GeoGebra Circle Activity **YOU MUST READ THE DIRECTIONS!**

You are capable of doing this ☺

In 10.6, there are 3 theorems that relate segment lengths in circles. You will be doing an investigation of the mathematical ideas of these theorems in GeoGebra by following the instructions below. After your investigation, you should have an idea about what each theorem says mathematically.

Theorem 1:

Open a web browser (Chrome, Firefox, etc.) and go to http://www.geogebra.org/m/895437

1) Measure the length of each segment given in the spreadsheet.
- Click anywhere on the picture, then click on the arrow on the "angle" toolbar (you should get a drop-down menu)
- Select "distance or length"
- Click on the endpoints of a segment to measure its length, it should appear in your circle.
- If you want to move the distances, click on the arrow and then on the distance.

2) Record the segment lengths the GeoGebra Spreadsheet (if you don't see a spreadsheet, zoom out on the screen)
- Click the cell next to EF and type "= EF" and then Enter. The length should appear.
- Repeat for all the segment lengths.

3) In the cell B9 create a formula to multiply the lengths of the two chords indicated in A9.
- Click on a cell
- Type =
- Type in the information given to the left of the cell. Use * for multiplication.
- Hit enter. The length should appear.
- Repeat for the remaining cells

4) Analyze your data
- Once you notice a pattern, move the points around the circle (yes you can figure out how to do that) to be sure that the same products are consistent no matter the position of the endpoints of the chords.
- Make a conjecture (an educated guess) for what you believe the relationship is.
- Write the conjecture down in the space for theorem 1 on the back of this page.

Theorem 2: Go to http://www.geogebra.org/material/simple/id/3142005

1.) Measure the length of each segment provided.

2.) Record the information in the spreadsheet.

3.) Analyze your data. Do not forget to move the points around to make sure your hypothesis is accurate. AT THIS POINT, make a screen shot of your screen, print and staple to this sheet for possible turn in.

4.) make a conjecture for Theorem 2, on the back side of this sheet

Theorem 3: Go to http://www.geogebra.org/material/simple/id/3142091

1.) Measure the length of each segment.

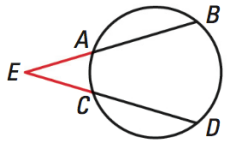
2.) Record the information in the spreadsheet. To name a segment in a cell, you must use quotation marks. For example, to see CG in the cell, you must type "CG".

3.) Analyze your data. Use what you know from your prior investigations to find a relationship between these two segments. Try multiplying the chords or maybe even one chord by itself, and make a conjecture as to what you believe the relationship is. Do not forget to move the points around to make sure your hypothesis is accurate.

Now, write what you think each theorem states using the relationships you've just discovered:

Theorem 1:

Theorem 2:



Theorem 3: