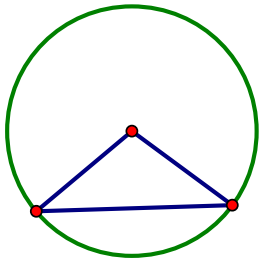
Geometry – Unit 5 Practice **Name: _____!**

Isosceles Triangles

G.CO.C.10 **Date: _____ Pd: ____**

Quick Concept: The base angles of an isosceles triangle are equal.

1) **Activity – Draw a circle on a piece of paper using a compass (mark the center). Then create two radii. Use a ruler to connect the two endpoints of the radii on the circle to create a triangle. Why did this create an isosceles triangle?**

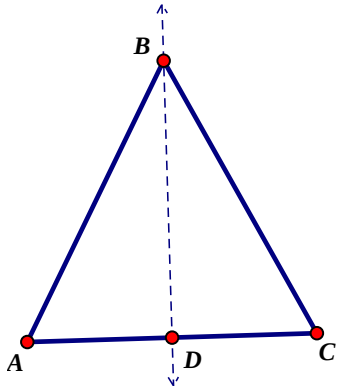


Cut out the triangle and tear off the angles and compare them - what do you notice?

2) **Fill in the blanks in the proof.**
Samantha tries to prove that the base angles $\angle BAC$ & $\angle BCA$ of Isosceles ΔABC are congruent. She begins by constructing the perpendicular bisector of $\overline{AC}$ which will go through point B because $\overline{BA} \cong \overline{BC}$. She states that a reflection over $\overline{BD}$ maps:
Point *B* onto Point *B* because it is on the line of reflection

Point *A* onto Point *C* because _____

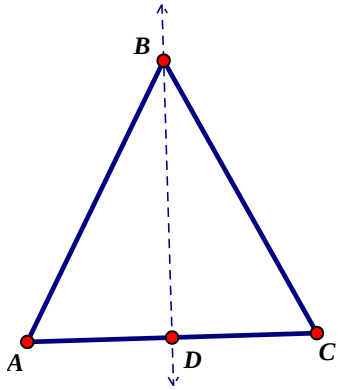
Point *C* onto Point *A* because _____
Therefore $\angle BAC \cong \angle BCA$ due to the isometric nature of the reflection.



3) **Fill in the blanks in the proof.**
Michael tries to prove that the base angles $\angle BAC$ & $\angle BCA$ of Isosceles ΔABC are congruent. He begins by constructing the perpendicular bisector of $\overline{AC}$ which will go through point B because $\overline{BA} \cong \overline{BC}$. He then states that:
$\overline{BA} \cong \overline{BC}$ **because they are the congruent legs of Isosceles ΔABC.**

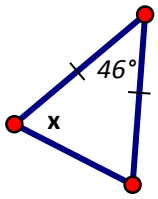
$\overline{AD} \cong \overline{CD}$ **because _____**

$\overline{BD} \cong \overline{BD}$ **because _____**
Therefore $\Delta BAD \cong \Delta BCD$ due to SSS. $\angle BAC \cong \angle BCA$ because Corresponding Parts of Congruent Triangles are Congruent (CPCTC).



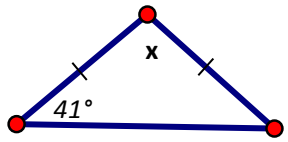
4) Find the value of *x*.

a)



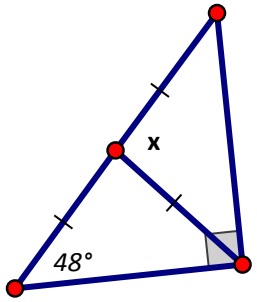
***x* = _____**

b)



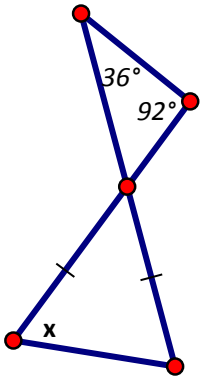
***x* = _____**

c)



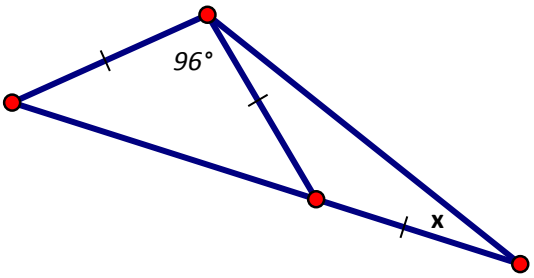
***x* = _____**

d)



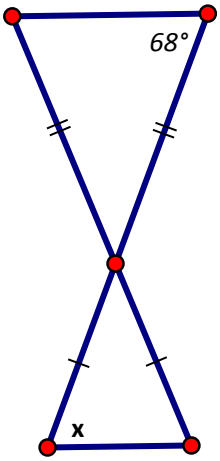
***x* = _____**

e)



***x* = _____**

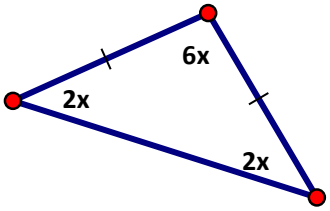
f)



***x* = _____**

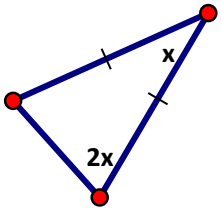
5) Find the value of *x*.

a)



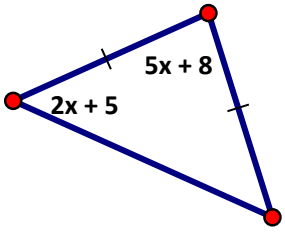
***x* = _____**

b)



***x* = _____**

c)



***x* = _____**

6) If the ratio of the angles of a triangle is 7:4:7. What is the measurement of each angle and what is the best classification for the triangle?