

**Calculator Worksheet for TI-83+/84+  
Circle Angle Activity**

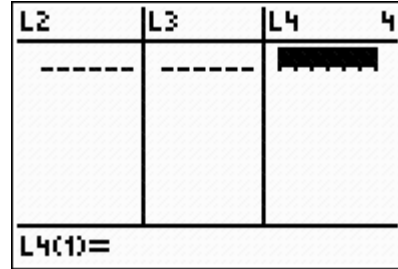
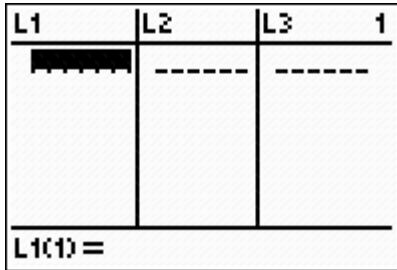
Name \_\_\_\_\_

Now that you have measured your angles and collected your measurements, you are ready to start analyzing your results.

**Part I:**

1. Turn on your calculator and hit STAT. Then hit ENTER. Do you see L1, L2, L3 ?

If you do, hit the right arrow until you see the screen below, then go back to L1.

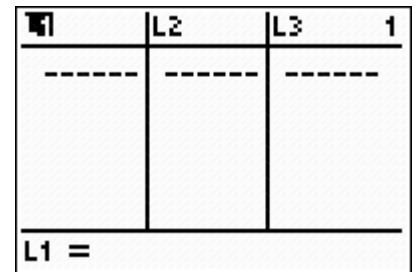
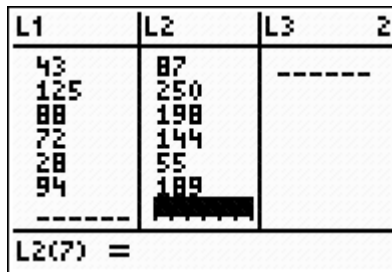


2. If you do not see the above screens, ask for help because you will probably have to go to memory management.
3. Go to L1 and hit the down arrow to highlight L1(1). Enter your first value from Table I for angle  $x$  or angle  $y$ . Then, hit ENTER and enter your next value for angle  $x$  or angle  $y$ . Continue this until all of your values for angle  $x$  or angle  $y$  are entered into L1.

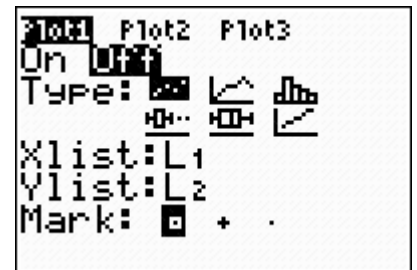
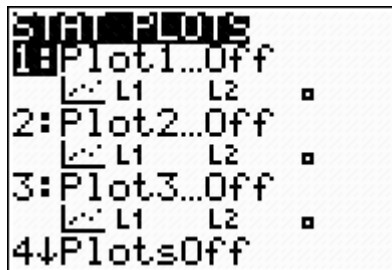
4. Hit right arrow and up arrow until you see L2(1). Then use the same procedure to enter the sum of the intercepted arcs from Table 1 on your Stats sheet.

When you are finished, you should see L1 and L2 complete like the example shown. (*Your values will not be the same as those in the example here.*)

Enter your values neatly in the chart at the right.



5. Hit 2<sup>nd</sup> MODE (QUIT) to return to the home screen. Hit 2<sup>nd</sup> y= (STAT PLOT). You should see the screen below and to the left. Hit ENTER and you will see the screen below to the right. ("On" should be blinking. If it is, hit ENTER.)

