EXTERIOR ANGLES ACTIVITY

Name:_____

Per:_____

Date:_____

GETTING READY

a) Open the Geometry application (G).

b) Select **File** and then **Open**.

c) Open the **Main** folder by tapping ▶. (It will change to ▼.)

d) Select the file named "**webexang**".

e) Tap the Open button.

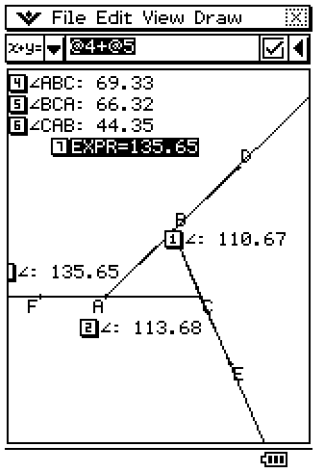
CONSTRUCTION

1) Create three expressions to sum the remote interior angles of all three exterior angles.

a) Select **Draw, Expression**.

b) Input @4+@5 for the first expression by tapping the 4 next to the first measurement, the addition symbol, and then the 5 next to the second measurement. Press EXE.

Result:

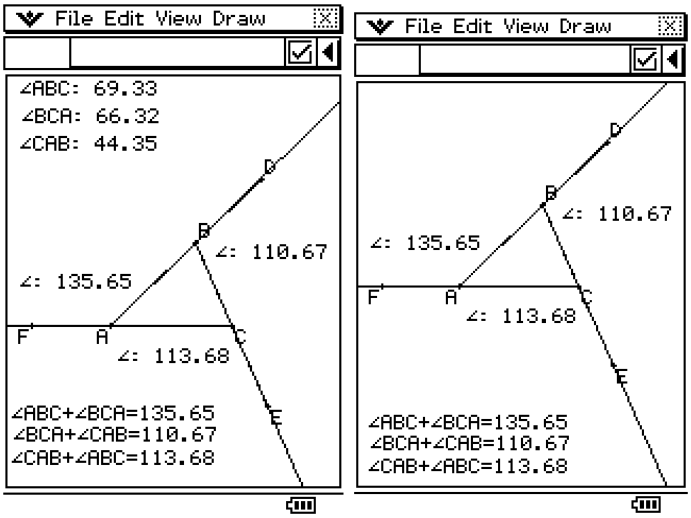


c) Rename the expression so the result indicates what is being calculated (first select the expression you want to rename and click the ▼ button to get to the u button on the upper left part of the toolbar). Use the k to enter the name you want. To get the angle symbol, use the "**mth**" tab in your keyboard. At the bottom of this menu, tap **OPTN** and you will find the angle symbol. Now drag your expression to the bottom of the screen.

d) Repeat steps a-c for the other two expressions (@5+@6) and (@6+@4).

e) You can now hide the interior angle measures on the draw space to give yourself more room to move the construction if you choose (select measurements and then **Edit, Properties, Hide**).

Results (the right has the measurements hidden):



INVESTIGATION

1) Looking at your construction, what is the relationship between the exterior angles and their adjacent interior angles? For example, what is the relationship between angle BAF (exterior angle) and angle BAC (adjacent interior angle)? Is it the same for all three sets of exterior angles and their adjacent interior angles?

2) Thinking about your answer from question 1 above, do you think this is true for all triangles? Why?

3) Move any side or vertex of the triangle you constructed in this activity. What do you notice about the exterior angles and their adjacent interior angles?

4) If we are considering exterior angle BAF, its remote interior angles are angle ABC and angle BCA. What do you notice about these three angles? What is their relationship to each other? (Hint: Look at the expressions you created.)

5) Thinking about your answer for question 4 above, is this true for every exterior angle in your construction? Make a conjecture about this relationship for all triangles.

6) Move any side or vertex of the triangle you constructed in this activity. What do you notice about the exterior angles and their remote interior angles?