

Using only a compass and straight edge, construct a circle divided into 8 equal sectors.

Label each sector with a dollar amount in increments of \$100, beginning with \$100. Label the sectors in any order you choose.

Now, place the clear plastic spinner over your circle to create your own personalized spinner.

Do you think that your homemade spinner is as fair as a store bought spinner? How can you tell? If your spinner is fair and you made a dot plot for a specific number of spins, what do you think the dot plot should look like?

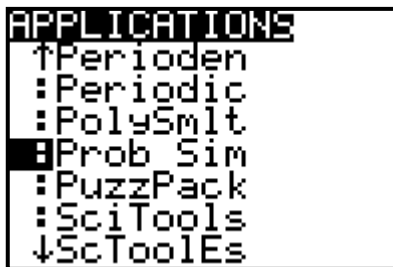
Spin your spinner at least 50 times and record the outcomes on your paper. Make a dot plot of your results.

Look at your dot plot. Is the shape consistent with the shape of a dot plot that would have been produced from spinning a fair spinner? Justify your answer.

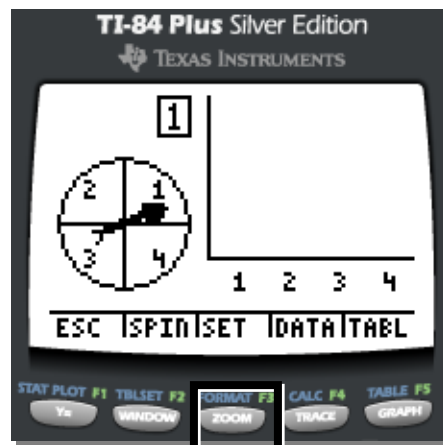
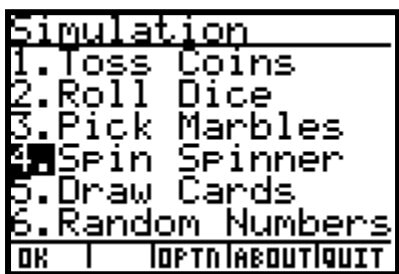
Based on the shapes of your dot plot, do you think 50 spins are enough to determine whether or not your spinner is fair? Explain your reasoning.

Use appropriate technology like the TI-83 Plus Probability Simulation or the National Library of Virtual Manipulatives at <http://nlvm.usu.edu/en/nav/vlibrary.html> to generate a dot plot for an increasingly greater number of spins on your spinner. At what number of spins is the shape of your dot plot consistent with the shape of a dot plot produced using a fair spinner? Why?

- Start by pressing **APPS**, select the application “Prob Sim”, and press **ENTER**.
- To quickly scroll down to the applications starting with “P” press **ALPHA**, **8**.



- Start by pressing **4**.
- Then press **ZOOM** which is the “SET”.



- Change the Sections to “8” and StoTbl to “All”. Finally press the **GRAPH** button which is “OK”



Number of spin simulations to attempt when first selecting “SPIN”

Number of sectors to create on the spinner

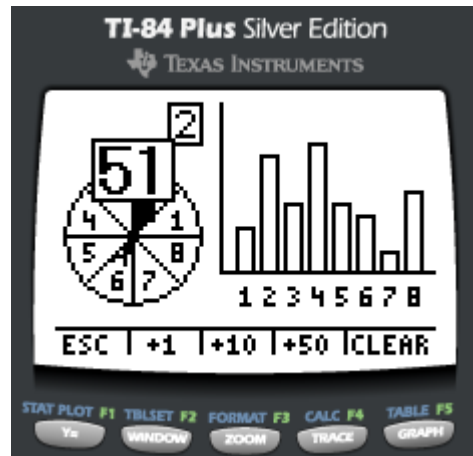
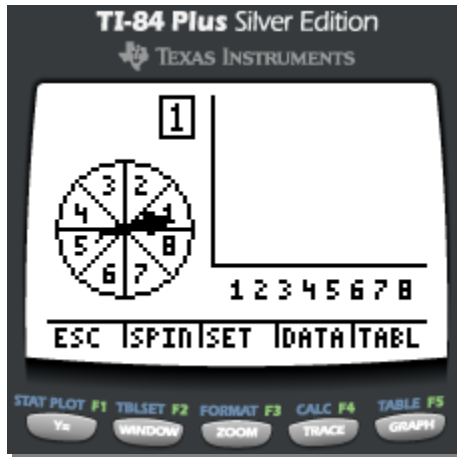
Y-axis set up

This option allows you to store the data to a LIST at a later time.

