Math 241
Notes for Chapter 1

Calculator Instructions for 1.5 (plotting data and finding formulas)

1. Preparing the STAT editor:

First steps: If you are plotting points for the first time or you haven’t used the Statistics editor for a while, start here.

Turning ON the STAT PLOT:
Go to the STAT PLOT menu by pressing 2nd Y= and then press ENTER with the cursor on 1:Plot 1
Turn on the STAT PLOT by pressing ENTER with the cursor on ON and highlight the Type and Mark as shown

Clearing the STAT editor:
To clear the statistics editor press the STAT button and then 4 (ClrList)
Now type in 2nd 1 to get L_1, then type a comma , and follow it with 2nd 2 to get L_2 (etc.)
then press Enter

2. Recognizing data type

Example: Enter the table below in the statistics editor:

<table>
<thead>
<tr>
<th>x</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>y</td>
<td>-7</td>
<td>-4</td>
<td>-1</td>
<td>2</td>
<td>5</td>
<td>8</td>
<td>11</td>
</tr>
</tbody>
</table>

To put data into the statistics editor: Press the STAT button and then ENTER with the cursor on EDIT
Begin entering data by putting x values in L_1 and y values in L_2
Go to the ZOOM menu and press 9 (Zoom Stat) and the graph will follow.

Now that we recognize this as a linear function, we should find the equation of the function.

3. Generating Best Fit Line (Linear example, #2 continued):

Press the STAT button
Use the Right Arrow to move over to CALC, then Down Arrow to 4:LinReg(ax + b) and press ENTER
In order to store the results in the y= editor, do the following:

Type a \( ( \) \( a \) \( ) \)
Then press the \textbf{VARS} button
Right Arrow over to Y-VARS and press \textbf{ENTER}
With the cursor on \textbf{Y1} press \textbf{ENTER} again
Type a \( ( \) \( a \) \( ) \)
Press \textbf{ENTER}
To see that your equation matches the data, press the \textbf{GRAPH} button

\[ * \text{The equation is stored in the } Y= \text{ editor. Press } Y= \text{ in order to see the function.} \]

4. Recognizing data type and finding the formula (Quadratic example):

Example: Enter the table below in the statistics editor (repeat steps 1 – 4 from #2)

\[
\begin{array}{c|c|c|c|c|c|c|c|c}
 x & 0 & 1 & 2 & 3 & 4 & 5 & 6 \\
 y & 1 & -4 & -3 & 4 & 17 & 36 & 61 \\
\end{array}
\]

You should see that the data are not linear. In this case we will assume that they must be quadratic (the simplest curve).

Press \textbf{STAT} then Right Arrow over to CALC, then Down Arrow to 5:QuadReg and press \textbf{ENTER} (2) & (3)

In order to store the results in the y= editor, repeat steps 4 – 9 above (4) & (5)

To see that your equation matches the data, press the \textbf{GRAPH} button (6)

5. Turning Plots Off: If you don’t want to keep graphing the stats lists (or if you don’t have anything in your stats editor),
go to the STAT PLOT menu (2nd \textbf{Y=} ) and press 4 \text{(PlotsOff)} and then \textbf{ENTER}.

\[ * \text{If you get the following error when you are trying to graph something, follow the instructions above in #5.} \]