2 = n^2$

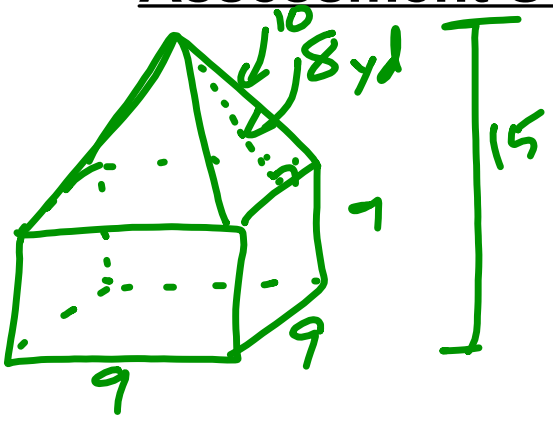
$c = n$ substitution

$\triangle$s are $\cong$ SSS

all sides + $\angle$s are $\cong$

right triangle

Assessment Solutions



$9 \cdot 9 = 81$

81
81
81
81
81

$\frac{1}{2} \cdot 9 \cdot 8 = 36$

36
36
36
36

$549\ yd^2$

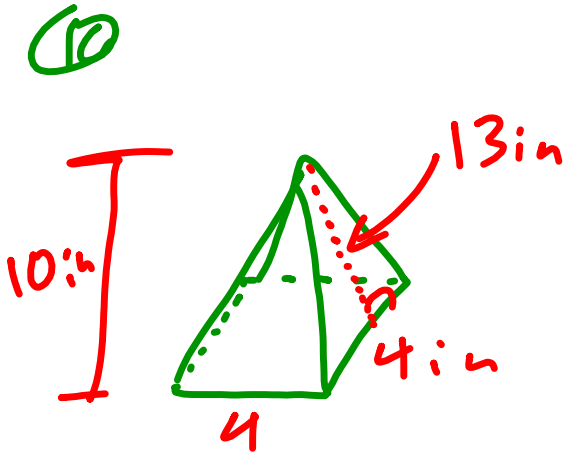
9

$\frac{1}{2} \cdot 3.14(4.5)^2$

31.7925

$+108$

$139.79\ yd^2$



$4 \cdot 4 = 16$

$\frac{1}{2} \cdot 4 \cdot 13 = 26$

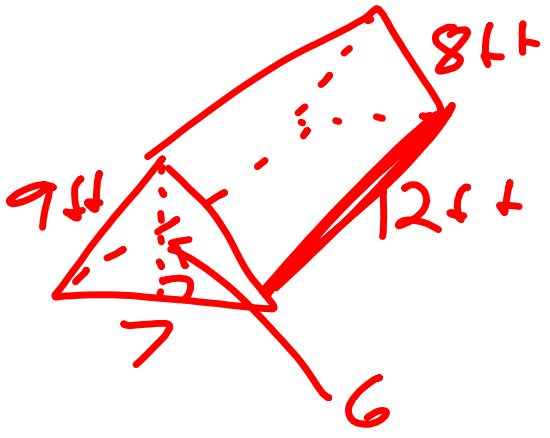
26

26

26

120 in^2

(15)



BL

$\frac{1}{2} \cdot 7 \cdot 6 \cdot 12$

252 ft^3

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