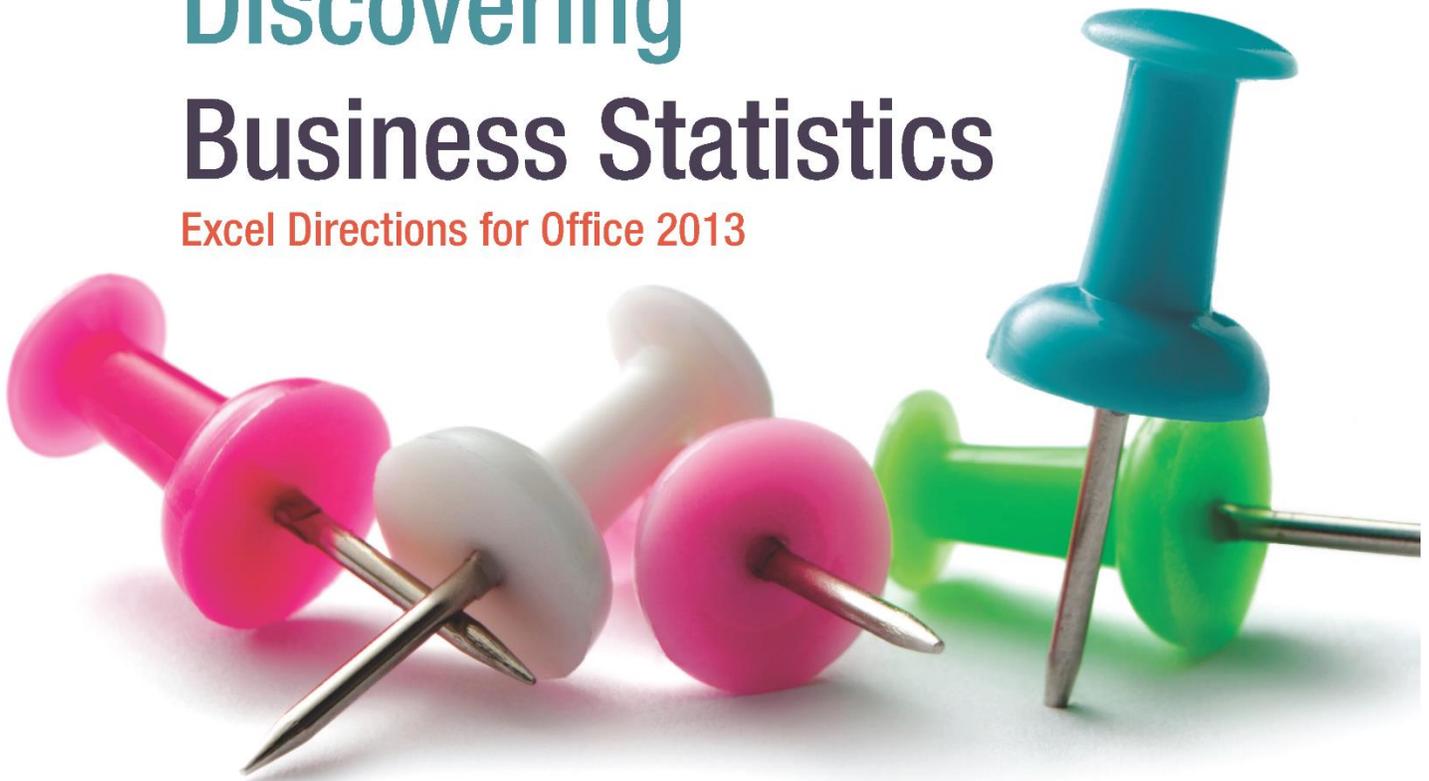


Discovering Business Statistics

Excel Directions for Office 2013



If there is not a **Data Analysis** option under the **DATA** menu, you will need to install the **Data Analysis ToolPak** as an add-in for Microsoft Excel.

