

**DIRECTIONS:**

**With the aid of a ruler and a protractor, create the following drawings.**

**After you create your drawing, compare your drawing to that of your tablemates.**

**Are the resulting triangles always, sometimes or never congruent?**

- 1) Draw a triangle that has an 8-cm side, a 6-cm side and a 90 degree angle formed by the two sides. This is a Side-Angle-Side description. Compare with classmates. Are the resulting triangles congruent?
  
- 2) Draw a triangle according to the translations of vertices. Place point A on a lattice point of the coordinate grid. Point B is the result of point A being translated 5-units right and 12-units up. Point C is the result of translating point B 7-units left and 8-units down. Draw triangle ABC. This is a Side-Side-Side description. Compare with classmates. Are the resulting triangles congruent?
  
- 2) Draw a triangle that has an 8-cm side and a 6-cm side, which make a 30 degree angle. This is a Side-Angle-Side description. Compare with classmates. Are the resulting triangles congruent?
  
- 3) Draw a triangle that has an 8-cm side, a 6-cm side and 45 degree angle that is NOT formed by the two given Sides. This is a Side-Side-Angle description. Compare with classmates. Are the resulting triangles congruent?
  
- 4) Draw the following non-congruent triangles each of which has a 40 degree angle, a 60 degree angle and an 8-cm side.  
One triangle should have an Angle-Side-Angle description. Compare with classmates. Are the resulting triangles congruent?  
  
Two triangles will have the Angle-Angle-Side descriptions but not be congruent.  
Compare with classmates. Are the resulting triangles congruent?
  
- 5) Draw a triangle that has a horizontal edge that is 8 cm long and a 30 degree angle at the left endpoint, and a 70 degree angle at the right endpoint. What is the measure of the third angle? This is an Angle-Side-Angle description. Compare with classmates. Are the resulting triangles congruent?

Repeat this drawing except now draw a triangle that has a horizontal edge that is 5 units long and a 30 degree angle at the left endpoint, and a 70 degree angle at the right endpoint. Again, this is an Angle-Side-Angle description. Compare with classmates. Are the resulting triangles congruent?

The first triangle with side 8-units long is NOT congruent to the second triangle that has side 5-units long. If we ignore the side length and just use the angle measures, we could say this is an Angle-Angle-Angle description which is not sufficient to show congruence. What word describes the relationship between these two triangles since they are NOT congruent?

