

TI-84+ Lab 2 For Statistics 301

Topics: lists, clearing histogram and other plots, frequency graphs from raw data, frequency graphs from distribution tables, stem and leaf plots

Dataset(s). "showerhead.dat", a dataset of the maximum flow rates for 34 different shower heads:

2.9 2.8 2.0 3.6 2.7 2.5 2.6 2.9 2.7 2.8 2.5 2.8 2.2 2.5 2.5 2.8 1.8 2.7 2.7 4.7 2.8 2.7
3.1 2.9 3.4 2.6 2.6 2.7 2.4 2.5 5.4 4.9 2.8 2.5

"age.dat", a distribution table of the age of 20 patients in a high blood pressure drug experiment:

age	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	total
midpoints	32.5	37.5	42.5	47.5	52.5	
frequency	1	2	8	7	2	20

Lists. In this exercise, you will type the 34 maximum flow rates into list L_1 of the calculator.

- Push the STAT button, a black button two over from the green ALPHA button. A screen appears which has EDIT and 1: highlighted. This is what you want.
- Push ENTER, a blue button on the lower right of the calculator. A screen appears which has three lists (columns) entitled L1, L2 and L3. At the bottom left of the screen is $L1(1) = .$ The first position on the first list is highlighted by a dark square called the cursor.
- Type in the first data point, 2.9, then ENTER. The number "2.9" is in the first position and the highlighted square now appears *below* this position of the first list. Type in the second data point, 2.8, then ENTER. Continue this until all 34 numbers have been entered in L1.
- If you have used the calculator before, there may be numbers in this list—you should clear this numbers. You do this by pushing the blue up triangle, Δ , then CLEAR (a black button just below the four triangle buttons), then ENTER.

Clearing Histograms and Other Plots You will learn how to turn off (clear) all the STAT PLOTS and $Y =$ plots.

1. Turn off all the STAT PLOTS by keying:

- 2nd STAT PLOT 4 ENTER

The TI-84+ should return with the cursor blinking beside “PlotsOff”. After pressing ENTER, “Done” should be returned.

2. Turn off all the $Y =$ plots by typing:

- $Y =$ CLEAR

for every equation that appears in the list of equations. Press 2nd QUIT to return to the main screen.

Frequency Graphs From Raw Data. In this exercise, you will use the TI-84+ to draw a histogram for the “showerhead.dat” dataset.

- Type the 34 data values in list L3.
- Turn off (clear) all the STAT PLOTS and $Y =$ plots.
- Turn on one of the STAT PLOTS for the histogram by typing:

– 2nd STAT PLOT ENTER

Once at the “Plot1” screen, choose or type in the following options:

- On
- Type: histogram figure at far right
- Xlist: L3 (for data points)
- Freq: 1 (each data point counted once)
- To fit the histogram to the screen window of the calculator, press
 - ZOOM 9 ENTER
- Display the histogram by pressing either TRACE or GRAPH.
- By pressing TRACE, a histogram with information on it is displayed. A little box with a blinking “X” through it appears on the center top of the first vertical bar of the histogram. At the bottom of the histogram are three bits of information: “min = 1.8”, “max < 2.4” and “n = 3”. This tells you that three of the showerheads have flow rates in the interval greater than or equal to 1.8 and less than 2.4. By hitting the right arrow key, the little box with a blinking “X” through it moves to the center top of the second vertical bar of the histogram.
- A histogram without any information is obtained by pressing GRAPH.

- It is also possible to set up the screen window of the calculator to fit the histogram *manually* by pressing WINDOW and then choosing the following options:
 - Xmin = 2 (2 is less than minimum number 2.4)
 - Xmax = 6 (6 is larger than maximum number in data, 5.4)
 - Xscl = 0.5 (since $6 - 2 = 4$, 0.5 seems appropriate spacing for X scale)
 - Ymin = (-) $25 \div 4$ (let Ymin = -Ymax/4, to leave room at the bottom of the screen for the display of histogram information)
 - Ymax = 25
 - Yscl = 5 (since $25 - 0 = 25$, 5 seems appropriate spacing for Y scale)
 - Xres = 1 (highest resolution: plots at every pixel on the screen; 2 would plot at every 2nd pixel and so on—this option is *not* active when plotting histograms, though.)

Frequency Graphs From Distribution Table¹. In this exercise, you will use the TI-84+ to draw a histogram for the “age.dat” distribution table.

- Turn off (clear) all the STAT PLOTS and Y = plots.
- Type the class midpoints in L1 and the frequencies into L2.
- Turn on one of the STAT PLOTS for the histogram by typing:
 - 2nd STAT PLOT ENTER

Once at the “Plot1” screen, choose or type in the following options:

- On
- Type: histogram figure at far right
- Xlist: L1 (for midpoint values of each class)
- Freq: L2 (for frequency values of each class)
- Display the histogram by pressing either TRACE or GRAPH.

Stem and Leaf Display. In this exercise, you will use the TI-84+ to help build a stem and leaf display for the “showerhead.dat” dataset. After typing the data into list L1, move the cursor over and up to the title of list L2, and then copy the data from L1 over to L2 and sort L2 using the following commands:

- 2nd L1 ENTER
- STAT ∇ ENTER 2nd L2) ENTER STAT ENTER

You can now use the sorted data in list L2 to construct a stem and leaf plot.

¹These instructions can also be used to construct a cumulative histogram.