

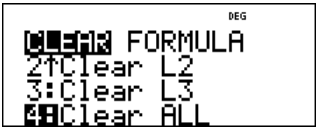
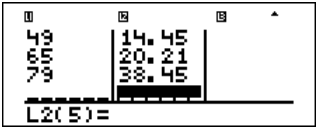




 **Problem**

The table below gives the results of a braking test.

Test No.	1	2	3	4
Speed (kph)	33	49	65	79
Braking distance (m)	5.30	14.45	20.21	38.45

Use the relationship between speed and braking distance to estimate the braking distance required for a vehicle traveling at 55 kph.

A hand-drawn scatter plot of these data points suggest a linear relationship. The calculator uses the least squares method to find the line of best fit, $y=ax'+b$, for data entered in lists.

<p>[data] [data] ⏴ ⏴ ⏴</p>	
<p>[enter] 33 ⏴ 49 ⏴ 65 ⏴ 79 ⏴ ⏵ 5.3 ⏴ 14.45 ⏴ 20.21 ⏴ 38.45 [enter]</p>	
<p>[2nd] [quit] [2nd] [stat-reg/distr]</p>	
<p>3 (Selects 2-Var Stats) ⏴ ⏴ ⏴</p>	
<p>[enter]</p>	
<p>Press ⏴ as necessary to view a and b.</p>	

This line of best fit, $y=0.67732519x'-18.66637321$ models the linear trend of the data.

Press \downarrow until y' is highlighted.	
enter 55) enter	

The linear model gives an estimated braking distance of 18.59 meters for a vehicle traveling at 55 kph.

Regression example 1

Calculate an $ax+b$ linear regression for the following data: $\{1,2,3,4,5\}$; $\{5,8,11,14,17\}$.

Clear all data	data data \downarrow \downarrow \downarrow	
Data	enter 1 \downarrow 2 \downarrow 3 \downarrow 4 \downarrow 5 \downarrow \rightarrow 5 \downarrow 8 \downarrow 11 \downarrow 14 \downarrow 17 enter	
Regression	2nd quit 2nd stat-reg/distr \downarrow \downarrow \downarrow	
	enter	
	\downarrow \downarrow \downarrow \downarrow enter Press \downarrow to examine all the result variables.	

Regression example 2

Calculate the exponential regression for the following data:

L1 = {0, 1, 2, 3, 4}; L2 = {10, 14, 23, 35, 48}

Find the average value of the data in L2.

Compare the exponential regression values to L2.

Clear all data	data data 4	
Data	0 1 2 3 4 10 14 23 35 48 enter	
Regression	2nd [stat-reg/distr] ↑	
Save the regression equation to f(x) in the table menu.	enter ↓ ↓ ↓ ↑ enter	
Regression Equation	enter	
Find the average value (\bar{y}) of the data in L2 using StatVars.	2nd [stat-reg/distr] 1 (Selects StatVars) ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓ ↓	 <p>Notice that the title bar reminds you of your last statistical or regression calculation.</p>
Examine the table of values of the regression equation.	table 2	