This option is only available if there is already data stored in the probability spinner

How often the Graph is updated.

- Start by pressing **WINDOW**, which is “SPIN”. Then, press **TRACE**, which is “+50”.



- Press **Y=**, which is “ESC”.

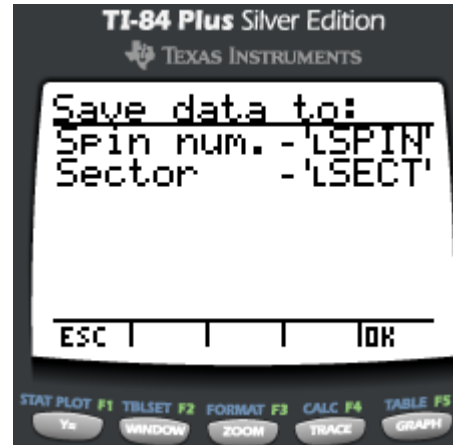
Then, press **GRAPH**, which is “TABL”.



- Press **TRACE** which is “DATA” to store the results in an actual calculator list.

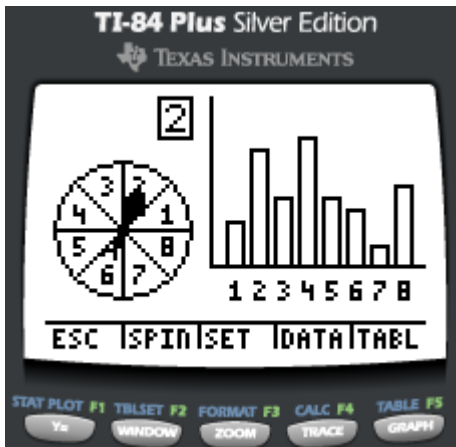


- Then, press **GRAPH**, which is “OK”.



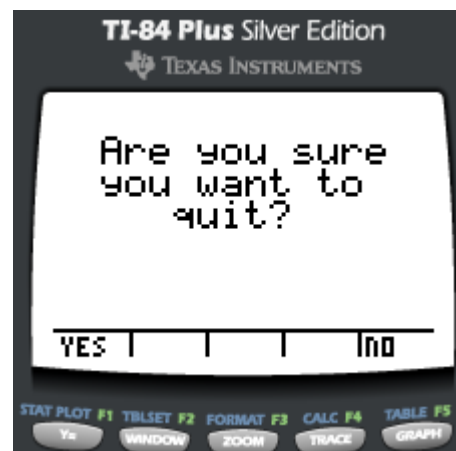
- Press **Y=**, which is “ESC”.

- Press **Y=**, which is “YES”.



- Press **Graph**, which is “QUIT”.

- Press **Y=**, which is “YES”.



- Press **STAT**, **1** .

```

EDIT CALC TESTS
1:Edit...
2:SortA(
3:SortD(
4:ClrList
5:SetUPEditor
  
```

L1	L2	L3	1
-----	-----	-----	
L1 =			

- Press **▲**, to highlight L1.
Then, **2nd**, **STAT**, and
Scroll Down and select
“SPIN”. Press **ENTER**,
ENTER .

```

NAMES OPS MATH
2↑L2
3:L3
4:L4
5:L5
6:L6
7:SECT
8↓SPIN
  
```

L1	L2	L3	1
-----	-----	-----	
L1 = LSPIN			

- In a similar fashion, highlight
L2 and select “SECT” from the
List menu.

