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MAKING A BOX AND WHISKER PLOT
USING YOUR TI-83 CALCULATOR

Step 1:   Turn on the calculator! [ON]

Step 2:   Input the following data into L1:   12, 34, 27, 29, 15, 38, 22, 19, 31, 36

To do this press the [STAT] button and select option **1: Edit…**

Make sure the lists (L1, L2, L3, etc…) are blank. If not, scroll up using the

up and down arrow keys to the name of the list, L1 (or L2, L3…) and

press [CLEAR], followed by [ENTER]. The screen should look like this:

Scroll back down to the body of the list so that _____ is selected. Enter

the first number, 12 into **L1(1)=** . Press [ENTER]. The number 12 should be

inputted as the first number in the list, the highlighted _____ is on the

next line, and **L1(2)=** is on the bottom of your screen. Enter the second

number, 34. Keep doing this until all the data are entered into L1. Once

this is complete, go back to the home screen by pressing [2nd][MODE]

(**QUIT**).

Step 3:   You can arrange the list in either ascending or descending order. For this exercise, we want the data in ascending order. To do this, press the [STAT] button and select option **2: SortA(**

It will move to the Home Screen and in the parentheses enter the name of the list where you put the data, L1. (L1, L2, L3… can be found above the numbers [1], [2], [3]…) Make sure to close parentheses and press [ENTER].

Your screen should look like this:

```
SortA(L₁)
            Done
■
```

Go back to your list, by pressing [STAT], then option **1: Edit…** and see that the list is in ascending order!

Step 4:   Go back to the Home Screen by pressing [2nd][MODE] (**QUIT**). We are now ready to make the box and whisker plot. Go into **STAT PLOT** by pressing [2nd] and then [Y=]
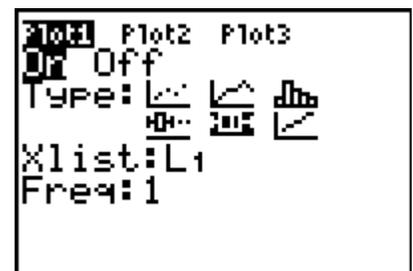
Go into Plot 1 by selecting option 1.

Press [ENTER].

Turn Plot 1 on by making sure **On** is highlighted.

Select the box and whisker plot icon.

The icon looks like this: ▭

```
Plot1 Plot2 Plot3
On Off
Type: ⌐ ⌐ dh
        ▭ ▥ ⌐
Xlist:L₁
Freq:1
```

Xlist is whichever list your data is in; in this case our data is in L1.

Frequency is 1.

Go back to the Home Screen by pressing ⌜2nd⌝⌜MODE⌝ (**QUIT**).

Step 5:   In order to display the box and whisker plot, we need to choose an

appropriate window. Press the ⌜WINDOW⌝ button (the second blue button on

the very top row). Our data is between 10 and 40 so make your Xmin = 10

and Xmax = 40. Change the Ymin to 0 and the Ymax to 10.

```
WINDOW
 Xmin=10
 Xmax=40
 Xscl=1
 Ymin=0
 Ymax=10
 Yscl=1
 Xres=1
```

Now we can display our plot! Press the ⌜GRAPH⌝ button (last blue button on

the very top row). TA DA! Your graph should look like this:
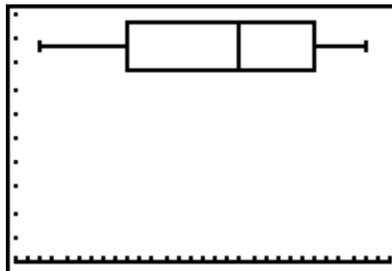
Step 6:   You can find the minimum value, quartile 1 value, median (or quartile 2

value), quartile 3 value, and the maximum value by pressing the ⌜TRACE⌝

button (to the left of the ⌜GRAPH⌝ button) and moving the left and right

arrow keys to each value on the graph. Record your findings:
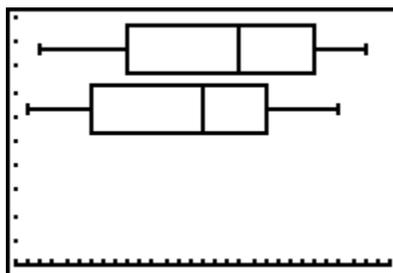
minX= 12

Q1= 19

Med= 28

Q3= 34

maxX= 38

Go back to the Home Screen by pressing [2nd][MODE] (**QUIT**). Press the [STAT] button. Press the right arrow and highlight **CALC**. Select option **1: 1-Var Stats** and press [ENTER]. **1-Var Stats** will appear on your Home Screen. Type in L1 (or whichever list your data is located). Press [ENTER]. This displays all the statistics for list 1. Use the down arrow button to scroll down the list. There you will find the values for the minimum, quartile 1, median, quartile 3, and the maximum. Make sure you found the same values the calculator did (if they do not match, I do not think the calculator made the mistake. YOU did. Go back and fix!).

Step 7:   We can compare multiple sets of data using box and whisker plots. Input the following data into L2:   30, 16, 14, 21, 35, 24, 26, 11, 36, 27

Step 8:   Arrange the list into ascending order by referring to Step 3.

Step 9:   Turn on Plot 2. Follow Step 4 but this time Xlist is L2.

Step 10:   Make sure to check your window. This time press the [ZOOM] button (middle blue button on the very top row). Scroll down to option **9: ZoomStat** and press [ENTER]. This automatically chooses an appropriate window for and displays the graph. WOW! Two box and whisker plots!

Record the following by either using the $\boxed{\text{TRACE}}$ button or using **1-Var**

Stats:

minX= 11

Q1= 16

Med= 25

Q3= 30

maxX= 36

Answer the following questions by comparing the two box and whisker plots.

1. Which set of data seems to have the lowest values? Why?

    The second because half of the data lies below 25 whereas in the first set

    of data half of the values lie below 28.

2. Which set of data has the largest range?

    The first set of data with a range of 26. The second set has a range of 25.