Plotting Data: Box and Whisker Plots

1. You are presented with the rushing yards of the top running backs in the NFL from a given Sunday. You are going to analyze the data by using our graphing calculator and some pervious knowledge. Here is a table that presents the data:

Player	Total Yards
Brian Westbrook	116
Clinton Portis	150
Corey Dillon	103
Priest Holmes	116
Duce Staley	146
Tiki Barber	130
Ahmand Green	164
Emmit Smith	112

A. Who has the most yards in this week? _____

B. Who has the least yards in this week? _____

C. What is the range of the total rushing yards for this week? (The range is the difference between the maximum and the minimum rushing yards)

_____

2. Now lets do some work on the TI-83 graphing calculator. A picture of your TI-83 in attached with all the keys you will be using circled.

A. Turn on your TI-83 by pressing the [ON] key.

B. Now it is time to clear all equation in your calculator. This is done by pressing the [Y=] and the [CLEAR] keys for each equation. When you are finished your screen should look like this:

```
Plot1  Plot2  Plot3
\Y1=
\Y2=
\Y3=
\Y4=
\Y5=
\Y6=
\Y7=
```
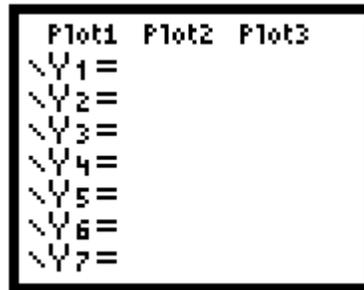
C. Next, press[2nd][Y=]. This will bring up the STAT PLOT screen. Select 4: PlotsOff. Press[ENTER].

D. Go back to the STAT PLOT screen, select 1: Your screen will be similar to the one below:

```
STAT PLOTS
1:Plot1...Off
    L1    L2    □
2:Plot2...Off
    L1    L2    □
3:Plot3...Off
    L1    L2    □
4↓PlotsOff
```
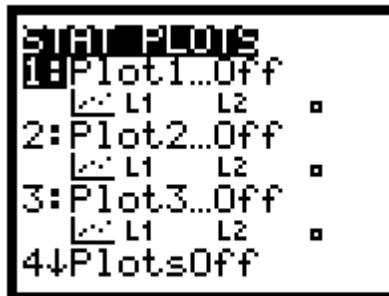
E. Now Press[ENTER]. This will bring up the graph format screen. We are going to select the "box and whisker" graph and Xlist we have L_1. The box and whisker plot is highlighted in the picture.

```
Plot1  Plot2  Plot3
On  Off
Type:
Xlist:L1
Freq:1
```
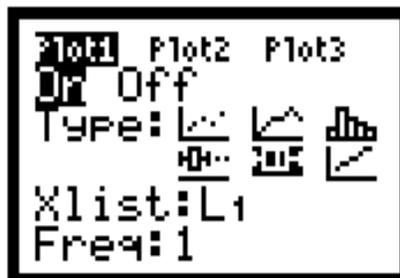
F. Press [ENTER] to exit this window. Next Press[STAT], select 1: Edit and press[ENTER].

A screen will appear like this:

We want to
enter our
data in this
column

L1   L2   L3   1
▬▬▬▬▬   ------   ------

L1(1)=
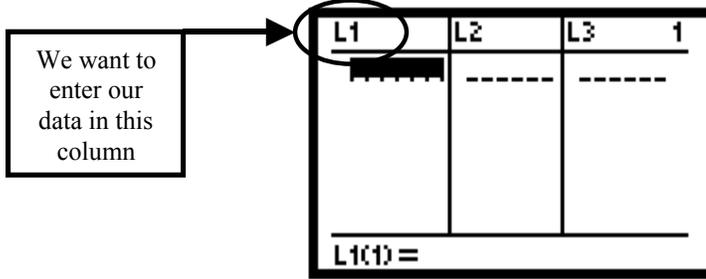
If there are no numbers in L_1 you can erase them by scrolling up and highlighting L_1 and pressing the CLEAR key. See the picture above to clarify this step.

G. Now we can enter the data from the first page. Enter each number and press ENTER. (Example: Type in 116 and press ENTER, do the same for each number in the table.)
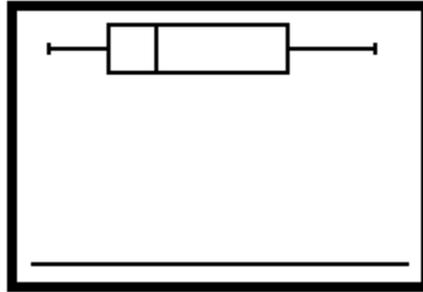
H. Hit the GRAPH key. Your screen might look like this:
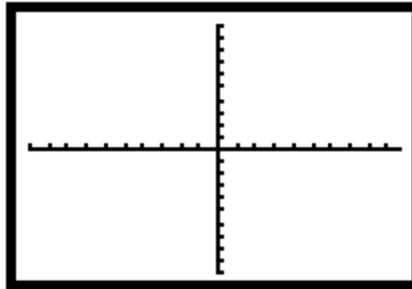
Now we need to fix the window so the box and whisker graph can be seen. This is done by pressing the WINDOW key. Format your window to match the one below.

WINDOW
 Xmin=100
 Xmax=170
 Xscl=0
 Ymin=0
 Ymax=5
 Yscl=0
 Xres=1

Press the GRAPH button and the box and whisker graph will appear.

I. Press TRACE. Now we are going to explore the parts of a box and whisker graph. By using the left and right arrow keys you can find the five parts of the graph. Below is the plot, label each with what the bottom line of the calculator reads. The minX has been done as an example:
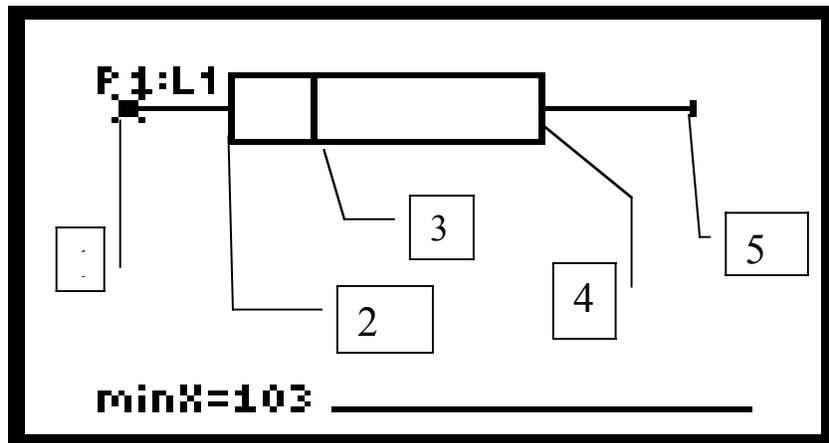
1. minX = 103

2. _____ = _____

3. _____ = _____

4. _____ = _____

5. _____ = _____

G. The minX, maxX, and med are the minimum, maximum and the median of our data. These are familiar terms. The Q1and Q3 are the first and third quartile. The first quartile value represents the 25th percentile of the list, and the third quartile represents the 75th percentile of the list. Below write the first and third quartile.

Q1 = _____

Q3 = _____

Your TI-83 Plus

WINDOW

Y=

2nd

STAT

ON

TRACE

GRAPH

Arrow Keys

CLEAR

ENTER