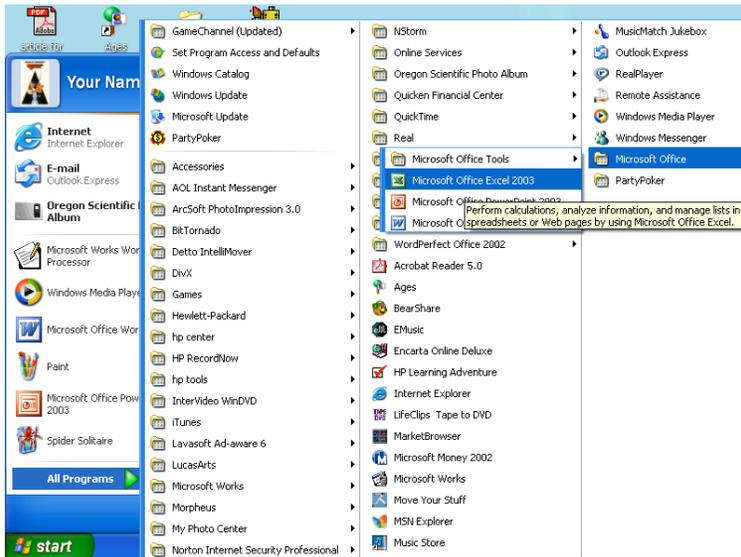# Microsoft Excel Investigation:
Mean, Median, Mode

**Name:**_____.

Date:_____.

In this investigation you will discover properties of mean, median, and mode by using weather statistics.

Step 1: Begin by clicking the start menu in the bottom left-hand-corner of the screen. Next click all programs. Then move the mouse over to highlight Microsoft Office. Finally click Microsoft Excel.

The screen will open with *Book1* at the top.

Step 2: Enter the months of the year in column A, starting with the title <u>MONTH</u> in A1, Jan. in A2, Feb. in A3, and so on. It should look like this:
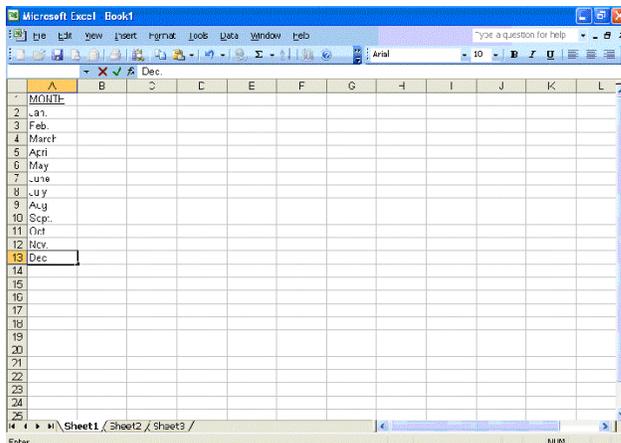
Step 3: Enter the following weather data in column B. Start out by placing the title <u>Average Precipitation</u> in B1 (this title will not fit in the block given so line up the cursor on the line between B and C and double click the mouse). Then place the appropriate average precipitation next to the coinciding months.

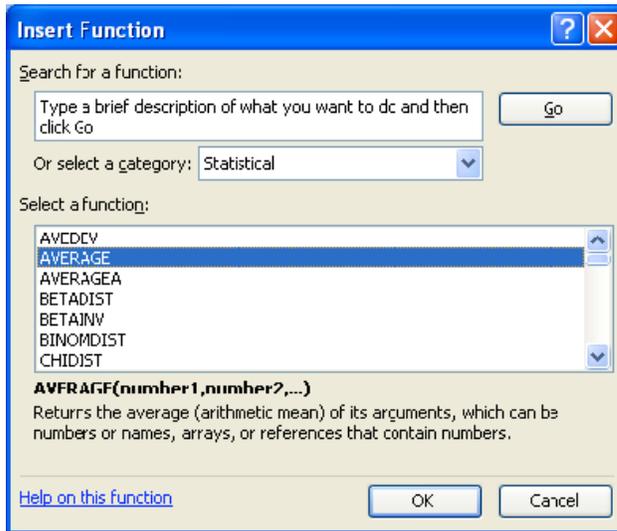| Month	Value
Jan.	3.2
Feb.	3.0
March	3.5
April	3.8
May	4.2
June	3.6
July	4.3
Aug.	4.4
Sept.	3.9
Oct.	2.9
Nov.	3.8
Dec.	3.6

