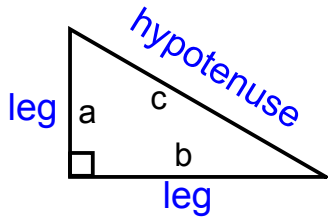
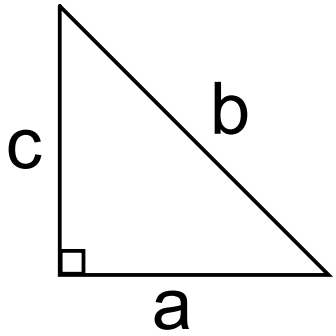
Chapter 7.1: Apply the Pythagorean Theorem.

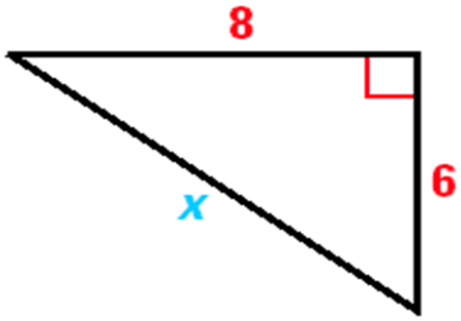
$$leg^2 + leg^2 = hypotenuse^2$$

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





Find the length of the hypotenuse of the right triangle.



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

$8^2 + 6^2 = x^2$

$64 + 36 = x^2$

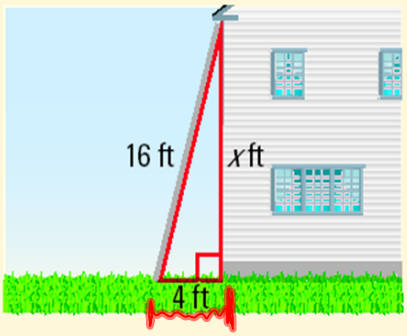
$\sqrt{100} = \sqrt{x^2}$

$x = 10$

A 16 foot ladder rests against the side of the house, and the base of the ladder is 4 feet away. Approximately how high above the ground is the top of the ladder?

(A) 240 feet (B) 20 feet

(C) 16.5 feet (D) 15.5 feet



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

$4^2 + x^2 = 16^2$

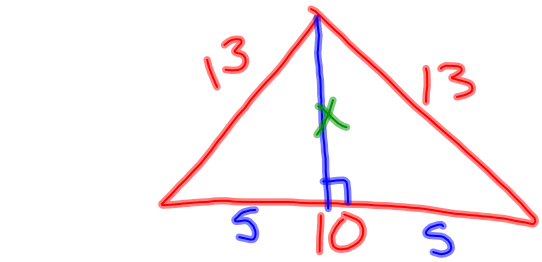
$16 + x^2 = 256$

$-16 \quad -16$

$\sqrt{x^2} = \sqrt{240}$

$x = 15.5$

Find the area of the isosceles triangle with side lengths 10 meters, 13 meters and 13 meters.



$A = \frac{1}{2}(10)(12)$

$A = 5(12) = 60\,m^2$

$5^2 + x^2 = 13^2$

$25 + x^2 = 169$

$-25 \quad -25$

$\sqrt{x^2} = \sqrt{144}$

$x = 12$

Pythagorean Triples: A set of three positive integers x,y and z that satisfy the equation $x^2 + y^2 = z^2$

Base:	3,4,5	5,12,13	8,15,17	7,24,25
x2	6,8,10	10,24,26	16,30,34	14,48,50
x3	9,12,15	15,36,39	24,45,51	21,72,75
	3x,4x,5x	5x,12x, 13x	8x,15x, 17x	7x,24x, 25x

Find the length of the hypotenuse of the right triangle.

$24^2 + 10^2 = x^2$

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Homework: Chapter 7.1
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