This tutorial will lead you through step-by-step to make the plot below using Excel.

Steps

- Using paper and pencil, put both equations into the \( y = mx + b \) format. Keep 3 significant figures of accuracy for all numbers.

- Create a column of cells representing the “x” values by:
  - type 0 into a cell and 5 into the cell below it
  - highlight the cells with 0 and 5, position the curser over the lower right-hand corner of the highlighted cells until the curser changes to a “+” symbol.
  - drag the curser down. Excel will recognize the pattern of the first two cells and create new values following this pattern.
label this column of cells as “x”.
- center the contents of this cell
- bold the cell

Create a column of cells presenting the y values for Equation 1 by:
- typing the following formula for y into cell “C2”
  \[=37.2-0.444\times B2\]
- note that the result of the formula is displayed in Cell “C2” and the formula is displayed in the Formula Bar

- position the cursor over the lower right-hand corner of the highlighted cell and drag it down to Cell “C8”.

- Click on Cell “C3” and note that Excel has copied the formula from Cell “C2” but updated the “B2” to “B3”. By default, cell addresses (such as “C2”) are set to be “relative addresses” meaning that Excel will change the address when it’s copied to reflect its new position in the spreadsheet. In a future lesson, we will learn how to make a cell address an “absolute” reference so that Excel will not change it when the cell is copied.

Label the new column as “y_1”. Format the cells in Column “C” by:
- centering all of the cells
- bolding the label “y_1”
- displaying one digit past the decimal point

- Create a column of cells presenting the y values for Equation 2 by repeating the process described above.

- Make a plot of the x, y_1 and y_2 values
  - Highlight Cells B2 to D8 and click on the chart wizard icon.
  - Select “XY(Scatter)” and “lines, no markers” then click on “Next”
Check to make sure that the “Series in:” is set to “Columns” and click “Next”

Type in labels for your plot and click “Next”.

Click “Finish” on the next dialog box to place your chart in the current sheet.

Format your plot by “right-clicking” anywhere in the plot interior and selecting:

- “Format Plot Area” to turn off the grey background
- “Chart Options” then “Gridlines” to turn on “Y-value gridlines”

Make your gridlines grey by double clicking on a gridline and selecting a light grey color.
• Finally, click on any cell outside the plot (to de-select the plot) and then click on “Print Preview”, close the dialog box and Excel will display the page print borders with dashed lines. Resize and/or move your plot to fit it inside the print borders of the first page.

• Extend the plotted lines to below the X axis.
  o Move the plot down to the bottom of the Page 1 print area
  o Select the last two rows of your data
  o Click on the lower right-hand corner of the selected cells and drag down until both y_1 and y_2 values are negative.
Click on the top line in the plot. The plotted data points will be highlighted as will the “source data”. Drag the colored boxes down to include the new data.

Repeat the procedure to the bottom line in the plot.

Make your plot easier to read and understand by:

- Changing one of the plotted lines to dashed (double click on the plotted line, click on the “Patterns” tab, select a different line pattern from the drop-down menu next to “Style”) Color differences will not show up when printed on a black and white laser printer).

- Changing the legend to be more descriptive (e.g. change “y_1” in Cell C1 to “2x + 4.5y = 167.5”)

- Change the Y-axis to intersect the X-axis at -30 (double click on the Y-axis, select the “Scale” tab, type “-30” in the box next to “Value (X) axis crosses at”).

- Check to make sure that the font size for all text (title, axis labels, axis titles and legend) is not smaller than 10 point.