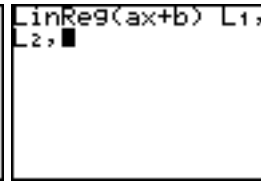
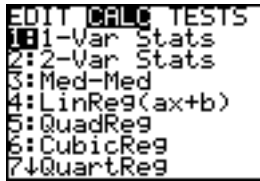
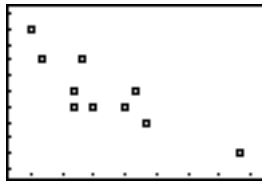
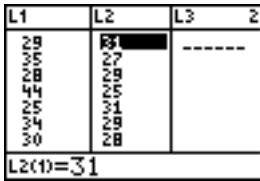


How to Get the Linear Regression Line on the TI-83 Calculator

The accompanying table lists weights (in hundreds of pounds) and highway fuel usage rates (in mpg) for a sample of domestic new cars.

Weight (x)	29	35	28	44	25	34	30	33	28	24
Fuel (y)	31	27	29	25	31	29	28	28	28	33



Input the data: put weight into L1 and Fuel into L2

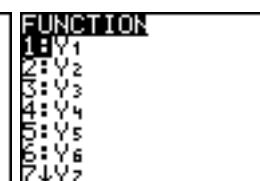
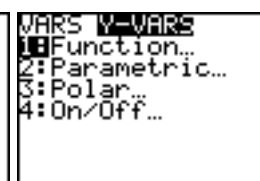
Make a scatter plot to make sure the points are somewhat linear.

Press the **STAT** button and use the **right arrow** key to move over to **CALC**

Choose **4: LinReg(ax+b)**

Optional: Type in the list that your x list is in (**2nd, L1**) and then press the **comma** (above the 7) then put in the list that your y list is in (**2nd, L2**) and the **comma**.

If you used different lists then make sure you use your list not L1 and L2 in the previous step.



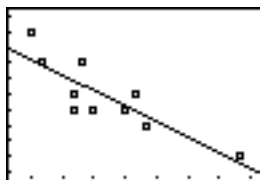
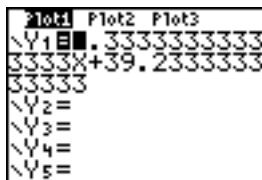
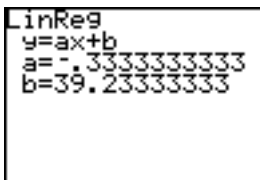
The next steps will store the equation into Y1. You can choose any of the Y's to put the equation into.

Press the **VAR**s button, which is located below the down arrow.

Press the right arrow key to move over to **Y-VARS**. Press **ENTER** or **1** to choose **Function**.

Press the number that corresponds to where you want the equation to be in your $y=$ list. I am going to choose **1:Y1**

Your screen should appear as above. Now press **ENTER**.



Press **Y=** if you want to verify the equation is in Y1.

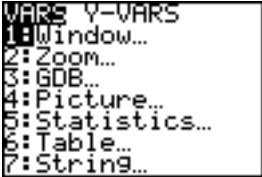
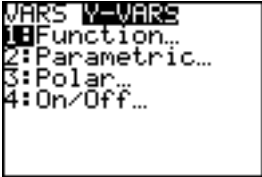
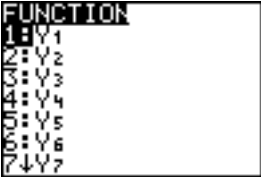
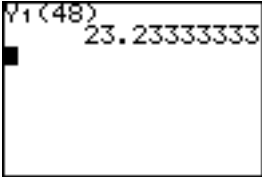
Press **GRAPH** to see the points and line graphed together.

Now that the equation is in Y1 we will answer some questions. For some of the equations there are different methods that will be shown that accomplish the same thing. Remember on a test if it asks for you to solve algebraically you need to show algebra work to get credit. You can use your calculator to check your answers.


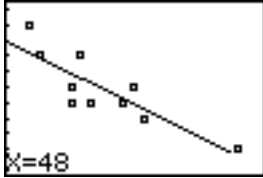
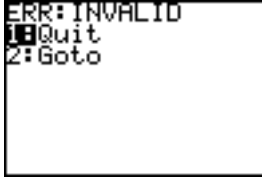
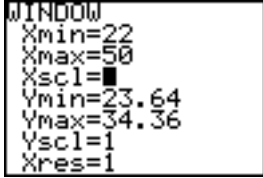
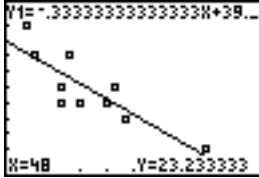
Question: A car weighs 4800 pounds. Use the regression equation to approximate its fuel usage in mpg.

Answer: To solve this question we need to substitute 48 into the equation for x and solve for y . (Remember that the weights are in hundreds of pounds.)

Method 1: Start on the home screen

				A car that weighs 4800 pounds would get about 23 mpg.
Press the VAR S button, which is located below the down arrow.	Press the right arrow key to move over to Y-VARS. Press ENTER or 1 to choose Function.	Press the number that corresponds to where you stored the equation.	Put the value of x (in this case 48) in parenthesis next to the Y1 and press ENTER	

Method 2: Use the graph.

				
Press 2nd , TRACE (CALC) and choose 1:value	Type in 48 and press ENTER	The error message is because 48 is not in between the Xmin and the Xmax.	To fix the error choose 1:Quit and change the WINDOW to include 48, and repeat the process.	A car that weighs 4800 pounds would get about 23 mpg.