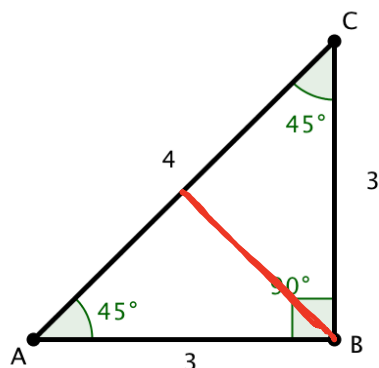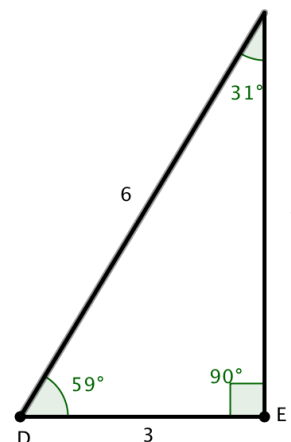Name _____   Date _____

1. Draw triangles that fit the following classifications. Use a ruler and protractor. Label the side lengths and angles.
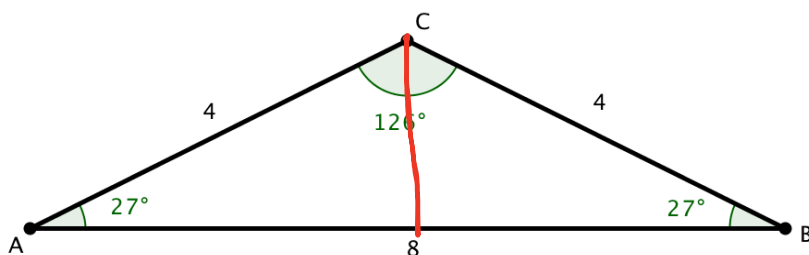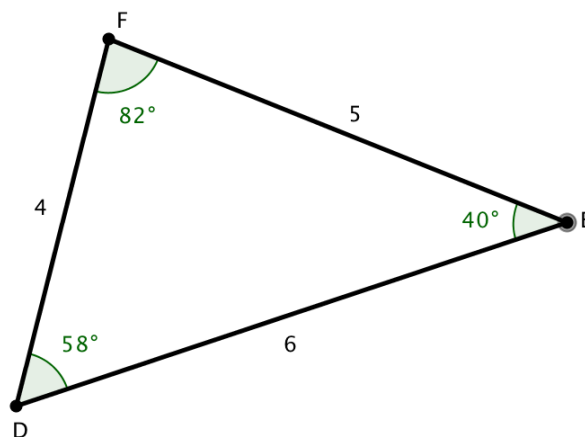
    a. right and isosceles

    b. right and scalene

   c. obtuse and isosceles

    d. acute and scalene

2. Draw all possible lines of symmetry in the triangles above. Explain why some of the triangles do not have lines of symmetry.

(a) and (c) are the only triangles with a line of symmetry because they are the only triangles with a pair of equal angles.

Are the following statements true or false? Explain.

3. $\triangle ABC$ is an isosceles triangle. $\overline{AB}$ must be 2 cm. True or False?

True because an isosceles triangle has at least two sides that are the same length. $\overline{AC}$ and $\overline{AB}$ are both 2 cm long.

B

1 cm

A

2 cm

C
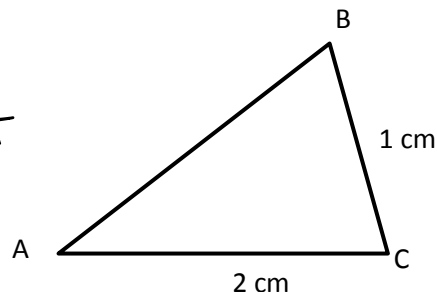
4. A triangle cannot have both an acute angle and a right angle. True or False?

False. If a triangle has a right angle, then the other angles <u>must</u> be acute angles.

5. $\triangle XYZ$ can be described as both equilateral and acute. True or False?
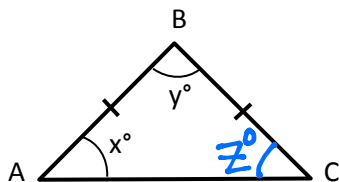
True. Equilateral means all three sides have the same length. Acute means all the angles are less than 90°. This triangle satisfies both conditions.

X

Y   Z
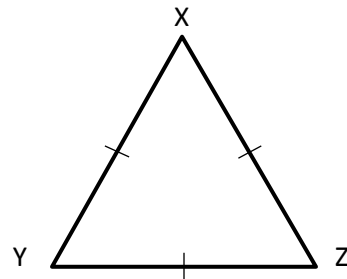
6. A right triangle is always scalene. True or False?

False. A right triangle can also be isosceles.

Extension: In $\triangle ABC$, x = y. True or False?

B

y°

x°   z°

A   C

False. x could only be equal to y if the triangle is equilateral. x equals z, but x does not equal y.