<u>Yours should look like this:</u>
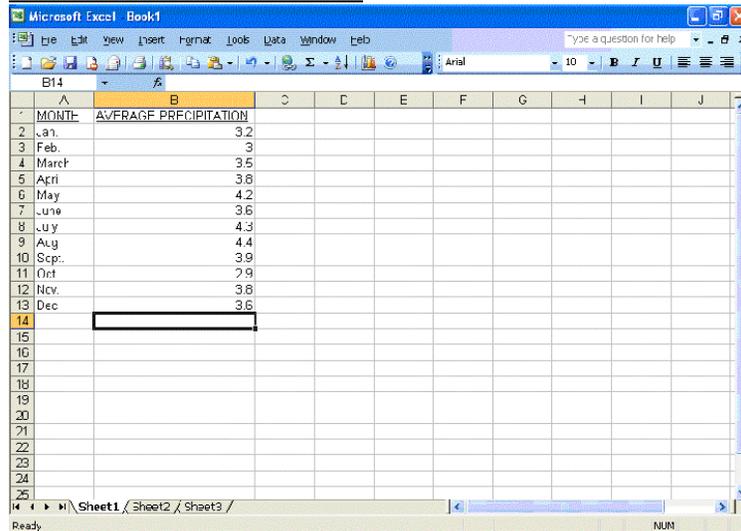
Step 4: First highlight block B14. Next click "Insert" located on the toolbar, then click function.
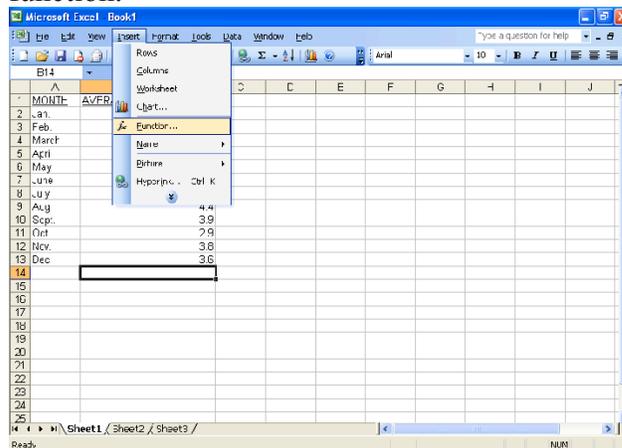
After this, a window will pop up allowing you to use a variety of functions. Change the category to "Statistical." Then highlight "AVERAGE" and click "OK".

This will open a new window allowing you to choose which blocks you would like to take the average of; B2:B13 is already selected for us so just click "OK".
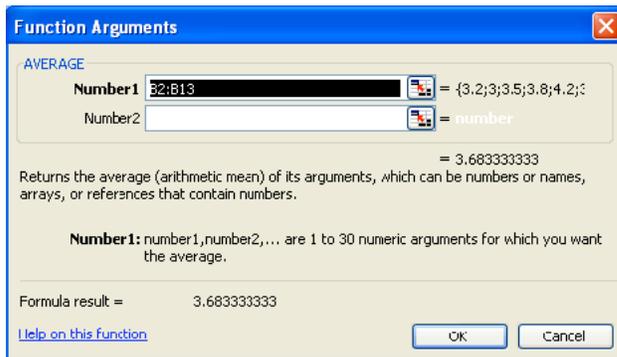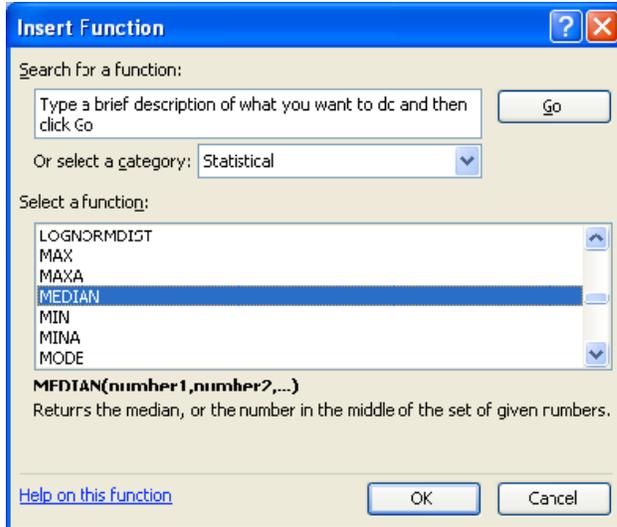