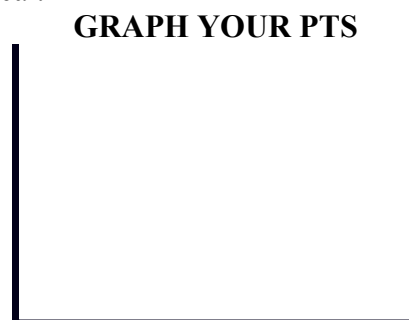


6. Hit down arrow to scroll down over the type of graph. The first (scatterplot) should be highlighted. Hit down arrow again and make sure that your Xlist is L1 and your Ylist is L2. You can use any one of the marks. We will use the first. If your Xlist is not L1, highlight the entry in your Xlist and hit 2<sup>nd</sup> 1 (see L1 in yellow lettering). Then, hit down arrow to highlight your Ylist and hit 2<sup>nd</sup> 2 (see L2 in yellow lettering).

7. Hit ZOOM and you will see the screen below. Use the down arrow until ZoomStat is highlighted. Hit ENTER. You will see the values of (L1, L2) graphed. If you see, instead, the message: ERR: DIM MISMATCH, then you must go back to STAT EDIT and hit ENTER and check your lists to make sure that they have the same number of entries. Your graph should look like the sample below to the right, but not necessarily identical.

```

ZOOM MEMORY
4↑ZDecimal
5:ZSquare
6:ZStandard
7:ZTrig
8:ZInteger
9:ZoomStat
0:ZoomFit
  
```



8. Hit STAT and use the right arrow to highlight CALC, then you will see the menu below. Scroll down with the down arrow until you highlight 4: LinReg(ax + b) Hit ENTER.

```

EDIT TESTS
1:1-Var Stats
2:2-Var Stats
3:Med-Med
4:LinReg(ax+b)
5:QuadReg
6:CubicReg
7↓QuartReg
  
```

9. After you hit ENTER, you will return to the home screen and you will see LinReg(ax+b). Hit 2<sup>nd</sup> 1 (L1). Hit “,” (COMMA). Hit 2<sup>nd</sup> 2 (L2). Hit “,” (COMMA) again. Now, hit VARS and use the right arrow to highlight Y-VARS. Hit ENTER and ENTER again. The screens below show the screens you will see and the results you need.

```

LinReg(ax+b) L1,
L2,
  
```

```

VARS Y-VARS
1:Function...
2:Parametric...
3:Polar...
4:On/Off...
  
```

```

FUNCTION
1:Y1
2:Y2
3:Y3
4:Y4
5:Y5
6:Y6
7↓Y7
  
```

10. You should now see “LinReg (ax+b) L1, L2, y1”. Hit ENTER and you will see the screen below. *(Your values for a & b will not be exactly the same as in the example.)*

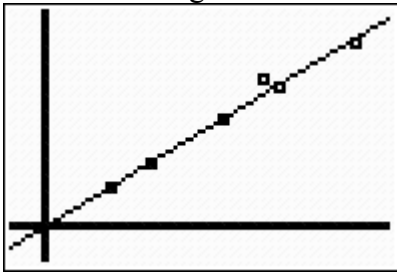
```

LinReg
y=ax+b
a=2.051020408
b=.0068027211
  
```

(Your screen may also include a  $r^2$  and  $r$  values. For this experience, we do not need these values.)

11. Record here the values for “a” and “b” and place in the  $y = ax + b$  formula (round off to the nearest integer).

12. Hit GRAPH and your graph should look like the sample below to the left. Draw your graph below to the right.



13. Answer the questions below:

- (a) What does L1 tabulate? \_\_\_\_\_
- (b) What does L2 tabulate? \_\_\_\_\_
- (c) What does X represent? \_\_\_\_\_
- (d) What does Y represent? \_\_\_\_\_
- (e) Why does the line not pass through all of your points? \_\_\_\_\_  
\_\_\_\_\_
- (f) Write a formula that shows the relation between the angle formed by the two chords intersecting and the sum of the intercepted arcs. \_\_\_\_\_

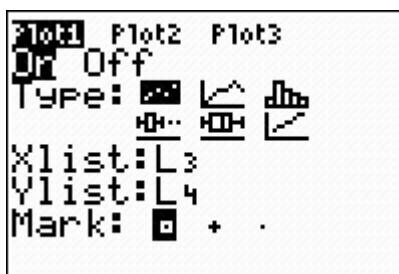
**Part II:**

14. Repeat the process, using the statistics in Table II. Hit STATS, ENTER and use the right arrow twice until L3 (1) is highlighted. Enter your six values for angle P into L3. When finished, use the right arrow and up arrow to highlight L4 (1). Then enter the corresponding differences into L4. (*Your tables should look like the example below, but the entered values will not be the same.*) Enter your values in the table to the right.

