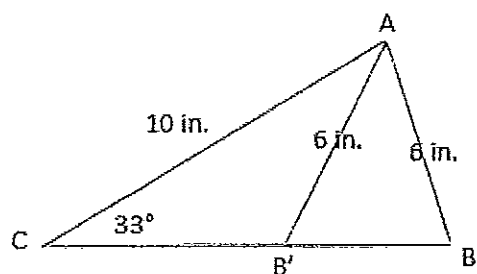Name _____ Period _____

Finding Triangles with Given Conditions

Decide whether there are 0,1, or more possible triangles with the given conditions. Use a ruler and a protractor to draw the triangles.

---

1. A triangle with sides that measure 5,12, and 13 cm. Sketch and label.

What kind of triangle? _____   How many triangles? _____

---

2. A triangle with sides that measure 4 and 6 cm, and an included angle of 120°. Sketch and label.

What kind of triangle? _____   How many triangles? _____

3. A triangle with angles 100° and 20°, and an included side of 2 cm. Sketch and label.

What kind of triangle? _____   How many triangles? _____

4. A triangle with two angles of 40° and 30°, and an included side of 6 cm. Sketch and label.

What kind of triangle? _____   How many triangles? _____

5. A triangle with two sides of 5 and 7 cm, and an included angle of 45°. Sketch and label.

What kind of triangle? _____   How many triangles? _____

6. A triangle with angles of 30° and 60°, and a non-included side of 5 cm adjacent to the 60° angle. Sketch and label.

What kind of triangle? _____   How many triangles? _____

7. A triangle *HIJ* in which m∠*HIJ* = 60°, m∠*JHI* = 90°, and m ∠*IJH* = 55°. Sketch and label.

What kind of triangle? _____   How many triangles? _____

8. A triangle *ABC* in which *AB* = 3cm, m ∠*ABC* = 60°, and m ∠*BCA* = 60°. Sketch and label.

What kind of triangle? _____   How many triangles? _____

9. Your friend is having a hard time understanding how angle measures of 30°, 60°, and 90° might create more that one triangle. Draw two different triangles that have those angle measures and explain why the two triangles are different.

10. Your friend is having a hard time understanding why knowing the lengths of two sides of a triangle and the measure of an angle not between the two sides may not be adequate information to construct a unique triangle. Draw an example where two sides and a non-included angle give two different triangles.