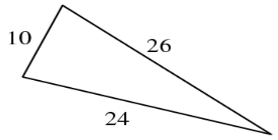
Name: ______________________________________ Date: ___________________

The Converse of the Pythagorean Theorem
Algebra 1

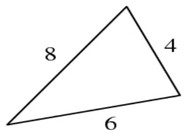
In the last lesson, we reviewed how the Pythagorean Theorem can be used to solve for missing side lengths of right triangles. The Pythagorean Theorem can be reversed, called the **converse**, to determine if a triangle contains a right angle, i.e. is a right triangle. More formally, if the side lengths of a triangle satisfy $a^2 + b^2 = c^2$, then the triangle must be a right triangle.

***Exercise* #1:** Determine if the triangles below represent right triangles. Diagrams are not drawn to scale, so no judgment can be made based upon appearance.

(a)



(b)



Note that the side length substituted for the hypotenuse **must** be the largest number.

***Exercise* #2**: Determine whether each given set of numbers could represent the side lengths of a right triangle. (Hint – You may find the **STORE** option on your calculator helpful for this problem.)

(a) $\{9, 12, 15\}$ (b) $\{4, 2\sqrt{5}, 6\}$ (c) $\{1, \sqrt{3}, 4\}$

***Exercise* #3:** Which of the following sets of numbers represents the lengths of the sides of a right triangle?

(1) $\{5, 9, 11\}$ (3) $\{6, 8, 15\}$

(2) $\{15, 36, 39\}$ (4) $\{11, 15, 17\}$

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