ANGLE ACTIVITY LAB

1. Under **Display** choose **Preferences** and make sure that auto show labels for points is checked, and that the precision of angles is in units.

2. Construct ray AB using the →tool on the side bar.

3. Construct △ABC by using the ---- tool on the side menu.

4. Construct a point on ray AB on the exterior of the triangle using the point tool.

5. Measure ∠CBD using the measure angle option from the top menu. This is a(n) _____ angle of triangle ABC.

6. Measure ∠CAB and ∠ACB the same way. These are the _____ interior angles of triangle ABC.

7. Under measure, choose calculate and click on m∠CAB + m∠ACB.

8. Show that m∠CBD = m∠ACB + m∠CAB by moving point C, B, or A. Show your teacher. _____

9. State in words the theorem from your text that you have illustrated using Geometry Sketchpad.

This is called the _____ _____ Theorem.

10. Measure ∠ABC and demonstrate to your teacher the Angle Sum Theorem using calculate. _____

State this theorem from your text.

11. Now hide ray AB by clicking on the ray and going under display to hide ray. Reconstruct segment AB by clicking on A then B and then Construct segment.

12. Measure the lengths of AC, AB, and BC. On your screen line up these measures with ∠ABC, ∠ACB and ∠CAB. These are the angles opposite each one of these sides of the triangle ABC.

$$AC = \qquad ∠ABC =$$
$$AB = \qquad ∠ACB =$$
$$BC = \qquad ∠CAB =$$

Now you will explore the measures of the angles and lengths of the sides opposite those angles.

13. Drag any vertex to change the size and shape of your triangle. Observe the measures of the angles and the lengths of the sides. Answer the questions below.

   a. If the lengths of two sides of a triangle are equal, what do you know about the measures of the angles opposite them?

   b. If the lengths of two sides of a triangle are unequal, what do you know about the measures of the angles opposite them?

   c. If the measures of two angles of a triangle are equal, what do you know about the lengths of the sides opposite them?

   d. If the measures of two angles of a triangle are unequal, what do you know about the lengths of the sides opposite them?

14. Summarize the relationship in any triangle between the measures of the angles and the lengths of the sides opposite them.

(Questions 13 and 14 taken from Geometry Activities for Middle School Students p. 63-64). Angle Activity created by Karen Loomis, Preston High School