

USING THE GRAPHING CALCULATOR...

1. Entering the Data

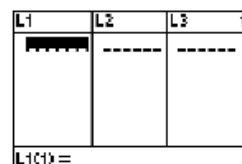
EXAMPLE:

x	y
2	25
5	28
8	58
11	130

Press the **STAT** key. Your calculator window should look like the picture at the right.

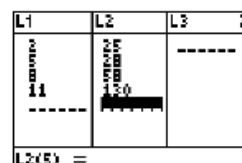


Press **1** (Edit). If you have any numbers (data) in the lists (**L1**, **L2**, or **L3**, etc.) you can clear them by pressing the up arrow \blacktriangle to move the cursor to the top of the column, then press the **CLEAR** key, followed by **ENTER**.



Use \blacktriangleleft or \blacktriangleright to get to the next list, and repeat the steps to clear all the lists. **NOTE:** if you press **DEL** instead of **CLEAR**, the entire column will vanish. If you do this by accident, press **STAT 5** (SetUpEditor) then **ENTER** to replace the deleted column.

To enter the new data, press the **STAT** key, then **1** (Edit). Enter the X-values from the table in **L1** by typing **2 ENTER**, **5 ENTER**, **8 ENTER**, **11 ENTER**. Move the cursor to **L2** and enter the Y-values; **25**, **28**, **58**, and **130** in the same way.



*** If you check the "y" values, you will see that D_1 is constant. This data therefore, represents an Arithmetic/Linear function.

2. Linear Regression

To perform the linear regression function, first press the STAT key.

```
EDIT | CALC TESTS
1:Edit
2:SortA(
3:SortD(
4:ClrList
5:SetUpEditor
```

We want to perform a calculation on the data, so press the right arrow to **CALC**.

```
EDIT | CALC TESTS
1:1-Var Stats
2:2-Var Stats
3:Med-Med
4:LinReg(ax+b)
5:QuadReg
6:CubicReg
7:QuartReg
```

Select **LinReg** (4) to perform a linear regression. Note there are other types of regression besides linear. In this window the options include quadratic regression (**QuadReg** (6)) and exponential regression (**ExpReg** (0)) among others. ✓ (We will also be using **CubicReg**(6) and **QuartReg**(7))

```
LinReg(ax+b) █
```



Press **ENTER** to perform the regression. This output describes a linear equation with slope 11.5 and y-intercept -14.5, so the equation is $y = 11.5x - 14.5$. We are not going to use the $r^2 =$ or $r =$ for our purposes. Don't worry if your calculator does not show these values.

```
LinReg
y=ax+b
a=11.5
b=-14.5
r²=.8320226486
r=.9121527551
█
```

Big Idea:

DIFFERENT TYPES OF REGRESSION

The TI-83 graphing calculator can calculate numerous types of regression equations, but it must be told which type to calculate. All of the calculator procedures described above (for linear regression) are used with the other types of regression. The following screenshots show some of the many regressions that can be calculated on the TI-83 graphing calculator

EDIT  TESTS 1: 1-Var Stats 2: 2-Var Stats 3: Med-Med 4: LinReg(ax+b) 5: QuadReg 6: CubicReg 7: QuartReg	EDIT  TESTS 5: QuadReg 6: CubicReg 7: QuartReg 8: LinReg(a+bx) 9: LnReg 0: ExpReg PwrReg
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L_1	1	2	3	4	5	6
A. L_2	9	14	21	30	41	54

\checkmark \checkmark \checkmark \checkmark \checkmark
 D_1 5 7 9 11 13
 \checkmark \checkmark \checkmark \checkmark
 D_2 2 2 2 2

$D_2 = 2$
 Type: Quadratic
 $y = x^2 + 2x + 6$

```

QuadReg
y=ax2+bx+c
a=1
b=2
c=6
  
```