Now look at block B14, the average of precipitation per month for the year in Allentown has been calculated.
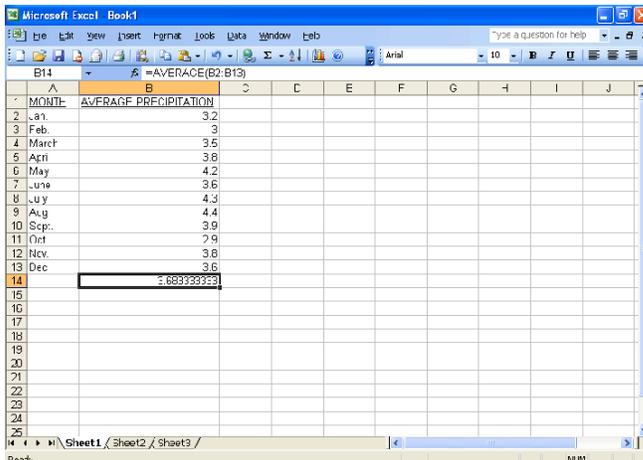
Now label block A14 as "**MEAN:**"

Step 5: Begin by highlighting block B15. Now click "Insert" then click "Function" (like we did last time). Wait for the new widow to appear then highlight "Median," and click "OK".
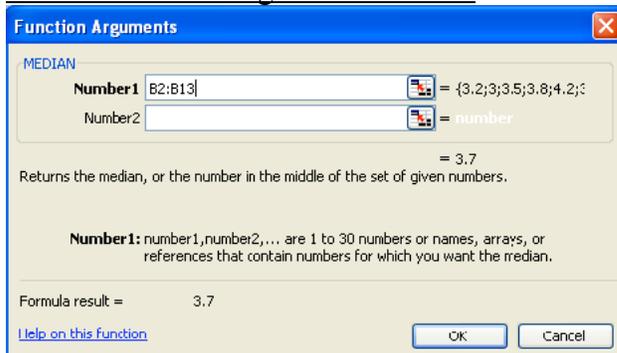

This will open a new window (like last time), allowing us to choose what blocks we would like to take the median of, we must change the blocks from B2:B14 to B2:B13. We do this simply by clicking the line that says "B2:B14" and typing in "B2:B13."
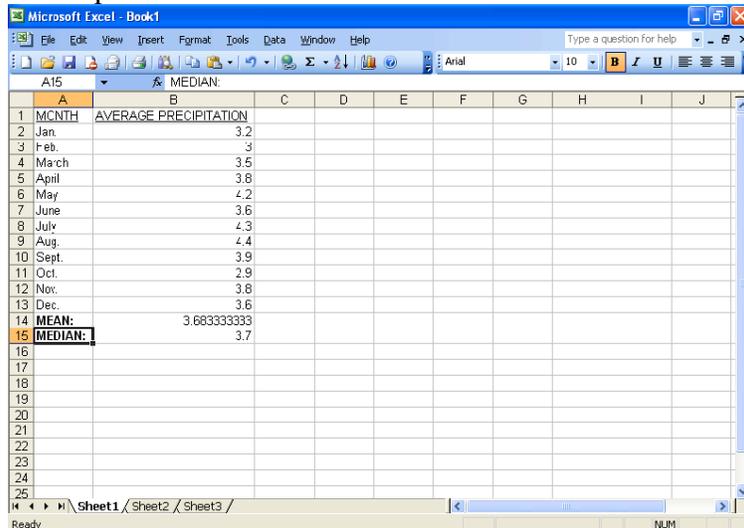
What it looks like at first:
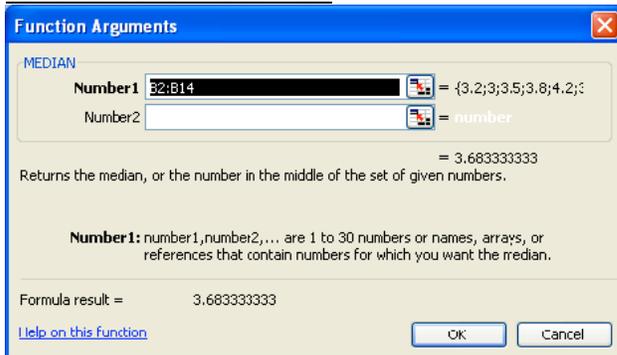
What we must change it to look like:

Then Click "OK." Look at block B15, the median of precipitation per month for the year in Allentown has been calculated and label block A15 as "**Median:**"
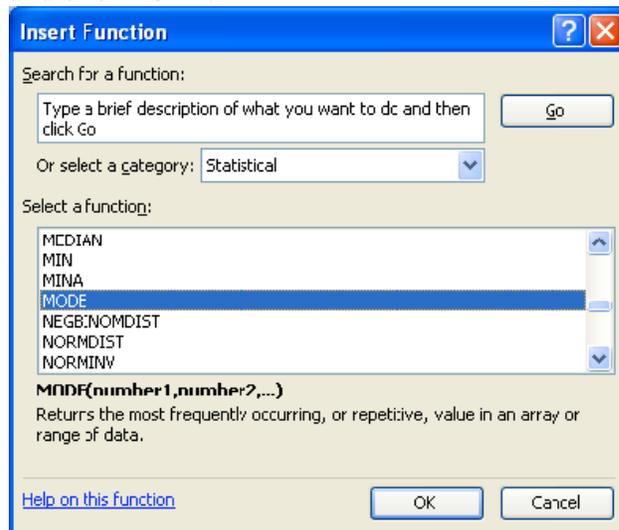
Your spreadsheet should look like this:

Step 6: Similar to the previous 2 steps, begin by highlighting block B16. Now click "Insert" then click "Function." Wait for the new widow to appear then highlight "Mode," and click "OK".
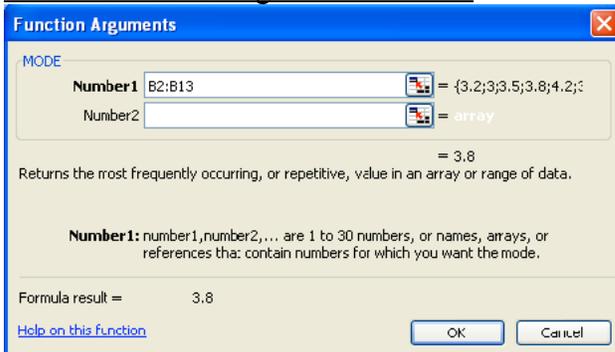

This will open a new window (like previous 2 times), allowing us to choose what blocks we would like to take the mode of, we must change the blocks from B2:B15 to B2:B13. We do this simply by clicking the line that says "B2:B15" and typing in "B2:B13."
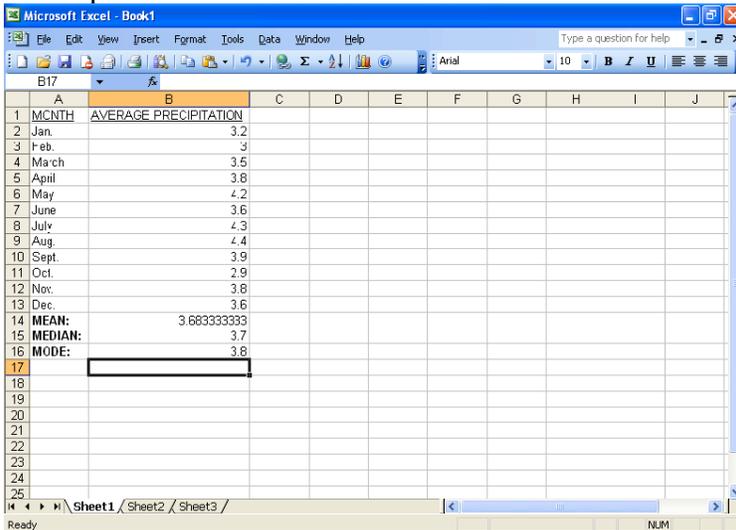
What it looks like at first:
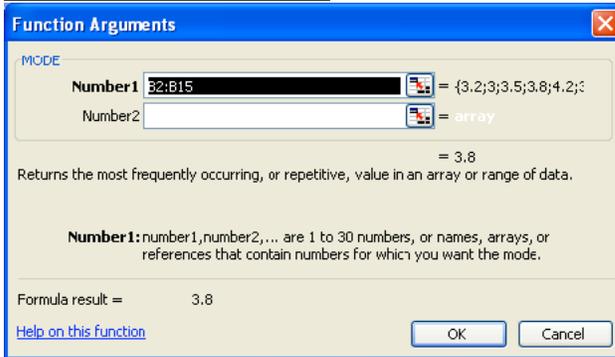
What we must change it to look like:

Now Click "OK." Look at block B16, the mode of precipitation per month for the year in Allentown has been calculated and label block A16 as "**Mode:**"
Your spreadsheet should look like this:

If you examine this closely you will see that 3.8 is not the mode; this data is bi-modal (it has 2 modes). But the program that calculates the mode will only give the mode with the higher value.

Step 7: Now we are going to take a look at outliers (an outlier is a piece of numeric data whose value is either much larger or much smaller than the rest of the data in the set and this value greatly affects the overall average of the group of data).

Let's say in the month of February for the past year we have received an extreme amount rain, snow, sleet, and freezing rain, increasing the amount of precipitation for 3 inches to 24 inches.

First click block B3, delete the number '3' and type in '24.'

Now hit the "Enter" key on the keyboard and take a look at the new mean.