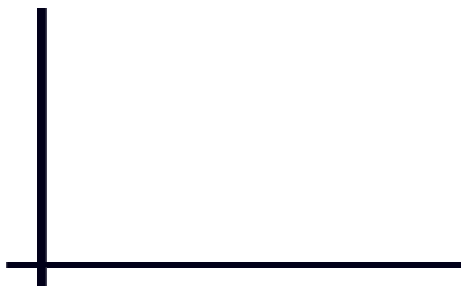
L3	L4	L5	5
42	84	████████	
55	111		
65	130		
88	177		
19	38		
38	77		
-----			
L5(1)=			

L3	L4	L5	3
-----	-----	-----	
-----			
L3 =			

15. Hit  $2^{nd}$   $y=$  to get to STATPLOT. Hit ENTER. Use the down arrow until you highlight Xlist: L1. Hit  $2^{nd}$  3 to change L1 to L3. Then use the down arrow to highlight YList:L2. Change L2 to L4 by hitting  $2^{nd}$  4. Your screen should look like the one below.



16. Hit Zoom, use the down arrow to scroll down to highlight 9:ZoomStat. Hit ENTER. Neatly sketch your graph above to the right. Hit STAT CALC and scroll down to 4LLinReg. Hit ENTER. Hit  $2^{nd}$  3 (L3), COMMA,  $2^{nd}$  4 (L4), COMMA, VARS, Y-VARS, ENTER, ENTER. Then hit ENTER again. Show below the LinReg results. Estimate to the nearest integer. Hit graph and sketch the graph of the results on the graph to the right.



17. Answer the following questions, using the results from Table II.

- (a) Which list tabulates your values of angle P? \_\_\_\_\_
- (b) The values of angle P are represented by which axis in your graph. \_\_\_\_\_
- (c) Which list tabulates your values of the differences of the arcs  $\widehat{AD} - \widehat{BC}$ ? \_\_\_\_\_
- (d) The differences from part (c) are represented by which axis in your graph? \_\_\_\_\_
- (e) Write a formula that shows the relationship between the angle formed when two secants drawn to the same circle and the two arcs that they intercept. How did you arrive at this formula?

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18. Hit the  $y=$  key. The equation to your “line of best fit” should be in  $y1$ . Scroll with the down arrow to  $y2$ . There, put in the formula  $2x$ . Then use the left arrow to scroll to the left of the equal sign. Hit the ENTER key to see the symbol change. Hit the ENTER key four more

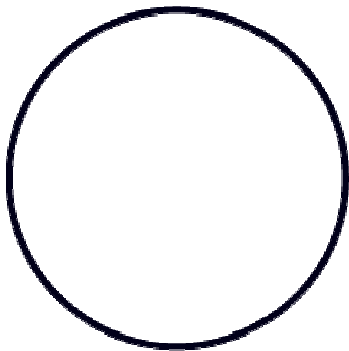
times. You will see -0- and the 0 will be blinking. When you see it, hit GRAPH.

19. Does the graph of the -0- (we call in the bouncing ball) coincide with your previous graph?

Explain why \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

20. Use your calculator and formulas to find the measures of the requested angles.

(a) Two chords AB and CD intersect at E. If the measures of arcs AD and CB are  $112^\circ$  and  $58^\circ$ , Find the measure of  $\angle AED$  and  $\angle AEC$ . Show work below. Label answers.



(b) Two secants PAB and PCD are drawn to circle O. If the measure of arc BD is  $142^\circ$  and the measure of arc AC equals  $56^\circ$ , find the measure of angle P. Show all work neatly. Label answer.

