

Descriptive Statistics With The TI-83

The TI-83 calculator will directly give you many of the common descriptive statistics for a data set. The statistics given directly are:

- Mean: \bar{X}
- Sample standard deviation: S_x
- Population standard deviation: σ_x
- Number of data values: n
- Median
- Minimum data value
- Maximum data value
- Quartile 1: Q_1
- Quartile 3: Q_3
- $\sum x$

Example

The table below gives the number of moons for each planet in the solar system.

<u>Planet</u>	<u>Number of Moons</u>
Mercury	0
Venus	0
Earth	1
Mars	2
Jupiter	16
Saturn	23
Uranus	19
Neptune	9
Pluto	2

First enter the data into list L_1 .

L1	L2	L3	1
0.0000	-----	-----	
0.0000			
1.0000			
2.0000			
16.0000			
23.0000			
19.0000			
L1(1) = 0			

Press STAT again, and highlight CALC and select 1:1-Var Stats. Press ENTER and the command 1-Var Stats will appear on the screen. Then tell the calculator to use the data in list L_1 by pressing the 2nd key and 1 key for list L_1 .

EDIT	TESTS	1-Var Stats L1
1: 1-Var Stats		
2: 2-Var Stats		
3: Med-Med		
4: LinReg(ax+b)		
5: QuadReg		
6: CubicReg		
7: QuartReg		

Press ENTER and the next two screens contain the descriptive statistics for the moon data. Note the arrow ↓ on the last line. This tells you to use the down arrow key to display more results. Scroll down to see the rest of the results for the moon data.

<pre> 1-Var Stats x̄=8.0000 Σx=72.0000 Σx²=1236.0000 Sx=9.0830 σx=8.5635 ↓n=9.0000 </pre>	<pre> 1-Var Stats ↑n=9.0000 minX=0.0000 Q1=.5000 Med=2.0000 Q3=17.5000 maxX=23.0000 </pre>
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To find the range, take the maximum value (maxX) and subtract the minimum value (minX). You can find the mode by sorting the data in ascending order and scanning the sorted list to see which value occurs most often. To sort the data, press STAT, highlight EDIT and select 2:SortA(which stands for sort in ascending order. Press ENTER and the SortA command appears on the screen. Type in L₁ (you don't have to put a right parenthesis, but I do) and press ENTER. The command DONE appears on the screen. Press STAT and EDIT to return to list L₁ and notice that the data is now sorted in ascending order. A scan of the moon data shows that 0 and 2 are the modes.

<pre> 2nd 2nd CALC TESTS 1:Edit... 2:SortA(3:SortD(4:ClrList 5:SetUpEditor </pre>	<pre> SortA(L1) Done </pre>	<table border="1"> <thead> <tr> <th>L1</th> <th>L2</th> <th>L3</th> <th>1</th> </tr> </thead> <tbody> <tr> <td>0.0000</td> <td>-----</td> <td>-----</td> <td></td> </tr> <tr> <td>0.0000</td> <td></td> <td></td> <td></td> </tr> <tr> <td>1.0000</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2.0000</td> <td></td> <td></td> <td></td> </tr> <tr> <td>2.0000</td> <td></td> <td></td> <td></td> </tr> <tr> <td>9.0000</td> <td></td> <td></td> <td></td> </tr> <tr> <td>16.0000</td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="4">L1(1)=0</td> </tr> </tbody> </table>	L1	L2	L3	1	0.0000	-----	-----		0.0000				1.0000				2.0000				2.0000				9.0000				16.0000				L1(1)=0			
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To leave the data screen, press 2nd QUIT.