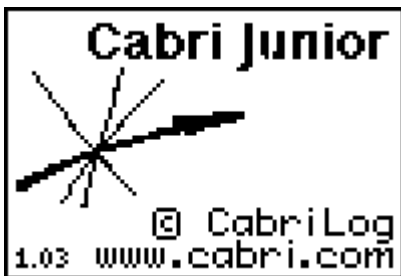


Activity 8 ASA Triangle Congruence

Two triangles are considered to be congruent if all three sides have the same length and all three angles have the same degree measure. However, to show that two triangles are congruent, we need only to show that certain sets corresponding sides and angles are congruent. This activity will lead you through the last of these triangle congruence postulates – that if two pairs of corresponding angles are congruent and their contained sides are also congruent then the two triangles are congruent. This will also mean that the remaining pair of corresponding angles are congruent as well as the other two pairs of corresponding sides.

In this activity you will need to use the routine from activity 5 – copying an angle. Rather than listing all of these steps, refer back to the detailed steps in that activity.

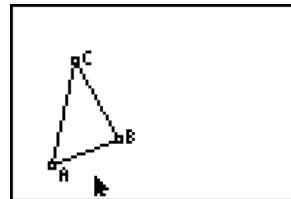
First, turn on your TI-84 and press the APPS key. Arrow down until you see Cabri Jr and press **ENTER**. You should now see this introduction screen.



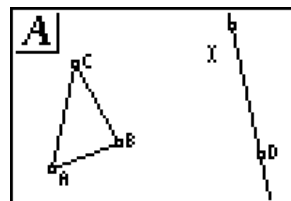
To begin the program, press any key. If a drawing comes up on the screen, press the **Y=** key (note the F1 above and to the right of the key – this program uses F1, F2, F3, F4, F5 names instead of the regular key names) and arrow down to NEW. It will ask you if you would like to save the changes. Press the **2nd** key and then enter to not save the changes.

We are now ready to begin.

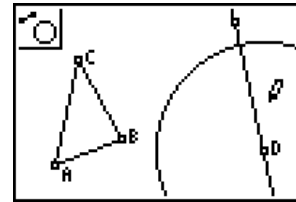
To begin, construct a triangle ABC. As before, you may wish to refrain from labeling points in order to keep the screen cleaner.



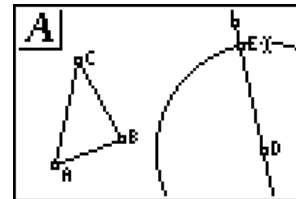
Construct point D anywhere else on the screen. For the rest of this construction, point D will correspond to point A in the original triangle. Construct a line through D.



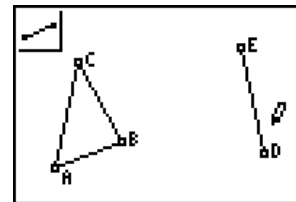
Use the Compass tool with center D and radius AC to construct a circle that passes through the new line.



Use the Intersection tool to find the point(s) of intersection of this circle with the line. Label this point E.



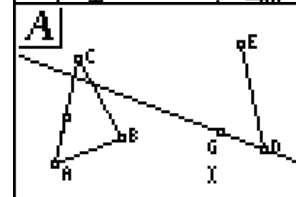
Hide the circle, the line and the second control point for the line. Construct a line segment that connects point D to E. We should now have a line segment DE that has the same length as AB.



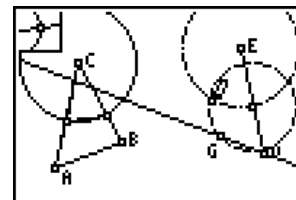
At this point in the construction, we need to copy $\angle CAB$ and $\angle ACB$. We begin with copying $\angle CAB$ at point D. Label the new point as G.



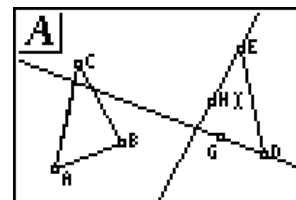
Hide the circles used to copy the angle and draw a line through points D and G.



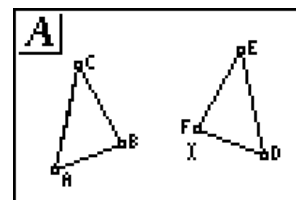
Now copy $\angle ACB$ at point E. Label the new point as H.



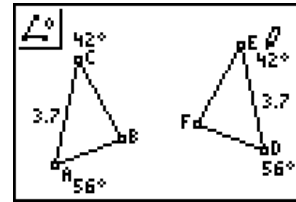
Hides the circles used to copy the angle and draw a line through points E and H.



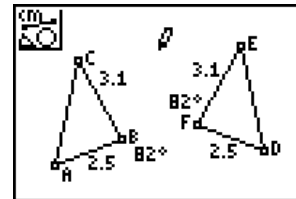
Find the intersection of the two lines and label this as point F.



We now need to verify that the corresponding parts of the triangle are congruent – measure the sides and angles that we constructed.



Now check to see if the other corresponding sides and angles of the two triangles are congruent.



To test the construction, drag one of the vertices of the original triangle and observe how the measurements change. Corresponding sides and angles will always remain congruent.

