Math 241

Notes for Chapter 1

Calculator Instructions for 1.5 (plotting data and finding formulas)
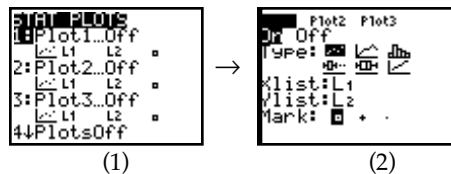
1. Preparing the STAT editor:

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 $\boxed{\text{2nd}}$ $\boxed{\text{Y=}}$ and then press $\boxed{\text{ENTER}}$ with the cursor on 1:Plot 1   (1)

Turn on the STAT PLOT by pressing $\boxed{\text{ENTER}}$ with the cursor on ON and highlight the Type and Mark as shown   (2)

(1)   (2)

Clearing the STAT editor:

To clear the statistics editor press the $\boxed{\text{STAT}}$ button and then $\boxed{4}$ (ClrList)   (1)

Now type in $\boxed{\text{2nd}}$ $\boxed{1}$ to get L_1, then type a comma $\boxed{,}$ and follow it with $\boxed{\text{2nd}}$ $\boxed{2}$ to get L_2, (etc.)   (2)
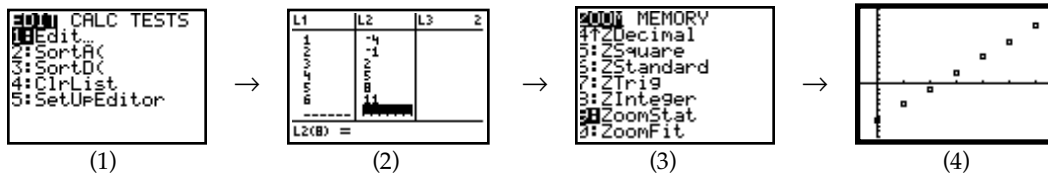
then press $\boxed{\text{Enter}}$ (3)

(1)   (2)   (3)

2. Recognizing data type

$\boxed{\text{Example:}}$ Enter the table below in the statistics editor:

x	0	1	2	3	4	5	6
y	–7	–4	–1	2	5	8	11

To put data into the statistics editor: Press the $\boxed{\text{STAT}}$ button and then $\boxed{\text{ENTER}}$ with the cursor on EDIT   (1)

Begin entering data by putting x values in L_1 and y values in L_2 (2)

Go to the $\boxed{\text{ZOOM}}$ menu and press $\boxed{9}$ (Zoom Stat) and the graph will follow.   (3) & (4)

(1)   (2)   (3)   (4)

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):
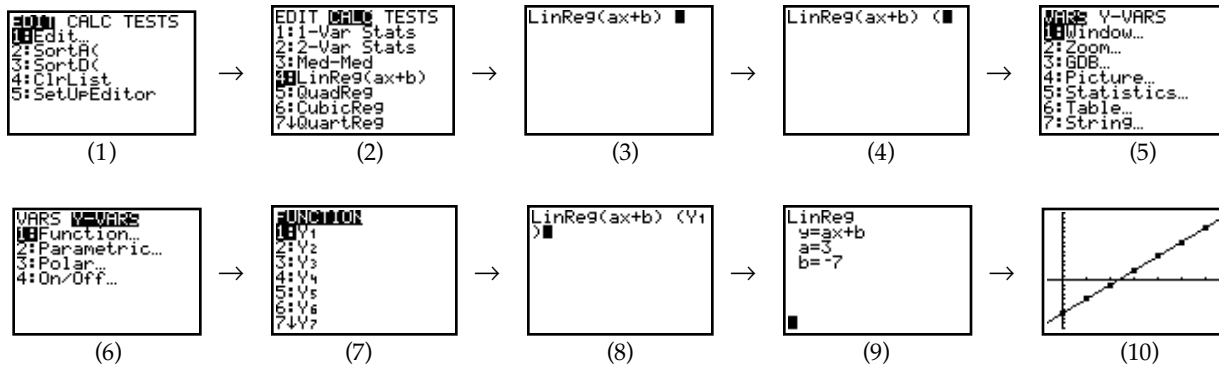
Press the $\boxed{\text{STAT}}$ button   (1)

