**Activity 2.3.2b Angles in Isosceles Triangles**

In the following activity, triangles will be constructed with compass and straight edge by drawing a circle. At this point, it is known that isosceles triangles are triangles with *at least* two congruent sides.

The two congruent sides of an isosceles triangle are called *legs.* The third side is called the *base.*

Using this vocabulary, label the triangles below.

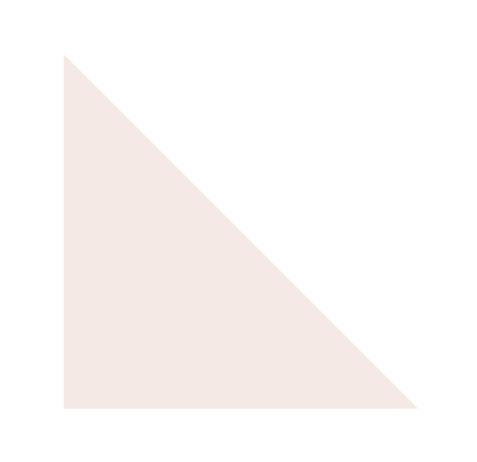
a) b) \_\_\_\_\_\_

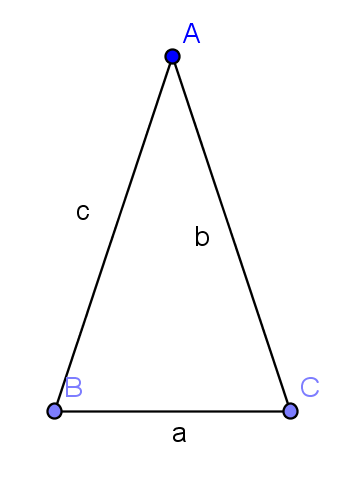
\_\_\_\_\_\_ \_\_\_\_\_ \_\_\_\_\_\_\_

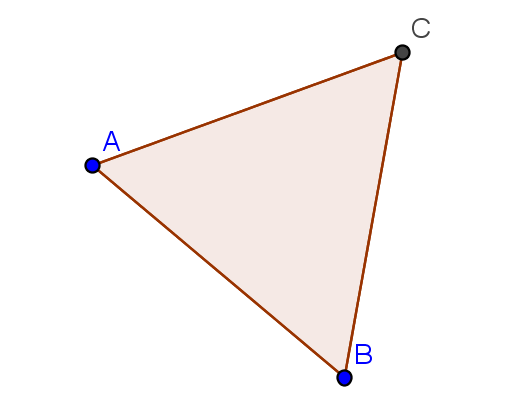
\_\_\_\_\_\_\_

\_\_\_\_\_\_\_

You will be asked to use inductive reasoning (*reasoning that allows you to reach a conclusion based on a pattern of specific examples)* to form a conjecture about the angles in isosceles triangles.

1. Cut out the triangles from the templates below.





2. Now fold all of the triangles you created on their axis of symmetry.

What do you notice about the sides and the angles that overlap?

*Line of symmetry*

3. The overlapping sides are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

4. The overlapping angles are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

5. Now form a conjecture (a generalization using inductive reasoning).

\*\*If two sides of a triangle are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, then the angles opposite these sides

are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

6. What transformation was used in this activity?

**Vocabulary related to Isosceles triangles**

Legs: the two congruent sides

Base: the third side of and isosceles triangle that is not necessarily congruent to the other sides

Base angles: the angles opposite from the legs and adjacent to the base

Vertex angle: the angle opposite from the base in an isosceles triangle

7. Now label the isosceles triangle below with the above vocabulary.