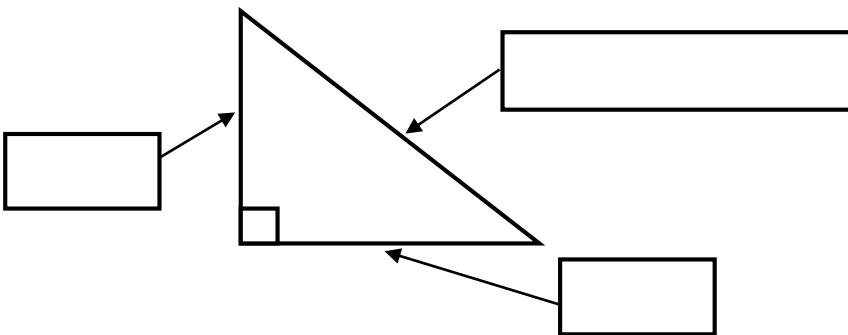


NOTES 9.1: PYTHAGOREAN THEOREM

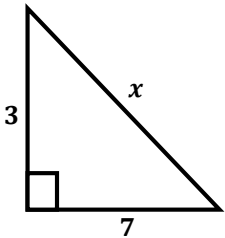
When two of three sides of a right triangle are known, the third side can be found using the *Pythagorean Theorem*.



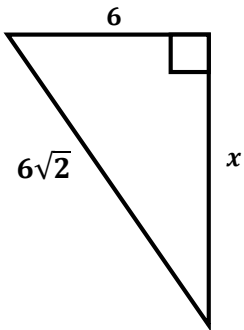
PYTHAGOREAN THEOREM



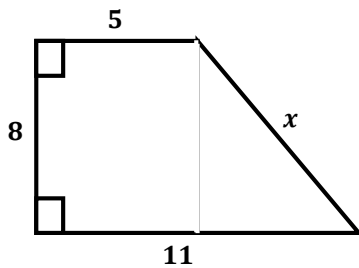
EXAMPLE 1: Find the value of 'x'.



EXAMPLE 2: Find the value of 'x'.



EXAMPLE 3: Find the value of 'x'.



Any group of three positive integers a , b , and c , such that $c^2 = a^2 + b^2$ is known as a **Pythagorean Triple**.

EXAMPLE 4: Is 3, 4, 5 a Pythagorean Triple?

Name other Pythagorean Triples:

a) _____, _____, _____

b) _____, _____, _____

c) _____, _____, _____

d) _____, _____, _____

Recall that one way to classify triangles is by **angles**. A triangle can be **acute**, **obtuse**, or **right**.

If a triangle can be formed, you can determine the type of triangle formed by comparing the square of the longest side (c) to the sum of the squares of the shorter sides (a & b).

A **RIGHT TRIANGLE** can be formed when:

An **ACUTE TRIANGLE** can be formed when:

An **OBTUSE TRIANGLE** can be formed when:

EXAMPLE 5: Determine if a triangle can be formed, and if so, classify it.

(a) 5, 12, 4 YES or NO

(b) 6, 7, 8 YES or NO

Classify:

Classify:

(c) 1, 3, $\sqrt{10}$ YES or NO

(d) $\sqrt{9}$, $\sqrt{16}$, $\sqrt{27}$ YES or NO

Classify:

Classify: