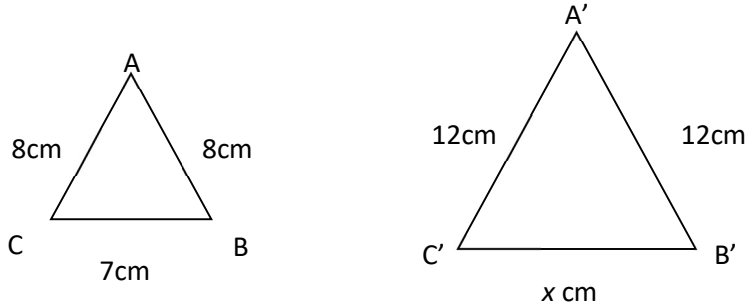# Math 9A Journal Entries

Learning Guide 12

Expectation 1: Demonstrate an understanding of similarity of triangle

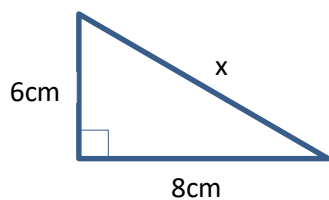What two conditions must be true if a pair of triangles are similar?

1.

2.

The two triangles below are similar, explain how you would calculate the unknown side.

Consider the following examples in the review of the use of the **Pythagorem Theorem** from last year.

Recall that, in a right-angle triangle, the formula $a^2 + b^2 = c^2$ is the relationship between the two *legs* of the triangle ("a" and "b") and the hypotenuse ("c"). Recall that the hypotenuse is opposite the right angle. This formula is called the **Pythagorean Theorem.**
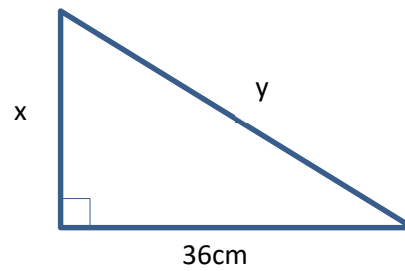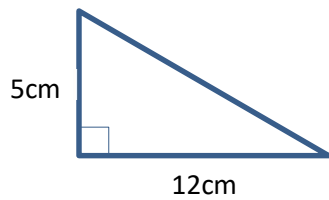
An example of computing a missing side is as follows:

$$6^2 + 8^2 = x^2$$
$$36 + 64 = x^2$$
$$100 = x^2$$
$$\sqrt{100} = \sqrt{x}$$
$$10 = x$$

The length of the hypotenuse, then, is 10cm.

The following pair of triangles are similar. Using the Pythagorean Theorem and the properties of similar triangles, calculate the missing sides in the diagram.

5cm

12cm

y

x

36cm

Expectation 2: Demonstrate an understanding of similarity of polygons.

What two conditions must be true if a pair of polygons are similar?

1.

2.

The two polygons below are similar; explain how you would calculate the unknown side.

10cm

12cm   12cm

7 cm

x cm

7.2 cm   7.2 cm

4.2 cm