Copying Data from Tinkerplots to Excel

1. Open the tinkerplot file you wish to copy data from, and open a blank spreadsheet in excel
2. In tinkerplots, display the case table
   a. Click on the “Table Icon”
   b. Move the mouse to the field area
   c. Right click
   d. If the table is empty and says “no data” it is because you already have the table open elsewhere. Sometimes it can be hidden behind the plot or card windows
3. Click on the uppermost-left data entry to highlight it
4. Right click on this value, and choose “select all cases”
5. Copy these cells by holding down the control key and pressing “c”
6. Switch to Excel
7. Paste the data into excel by clicking on “Edit” then “Paste” (or press control - “v”)

Making a Graph in Excel

You may want to delete the columns or rows that do not contain information that you need
1. To do this, right click on the Letter (or number) heading of the column (or row) in question
2. The entire column (or row) will automatically highlight
3. Click on “Delete”

When you have the data in Excel insert a chart
4. From the “Insert” menu, click on “Chart”
5. Usually we would like a “Scatter Plot” where we have only points (no connecting lines)
6. Highlight and click “Next”

7. Excel tries to anticipate what you would like to graph. Sometimes it is right, and sometimes it is not. If you like the graph that is displayed, go to step 10.
8. Delete elements in the data range by highlighting and clicking the delete key
9. You can choose the data you wish to graph in one of two ways…
   a. With the cursor clicked in the “Data Range” cell, move the mouse to the uppermost left
      cell in your data range. Left click, and drag the mouse to the right most bottom corner of
      your data range.
      (This works well when you do not have multiple columns, and your data is well
      organized)

   b. –or– Click on the “Series” tab at the top of the dialogue box. Click on “Add”. You can
      name the series if you like by clicking in the “Name” box and typing in the name. Click
      in the “X Values” box. These are your horizontal values. Click on the top most cell in
      the column you wish, and drag to highlight all cells. Go to the “Y Values” box and
      repeat with the vertical values. Repeat this process if you have more than one series.

10. Click on “Next”. Title the chart, and x and y axes if you wish.
11. Click on “Next”. Click on the button “As an object in” if you wish to display the chart right on the page, or “As a new sheet” if you wish to display the chart on a new page.

12. Congratulations, you now have your chart!

13. You can format the chart any way you like. Many of the elements of the chart can be formatted by right clicking on that element.
   a. For example, if you right click on the values on the $y$ axis, you can change the range of data, increments, line type, font, etc.

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**Adding A Linear Approximation**

1. Right click on any data point for the series you wish to add a linear approximation
2. Choose “Add Trendline”
3. Click on the box for “Linear”
4. Go to the “Options” tab
5. Check the box “Display equation on chart” so you can see the equation of the line
6. Click “OK”
7. Excel will add the line (solid black) and display the equation somewhere on the screen. You can click on the equation, make it larger/smaller and move it around the chart area
8. Also, if you right click on the equation you can click on “Format Data Labels” and increase the precision under the “Number” tab
9. This method also works for adding other approximations such as: exponential, log, polynomial, etc.

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**Adding Your Own Line, and Using it to Predict Values**

1. Now that you have the equation of the line, you may want to graph it as another series, and take the values further out to predict future values
2. Click on an empty cell on the same row as your first data point
3. Type “$=m \cdot (x \text{ cell reference}) + b$”, where
   a. $m$ is the slope of the line you found
   b. $x \text{ cell reference}$ is the cell location of your corresponding $x$ value
   c. $b$ is the $y$ intercept of the line you found

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1896</td>
<td>12</td>
<td>-0.0134</td>
</tr>
<tr>
<td>2</td>
<td>1900</td>
<td>10.8</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1904</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>4</td>
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</tr>
<tr>
<td>9</td>
<td>1928</td>
<td>10.8</td>
<td></td>
</tr>
</tbody>
</table>

4. Hit “enter”. The value here is now the approximate value for 1896
5. Copy and paste this value into the cells below using “copy” and “paste”
6. If you wish to extend the domain further, continue copying for as many extra values as you wish. Don’t forget to enter these values in the domain column

7. Now if you wish to graph this instead of your trendline:
   a. Delete the trendline (click on it and press the delete key)
   b. Right click on the graph and click “Source Data”
   c. Go to the “Series” tab
   d. Click on “Add”
   e. Go to the “X Values” line, click on it, go over to the x values you wish to use and highlight them
   f. Follow the same procedure by entering the “Y Values”
   g. Click “OK”
   h. Most of the time it is standard to use a line (instead of data points) for your approximation. Change this by right clicking on any data point, click on “Format data series” and click on “Automatic” under “Line” and “None” under “Marker”