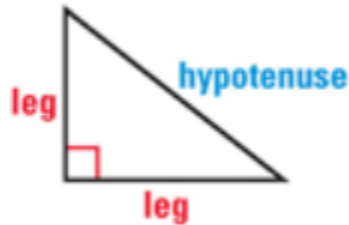
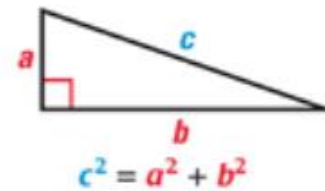


7.1 Apply the Pythagorean Theorem



THEOREM 7.1 Pythagorean Theorem

In a right triangle, the square of the length of the hypotenuse is equal to the sum of the squares of the lengths of the legs.



Find the length of the hypotenuse of the right triangle.

Solution

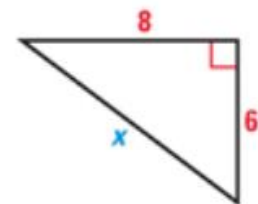
$$(\text{hypotenuse})^2 = (\text{leg})^2 + (\text{leg})^2 \quad \text{Pythagorean Theorem}$$

$$x^2 = 6^2 + 8^2 \quad \text{Substitute.}$$

$$x^2 = 36 + 64 \quad \text{Multiply.}$$

$$x^2 = 100 \quad \text{Add.}$$

$$x = 10 \quad \text{Find the positive square root.}$$



Common Pythagorean Triples and Some of Their Multiples

3, 4, 5	5, 12, 13	8, 15, 17	7, 24, 25
6, 8, 10	10, 24, 26	16, 30, 34	14, 48, 50
9, 12, 15	15, 36, 39	24, 45, 51	21, 72, 75
30, 40, 50	50, 120, 130	80, 150, 170	70, 240, 250
3x, 4x, 5x	5x, 12x, 13x	8x, 15x, 17x	7x, 24x, 25x