

TI-83/84 How To Series

Topic: Comparing Two Graphs – Box Plot and Histogram

A box plot may not give you the entire story of how a set of data is behaving. It is good practice to plot data in different ways so you can get a feel for the data. It is also helpful to compare the graphs side-by-side. In this case, we will use the “Best Actress” data and compare a box plot with the histogram.

Enter in the ages of “Best Actresses” for the years 1951 – 2000 into list L1:


38, 45, 24, 26, 48, 41, 27, 40, 38, 28, 27, 31, 37, 30, 24, 34, 60, 61, 26, 35, 34, 34, 26, 37, 42, 41, 35, 31, 41, 33, 30, 74, 33, 49, 38, 61, 21, 41, 26, 80, 42, 29, 33, 35, 45, 49, 39, 34, 26, 25, 32

(There are 51 ages listed because there was a double award in 1968)

Steps

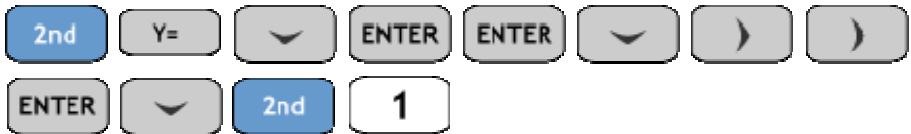
1. We have to turn on two plots, one for box plot, the other for histogram.

Put the box plot into Plot 1, make sure you use the modified box plot.




Note the Xlist is L1, which is where our data is.

Put the histogram into Plot 2.



Note the Xlist is still L1.

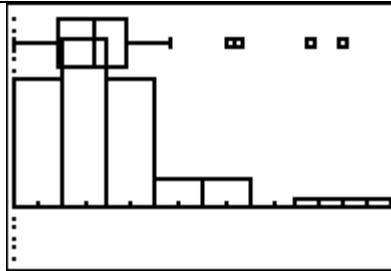


2. Now we can graph and compare.

First, let's just let the calculator plot out our graphs for us using the ZoomStat feature.



Our result is not very favourable. In this case we will have to change the window.



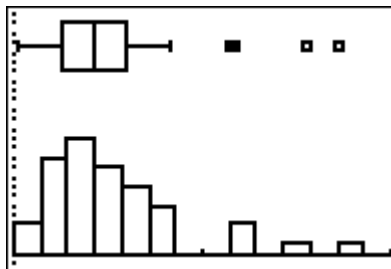
When changing the window, there are several things you should be thinking about. Since both graphs are overlapping, this indicates that the Ymax should be changed. Also, you should consider the bin width of the histogram.

```
WINDOW
Xmin=21
Xmax=88.428571...
Xscl=8.4285714...
Ymin=-5.11173
Ymax=19.89
Yscl=1
Xres=1
```

First, look at the current window. The Xscl, which controls the bin width, is listed as a number that is very difficult to work with. Let's change this to a bin width of 5. Second, I would like the histogram to start at 20, this way, with a bin width of 5, the bars will go from 20, 25, 30, etc. Lastly, we will need to change the Ymax to something more suitable for our needs, say 25. Your new window should look something like this.

```
WINDOW
Xmin=20
Xmax=90
Xscl=5
Ymin=-1
Ymax=25
Yscl=1
Xres=1
```

Your new graph is now easy to read and compare.



You can use the trace function to see your summary data on both graphs.