Use the Right Arrow to move over to CALC, then Down Arrow to 4:LinReg(ax + b) and press $\boxed{\text{ENTER}}$ (2) & (3)

(1)   (2)   (3) $\boxed{\text{Over:}}$

In order to store the results in the y= editor, do the following:

Type a $($ (4)

Then press the VARS button   (5)

<u>Right Arrow</u> over to Y-VARS and press ENTER   (6)

With the cursor on Y1 press ENTER again   (7)

Type a $)$ (8)

Press ENTER   (9)

To see that your equation matches the data, press the GRAPH button   (10)

EDIT CALC TESTS 1:Edit… 2:SortA(3:SortD(4:ClrList 5:SetUpEditor	EDIT CALC TESTS 1:1-Var Stats 2:2-Var Stats 3:Med-Med 4:LinReg(ax+b) 5:QuadReg 6:CubicReg 7↓QuartReg	LinReg(ax+b) ■	LinReg(ax+b) (■	VARS Y-VARS 1:Window… 2:Zoom… 3:GDB… 4:Picture… 5:Statistics… 6:Table… 7:String…
(1)	(2)	(3)	(4)	(5)
VARS Y-VARS 1:Function… 2:Parametric… 3:Polar… 4:On/Off…	FUNCTION 1:Y1 2:Y2 3:Y3 4:Y4 5:Y5 6:Y6 7↓Y7	LinReg(ax+b) (Y1)■	LinReg y=ax+b a=3 b=-7	graph
(6)	(7)	(8)	(9)	(10)

*The equation is stored in the Y= editor. Press Y= in order to see the function.

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

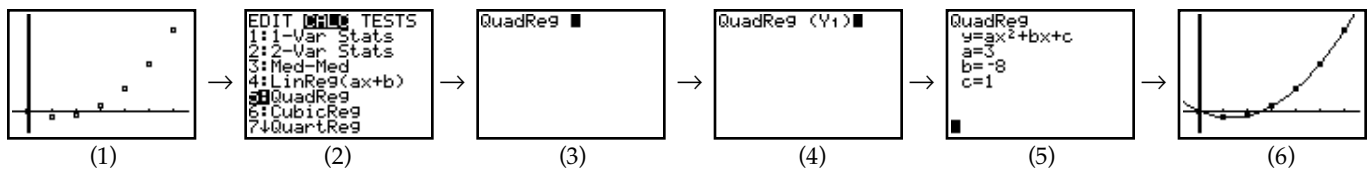Example: Enter the table below in the statistics editor (<u>repeat steps 1 – 4 from #2</u>)

x	0	1	2	3	4	5	6
y	1	–4	–3	4	17	36	61

You should see that the data are not linear. In this case we will assume that they must be quadratic (the simplest *curve*).   (1)

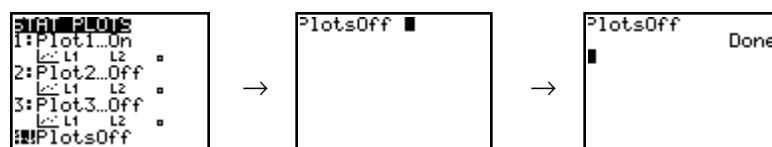Press STAT then <u>Right Arrow</u> over to CALC, then <u>Down Arrow</u> to 5:QuadReg and press ENTER   (2) & (3)

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 GRAPH button   (6)

scatter plot	EDIT CALC TESTS 1:1-Var Stats 2:2-Var Stats 3:Med-Med 4:LinReg(ax+b) 5:QuadReg 6:CubicReg 7↓QuartReg	QuadReg ■	QuadReg (Y1)■	QuadReg y=ax²+bx+c a=3 b=-8 c=1	graph
(1)	(2)	(3)	(4)	(5)	(6)

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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 Y=) and press 4 (PlotsOff) and then ENTER .

STAT PLOTS
1:Plot1…On
  L1 L2
2:Plot2…Off
  L1 L2
3:Plot3…Off
  L1 L2
4:PlotsOff
	PlotsOff ■	PlotsOff
		       Done

* If you get the following error when you are trying to graph something, follow the instructions above in #5.

ERR:INVALID DIM
1:Quit