Comparing Data Using Box Plots

Use the preloaded weather data on your calculator to answer the following questions:

1. Find the mean and standard deviation for the average high temperature for September (L_2).

2. Create a normal curve that shows the distribution of the average high temperatures (L_2).

Learning Objectives

- To be able to analyze and compare two sets of data using box plots.
- To make conclusions about data sets based on the box plots using mathematical evidence to support the claims.

Today we are going to answer this question: "Was September 2013 average?"

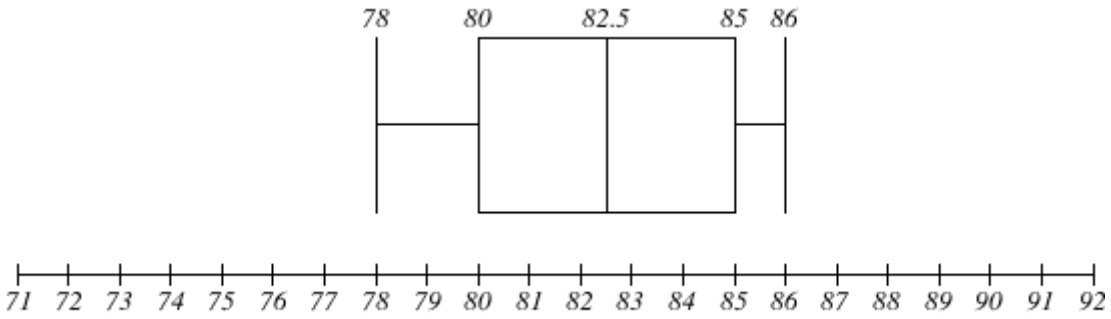
When comparing data using box plots, all plots must be created on the same axis.

What does that look like?

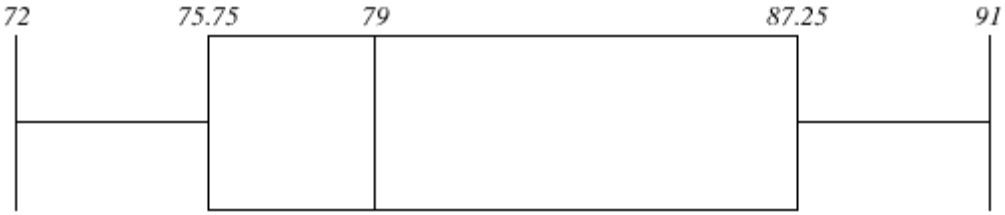
Step one: Load “weather” data into your calculator

Step two: To compare Average High Temp to Actual High Temp: turn on plot one to display L2 and turn on plot 2 to display L4 then press zoom nine.

Average High Temperature



Actual High Temperature



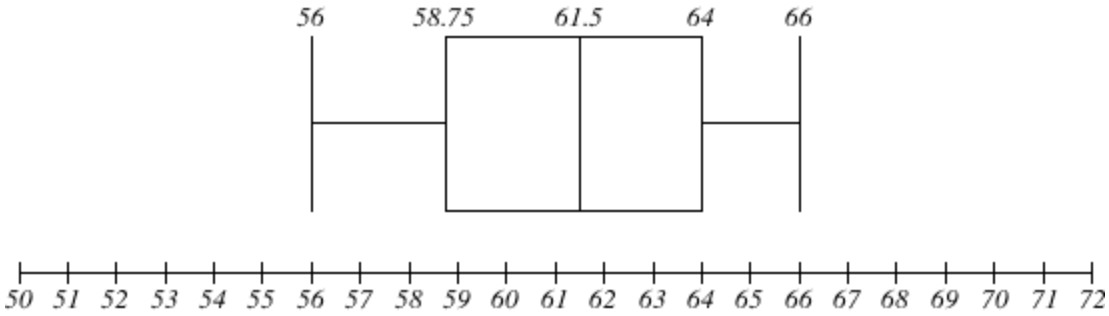
What can we say about the actual temperature?

My Ideas for Analysis…

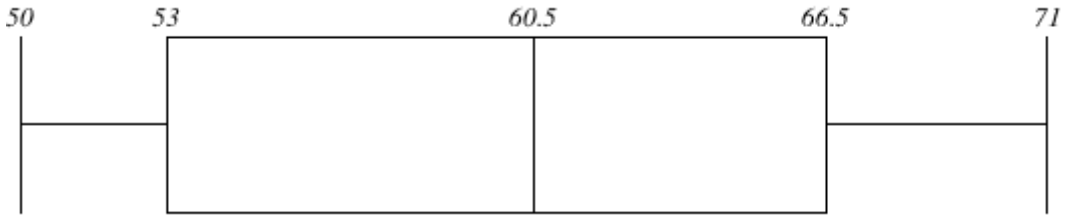
- 50% of the temperatures in September were below 25% of the average temperatures.
- 25% of the temperatures were above all of the average temperatures for September.
- The median temperature was 79, which was lower than the median of the average high temperature of 82.5 for September.
- The standard deviation of the average high temp. was about 2.67, while the Stand. Deviation of the actual high temp. was about 6.49.
- The range of temperatures was 19, but the range of the average temperatures was 8.
- **The actual high temperatures suggests that September 2013 was not average because there was much more variation and spread in the actual temperatures.**

Let's look at the low temperatures…

Average low Temperature



Actual low temperature



What can we say about the actual temperature?

More Thoughts on Analysis…

- The distribution of temperatures is very different because the range of the actual low temperatures was 21, but the range of the average temperatures was 10.
- 25% of the actual low temperatures fall below the average temperatures, and 25% fall above.
- The stand. Deviation of the average low temperatures was about 3.26, while the actual high temp. standard deviation was about 7.03.
- **The actual low temperatures suggest Sept. 2013 was not average because there is more spread and variation in the actual temperatures.**

FINAL CONCLUSION?? (this is what counts!)

According to our data, September 2013 was not average. There was more variation in the actual temperatures from September 2013 than there was for the average temperatures.