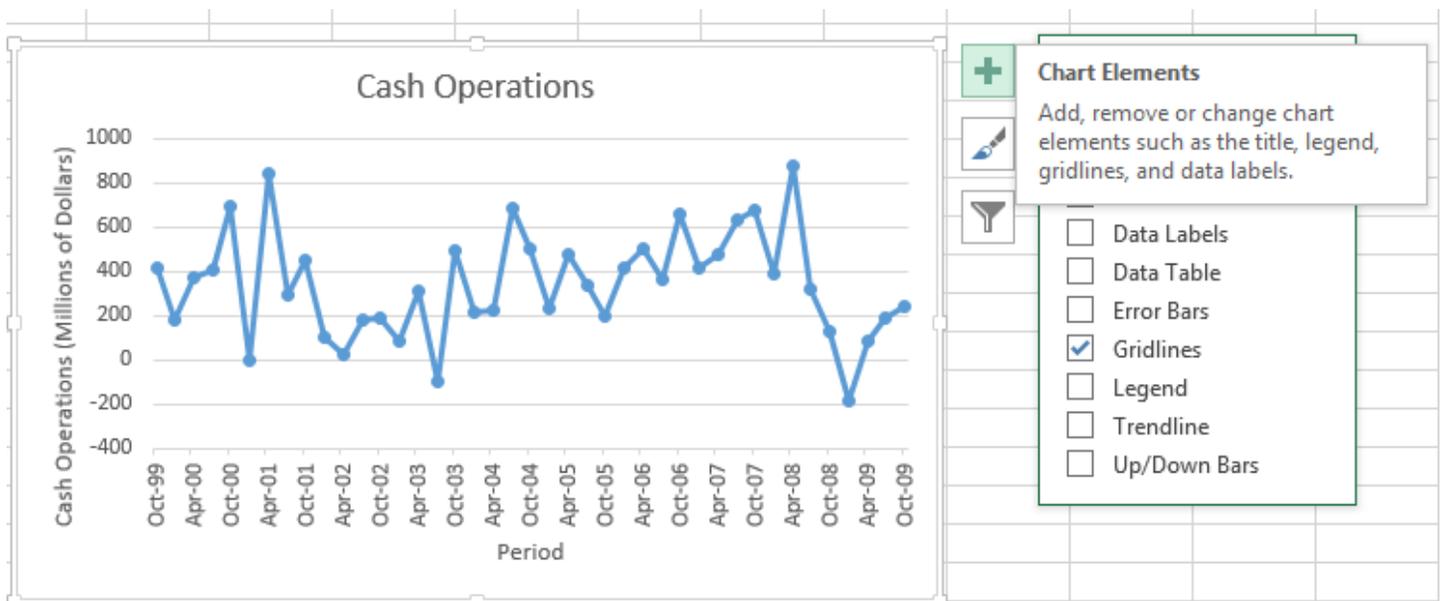
1. Click on the **FILE** tab and then select **Options** from the left-hand side.
2. Once in the options window, select **Add-Ins** on the left-hand side. At the bottom, make sure that **Excel Add-ins** is selected from the dropdown menu, and click **Go**.
3. Once the Add-Ins dialog box appears, click the box next to **Analysis ToolPak** and click **OK**.
4. The add-in will be installed. You should now see a **DATA** tab at the top. The Data Analysis tools are accessed by clicking on the **Data Analysis** button under the **DATA** tab. You will be utilizing these tools throughout the Discovering Technology sections in the text.

For more information on installing the Data Analysis ToolPak, including screenshots, please visit support.hawkeslearning.com.

The following instructions are given, by chapter, where there is a difference between the steps in the textbook (Excel 2010) and how you would perform the same function in Excel 2013. Many of the steps given in the textbook are the same, and may be followed as they are. Steps are only listed if this is not the case, and different directions must be followed. Updated screenshots are also given, for convenience.

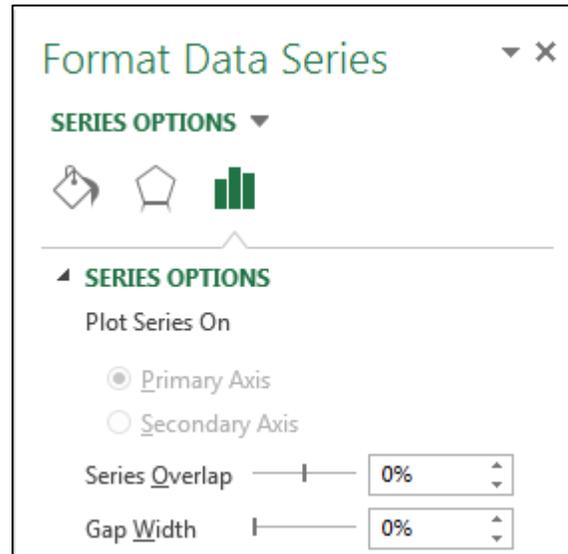
Chapter 2: Line Chart

- To change the interval of the x-axis, double click on the values on the x-axis (or, alternatively, right click and select **Format Axis**). The **Format Axis** menu will appear on the right-hand side of the screen. You will see that 6 months is selected for the major units under **AXIS OPTIONS**.
- To format the y-axis, double click on the values on the y-axis (or, alternatively, right click and select **Format Axis**). Under **AXIS OPTIONS**, select the radio button next to **Axis value** and enter **-400** for the value at which the horizontal axis crosses. Now the entire line chart is above the x-axis.
- Clicking in the chart area, you will see three icons to the right of the chart: **Chart Elements**, **Chart Styles**, and **Chart Filters**. Clicking on the **Chart Elements** icon (the + sign), you can edit what appears on your chart. You can add axis labels by checking the box next to **Axis Titles** and remove the legend by removing the check mark in the box next to **Legend**. All of the elements in the chart are fully customizable. You may edit the chart title and axis titles by clicking directly on the chart and editing the text. You can format the axis labels by double clicking on one of the labels, bringing up the **Format Axis Title** menu on the right-hand side.

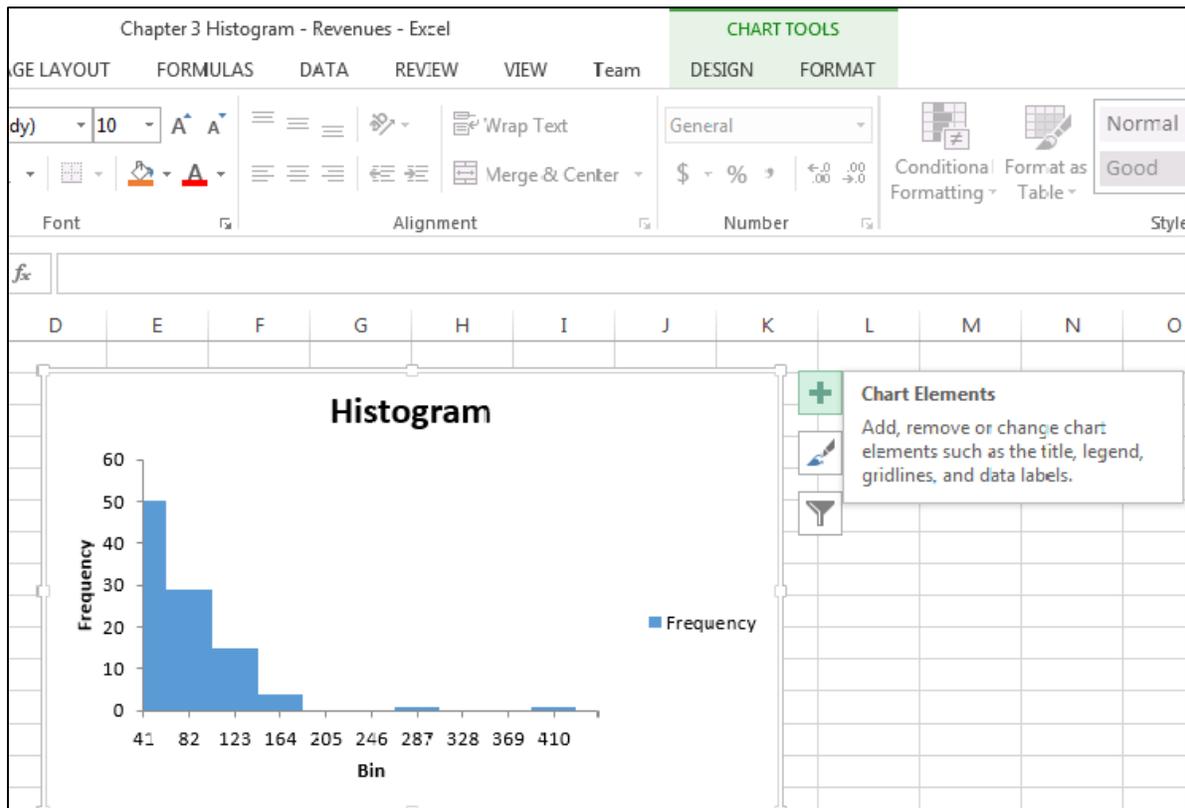


Chapter 3: Histogram

14. Double click on the x-axis (or, alternatively, right click and select **Format Axis**) to display the Format Axis menu on the right-hand side. Select the radio button next to **On tick marks** for the **Axis position** under **AXIS OPTIONS**.
15. Double click on one of the bars in the histogram to display the **Format Data Series** menu on the right-hand side. To remove the gap between the bars, drag the slider next to Gap Width down to 0% (or, alternatively, simply change the percentage to 0%).

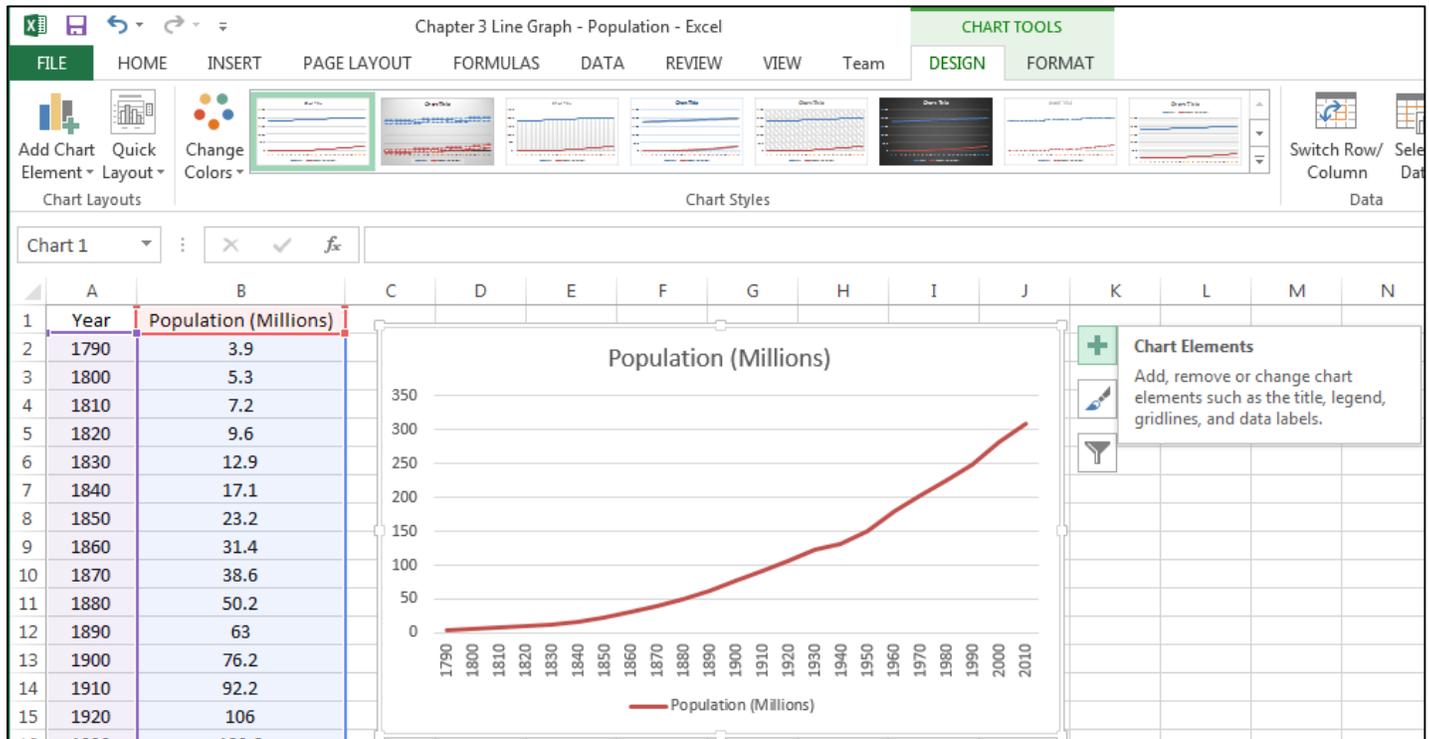


17. You can further customize your histogram using the many tools that are available in the **Chart Tools** menu under the **DESIGN** and **FORMAT** tabs. You can edit and customize the elements of the chart using the **Chart Elements** button that appears next to the chart area (the + sign), and the formatting menus that appear on the right-hand side of the screen when double clicking on a particular chart element within the chart area.



Chapter 3: Line Graph

8. You can further customize your histogram using the many tools that are available in the **Chart Tools** menu under the **DESIGN** and **FORMAT** tabs. You can edit and customize the elements of the chart using the **Chart Elements** button that appears next to the chart area (the + sign), and the formatting menus that appear on the right-hand side of the screen when double clicking on a particular chart element within the chart area.



Chapter 4: No change

Chapter 5: Permutations and Combinations

No change, but note that Excel 2013 features two new functions, **COMBINA(number, number_chosen)** and **PERMUTA(number, number_chosen)** that return the number of combinations or permutations, respectively, *with repetitions* for a given number of items. However, the functions **COMBIN** and **PERMUT** are the appropriate functions to complete the technology exercises as indicated in this section.

Chapter 6: Binomial Distribution

No change, but note that Excel 2013 features a new function, **BINOM.DIST.RANGE(trials, probability_s, number_s, number_s2)** that returns the probability of a trial result using a binomial distribution. For example, **=BINOM.DIST.RANGE(60, 0.75, 45, 50)** returns the probability of between 45 and 50 successes (inclusive) in 60 trials, with a 0.75 probability of success. This is an expansion of the **BINOM.DIST** function.

Chapters 7-9: No change

Chapter 10: P-Values for t-Test Statistics

No change, but note that an alternate function that can be used for the example given is **T.DIST.RT(x, deg_freedom)**, which returns the area to the right of a particular value in a *t*-distribution. So, **=T.DIST.RT(2.378,15)** would return the *P*-value 0.0156, the same as using the method outlined in the textbook (**1-T.DIST(2.378,15,TRUE)**).

Chapters 11-14: No change

Chapter 15: Chi-Square Test for Association

No change, but note that there is a function **=CHI.SQ.TEST(actual_range, expected_range)** that returns the *P*-value for a chi-square test for association. Actual_range is the range of data that contains observations to test against expected values and expected_range is the range of data that contains the ratio of the product of row totals and column totals to the grand total. The *P*-value for the test in Example 15.2 is approximately 0.0180.

	A	B	C	D	E	F	G
1	Price Charged	Self Checkout	Employee Checkout	Total		Expected Self	Expected Employee
2	Undercharge	20	10	30		14.1	15.9
3	Overcharge	15	30	45		21.15	23.85
4	Correct Price	200	225	425		199.75	225.25
5	Total	235	265	500			
6							
7							
8	2.468794326	2.189308176					
9	1.788297872	1.585849057					
10	0.000312891	0.000277469					
11							
12	8.032839792						
13	=CHISQ.TEST(B2:C4,F2:G4)						
14	CHISQ.TEST(actual_range, expected_range)						

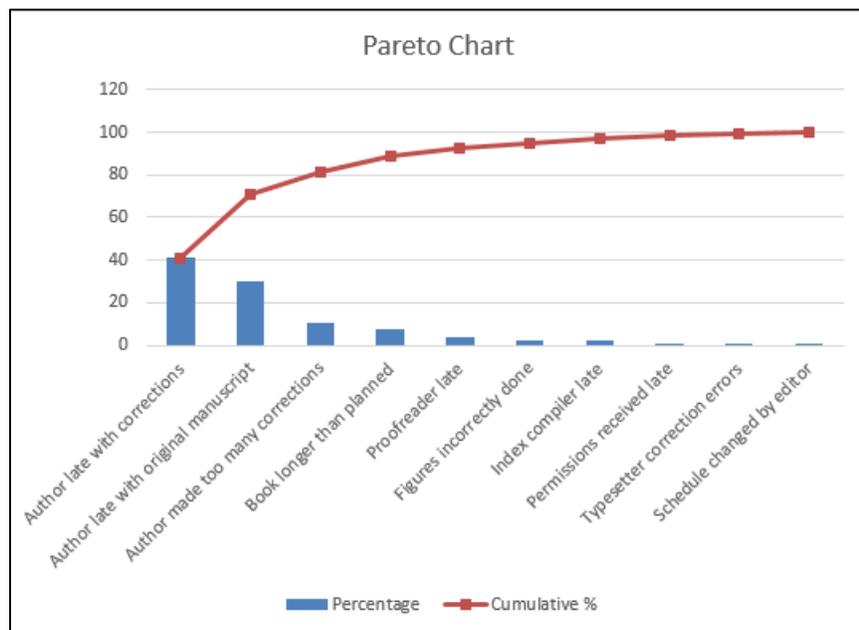
Chapter 16: No change

Chapter 17: Pareto Chart

- Under the **INSERT** tab, select **Combo Chart**, and **Clustered Column – Line**.

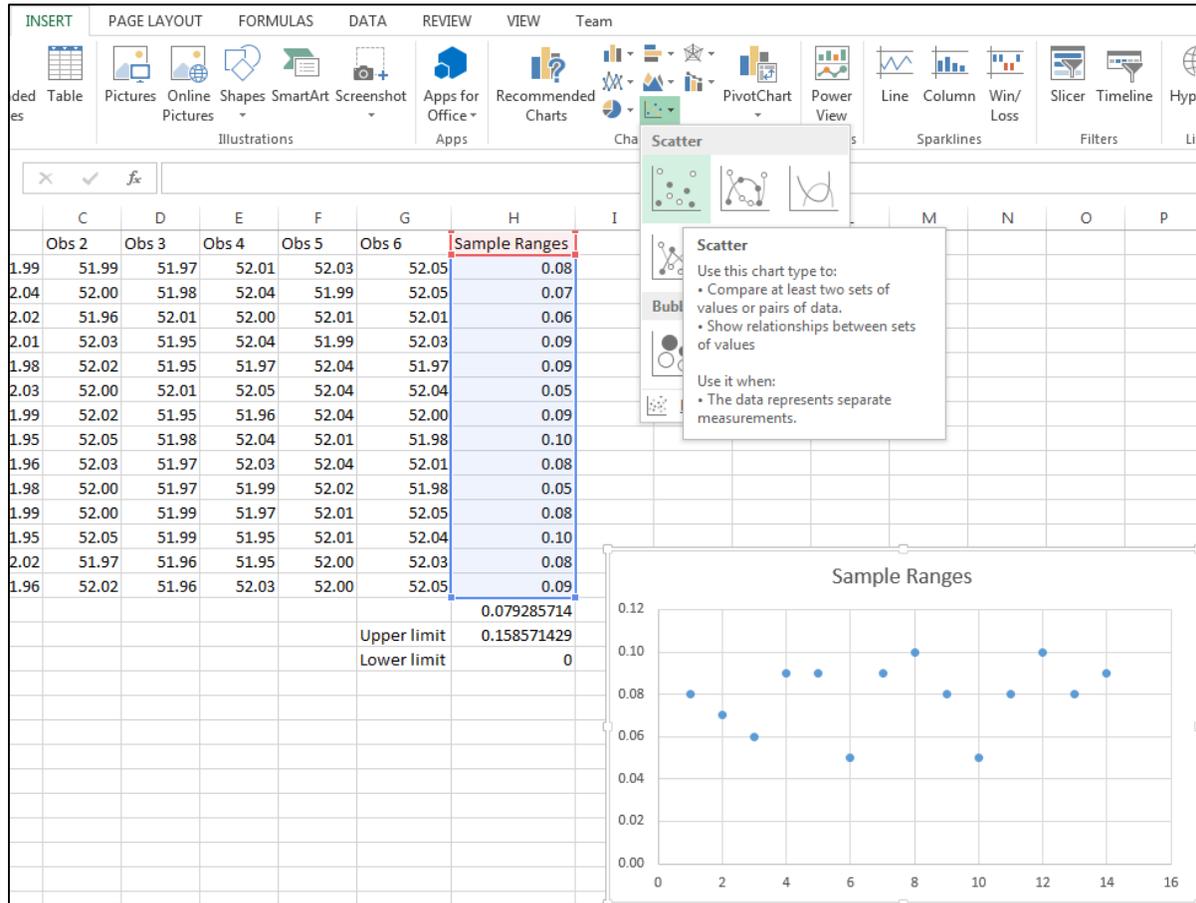
	A	B	C	D	E
1	Causes of Problems	Frequency of Occurrence	Percentage	Cumulative %	
2	Author late with corrections	48	41.025641	41.02564103	
3	Author late with original manuscript	35	29.9145299	70.94017094	
4	Author made too many corrections	12	10.2564103	81.1965812	
5	Book longer than planned	9	7.69230769	88.88888889	
6	Proofreader late	4	3.41880342	92.30769231	
7	Figures incorrectly done	3	2.56410256	94.87179487	
8	Index compiler late	3	2.56410256	97.43589744	