L1	L2	L3	1
SECT	-----	-----	
L1(1) = 1			

L1	L2	L3	2
SECT	SECT	-----	
L2 = LSECT			

- To create a histogram that can
be traced of the data, press ,
2nd, **Y=**, **1** . Select the
options shown in the screen at
the right and be sure to change
the Xlist to L₂ by pressing **2nd**
, **2**.

```

STAT PLOTS
1:Plot1...Off
   [X] L1  L2  □
2:Plot2...Off
   [X] L1  L2  □
3:Plot3...Off
   [X] L1  L2  □
4↓PlotsOff
  
```

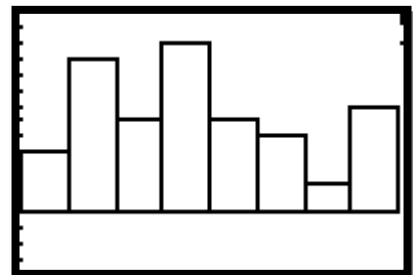
```

Plot1 Plot2 Plot3
  Off
Type: [Bar] [Line] [Normal]
      [HID] [HID] [HID]
Xlist: L2
Freq: 1
  
```

- Finally, press **ZOOM**, **9** .

```

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



- For the Spinner Learning Task 2, set up all of the options the same way except when you are in the “SET” menu for the spinner select the “ADV” option by pressing **WINDOW**. In the advanced settings change the weighting for sections 2,3,4, and 8 to “2” as shown at the right to simulate the money amounts \$200,\$300, \$400, and \$800 being sectors twice the size as the other sectors in the spinner.

```


Settings
Trial Set: 1
Sections: 8
Graph: Yes Prob
StoTbl:No 50
ClearTbl: Yes
Update: 20 50 End
ESC ADV | | OK
  
```

```

Scn Weight Prob
1 .0833
2 2 .1667
3 2 .1667
4 2 .1667
5 1 .0833
6 1 .0833
ESC | | | OK
  
```

```

1
  
```



```

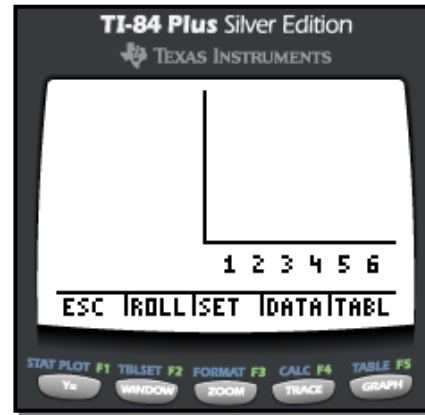
1 2 3 4 5 6 7 8
12345678
ESC | SPIN | SET | DATA | TABL
  
```



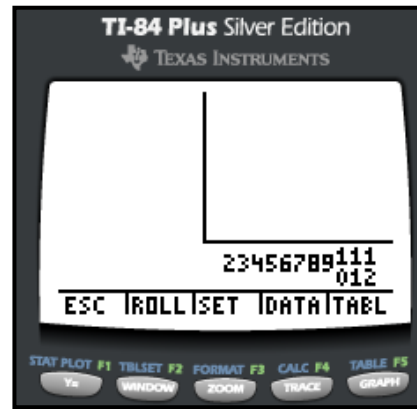
- Start by pressing **APPS**, select the application “Prob Sim”, and press **ENTER**.



- For this example try pressing **2**, since rolling a pair of dice is a commonly assessed probability topic.



- The menu at the bottom requires you to use the keys F1 – F5. For example, to “set up” a pair of dice rolling you will need to press the **ZOOM** key because it is directly beneath the word “SET”.
- Change the settings to match the screen below (mainly change the dice number to 2) and press **GRAPH** because it is directly beneath “OK”



- Finally experiment with the “+1”, “+10”, and “+50” to see a frequency distribution (or histogram) of the outcomes. Pressing “ESC” will take you back a to the main menu. Try experimenting with some of the other simulations.

