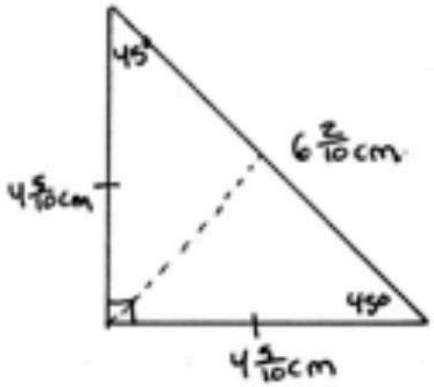
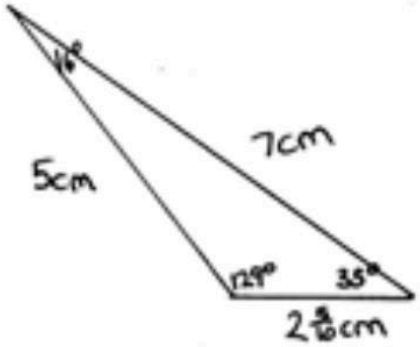
1. Draw triangles that fit the following classifications. Use a ruler and protractor. Label the side lengths and angles.

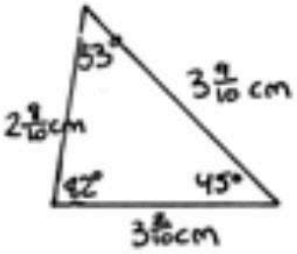
a. right and isosceles



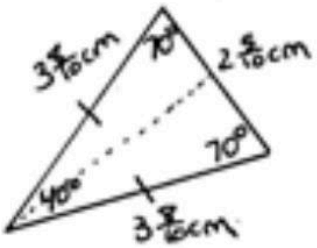
b. obtuse and scalene



c. acute and scalene



d. acute and isosceles



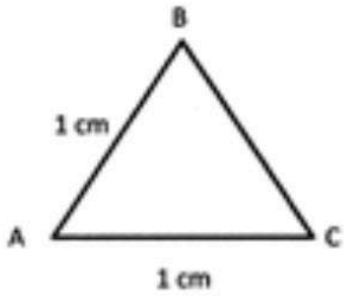
2. Draw all possible lines of symmetry in the triangles above. Explain why some of the triangles do not have lines of symmetry.

Some of the triangles do not have lines of symmetry because their sides are all different lengths. If the sides are different lengths, there is no way that they would be able to match. There would be no way to fold it so that the sides were identical.

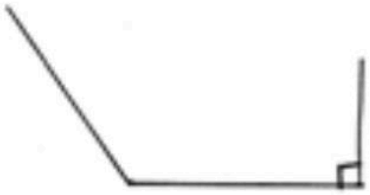
Are the following statements true or false? Explain using pictures or words.

3. If $\triangle ABC$ is an equilateral triangle, $\overline{BC}$ must be 2 cm. True or False?

False. If $\triangle ABC$ is an equilateral triangle, all of the sides need to be the same length. Since $\overline{AB}$ and $\overline{AC}$ are both 1 cm long, $\overline{BC}$ would be 1 cm.



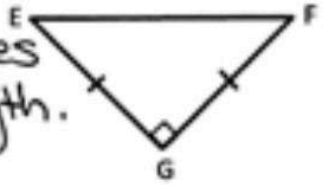
4. A triangle cannot have one obtuse angle and one right angle. True or False?



True. If one angle is obtuse and the other is a right angle, there is no way to connect the three lines segments. They won't meet.

5. $\triangle EFG$ can be described as a right triangle and an isosceles triangle. True or False?

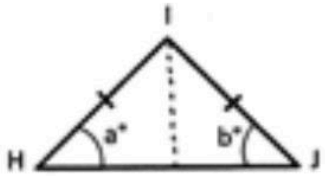
True. A right triangle has a right angle. $\angle EGF$ is a right angle. An isosceles triangle has 2 sides that are the same length. $\overline{EG}$ and $\overline{FG}$ are the same length.



6. An equilateral triangle is isosceles. True or False?

True. An isosceles triangle has at least two sides that are the same length. An equilateral triangle has three sides that are the same length. So, an equilateral triangle has sides that match the definition of an isosceles triangle.

Extension: In $\triangle HIJ$, $a° = b°$. True or False?



True. I can fold $\triangle HIJ$ along its line of symmetry to show that $\angle IHJ = \angle IJH$. That means that $a° = b°$.