Name

Geometry – Special Angles on Parallel Lines Investigation

Date

Period

Throughout this investigation, you will determine if there are relationships between special pairs of angles when lines are parallel.

1. Open the Geogebra App on your Chromebook
2. Click on Geometry or right click and hide your axes
3. Construct a Line
4. We are now going to Construct a Parallel Line (Refer to Figure 1) Figure 1.
	1. Look at the icons for the menus on the top of your screen
	2. The 4th one in from the left says Perpendicular Line
	3. Pull down the menu and choose the Parallel Line tool
	4. Click anywhere on your screen that is NOT on your current line
	5. Then click on the line you already created

\*\*You are telling it the point you want it to go through

and what line you want it to be parallel to\*\*

1. Construct a transversal (a third line) using your line tool again
2. Construct the intersection points of the parallel lines and the transversal
	1. Click the Point tool from the icon menu
	2. Put your curser at the intersection point (it will highlight BOTH lines)
	3. Click the place where they intersect
	4. Repeat for the other intersection point
3. Construct one final point on the Parallel line you created on the opposite side of your transversal
4. Draw what your screen looks like below:
	1. On your picture, label the angles any way you please ☺
	2. Which angles are Alternate Interior Angles?
	3. Which angles are Corresponding Angles?
	4. Which angles are Alternate Exterior Angles?
	5. Which angles are Consecutive (Same-Side) Interior Angles?

Here’s the fun part! We’re going to measure all of our angles and see if there are any relationships that exist between these special pairs of angles.

**This one!**

1. On your screen we are going to use the angles tool. Figure 2.

\*\*Look at Figure 2 to see which one I mean\*\*

This gets tricky…

1. You are going to click 3 times in the order you would name

the angle with three letters in a COUNTERclockwise direction

\*\*In my picture I would click points B, then F, then D

1. Repeat steps 9-10 for all eight angles on your screen

This angle

1. If all of the measurements are on top of each other follow this:
	1. Press the Esc button
	2. Click on the measurement
	3. Move it to desired location
	4. Click to drop it

Look at all of your measurements and see if you notice any patterns among the special pairs of angles. Compare your results with your group members. Using you *inductive* reasoning skills, fill in the following conjectures.

If parallel lines are cut by a transversal, then corresponding angles .

If parallel lines are cut by a transversal, then alternate interior angles .

If parallel lines are cut by a transversal, then consecutive interior angles .

If parallel lines are cut by a transversal, then alternate exterior angles .



Using these conjectures, see if you can find the measures of the missing angles in the picture below.