- To add markers to the chart, double click on the line so that the **Format Data Series** menu appears on the right-hand side. Under **SERIES OPTIONS**, select **MARKER**, **MARKER OPTIONS**, and the radio button next to **Built-in**.
- You can customize the look of the Pareto chart using the **Chart Elements** button that appears next to the chart area (the + sign), and the formatting menus that appear on the right-hand side of the screen when double clicking on a particular chart element within the chart area.

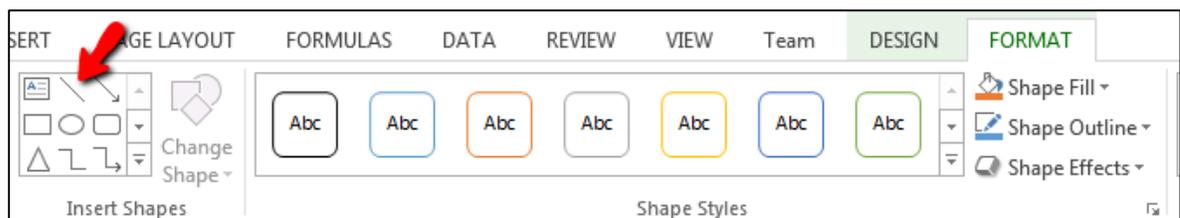


Chapter 17: R Chart

- Under the **INSERT** tab, choose **Scatter** from **Charts**. Change the title from Sample Ranges to **Control Chart** by clicking on the text box and editing the title text.



- Double click on the labels for the y-axis (0.02, 0.04, etc.). The **Format Axis** menu will appear on the right-hand side. Enter **0.18** for **Maximum** under **Axis Options**.
- Next we will draw the centerline and control limits. Under the **FORMAT** tab, select the **Line** tool from the **Insert Shapes** toolbar. Draw a line in the chart area that intersects the y-axis at 0.1589 and extends to the right border of the graph. (Note: holding the shift key down as you draw the line ensures that the line is horizontal.) You can change the color and thickness of the line using the **Shape Outline** options under the **FORMAT** tab. This is the upper control limit. With this line selected, press **Ctrl+C** to copy the line and then **Ctrl+V** to paste it. Now you have a copy of the line.



8. You can label the lines by inserting a **Text Box** from the **Insert Shapes** toolbar under the **FORMAT** tab. (This is the icon in the top left corner of the screenshot on the previous page.) Create a label for the centerline, UCL, and LCL. You can edit the font and color for you labels using the **Font** toolbar under the **HOME** tab. You can edit the fill and outline of the textbox under the **FORMAT** tab.

