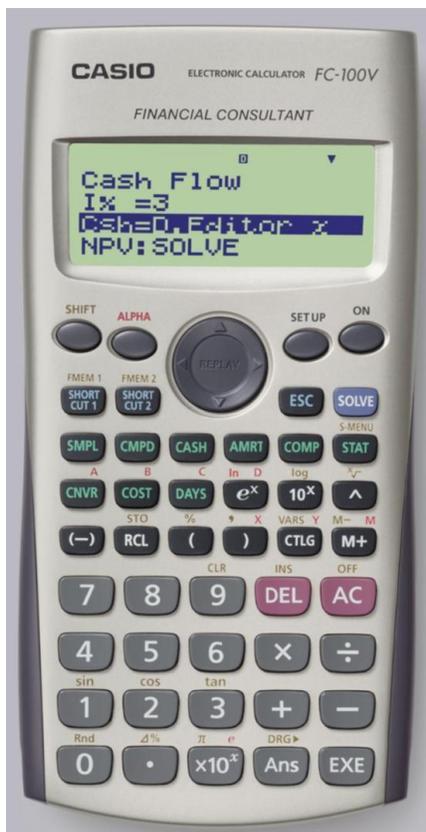


# CASIO<sup>®</sup>

## FINANCIAL CONSULTANT

### FC-100/200V

## Statistical Calculations



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### **NB: Clearing the Calculator Memory**

**It is very important that you remember to clear your calculator's memory every time, before you start entering in new data, to ensure you don't get incorrect results.**

<p>1. Press   (to use the CLR function)</p> <p>2. Scroll down, using the down arrow  on the REPLAY key, to <b>All : EXE</b></p>	
<p>3.  &amp;  to confirm.</p>	
<p>4. </p>	
<p><b>NOTE:</b> It is also possible to clear only the SET UP or Variable (A, B, C, D, X, Y) Memories by selecting the appropriate option: <b>Setup : EXE</b> or <b>Memory : EXE</b> respectively.</p>	

## CALCULATION OF DESCRIPTIVE STATISTICS

### Ungrouped Data – Example 1

The data set below was generated from a sample of 20 call operators in a particular South African company. The number of calls each operator received was recorded over a randomly selected 15 minute period & are shown below:

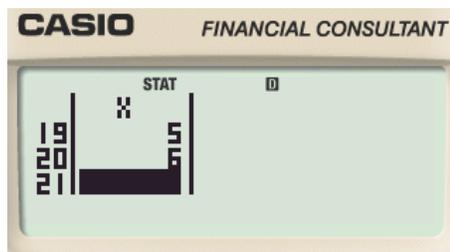
7	8	2	5	7	6	8	7	3	5
6	7	7	10	4	8	9	6	5	6

### Setting the calculator MODE to enter Data:

In order to be able to enter in values of a single random variable, we need to get the calculator into the correct statistical mode:

<p>1. </p> <p>2. Since you want to enter values of a single variable Press  to select <b>1-VAR</b>.</p>	
---	--

Entering Data: Example 1



7 EXE 8 EXE 2 EXE 5 EXE 7 EXE 6 EXE 8 EXE 7 EXE 3 EXE 5 EXE  
6 EXE 7 EXE 7 EXE 1 0 EXE 4 EXE 8 EXE 9 EXE 6 EXE 5 EXE 6 EXE

**NOTE:** The order in which you enter the data values is not important. However, always make sure that you have entered in all the data values.

In Example 1, you know that there are 20 data values.

It is easy to check whether you entered in all the values as the last data item should be alongside the number 20.

In order to check whether you have entered the data correctly,

Scroll up  the list of data entries.

**Should you need to make a change:**

- I. Select the data item you would like to edit
- II. Enter the item's new value

III. Confirm the change using



### Frequency Table Data – Example 2

A survey was taken on Maple Avenue. In each of 20 randomly selected homes, people were asked how many cars were registered to their households. The results were recorded & tabulated in the frequency table below:

Number of cars ( $x$ )	Frequency
0	4
1	6
2	5
3	3
4	2

### Entering Frequency Table Data: Example 2

1. Clear the calculator memory (**page 1**)



2. In order to enter in frequency values, we need to enter into the SET UP menu.



3. Scroll down  to **STAT**



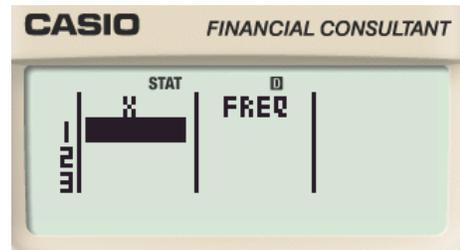
4. If the calculator is set to **Off**:

Press  &  to select **1 : On**.

This will now enable you to enter data values and their frequencies.



5.   to enter values of a single variable.



6. First enter in the actual data values:

7. Then scroll down  & across  to the **FREQ** column to get to the number 1 entry and enter the frequencies:

**NOTE:** In order to enter in **GROUPED DATA**, follow steps 1 to 5.  
Enter the **midpoints (20, 60, 100, 140, 180)** of each interval in the **X** column (step 6)  
& then enter the frequencies for each group (step 7)

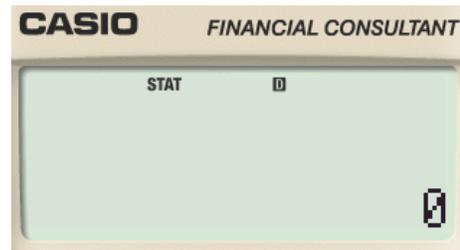
Lawn size ( $m^2$ ), $x$	Frequency
$0 \leq x < 40$	256
$40 \leq x < 80$	212
$80 \leq x < 120$	149
$120 \leq x < 160$	80
$160 \leq x < 200$	58

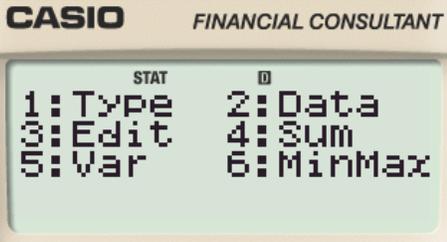
Getting Descriptive Statistics from the Calculator (for all types of data entered):

1. When you have finished entering your Data



**STAT** appears at the top of the screen to indicate that the calculator is still in statistics MODE.



<p>2. To access the menu of descriptive statistics</p>  <p>(to access the S-MENU)</p>	
<p>3.  for the <b>Var</b> sub-menu.</p> <p>1 : number of values in the data set.  2 : sample mean.  3 : <b>POPULATION</b> standard deviation.  4 : <b>SAMPLE</b> standard deviation.</p>	
<p><b>NOTE:</b> It is very important that you distinguish between a sample and a population.</p> <ul style="list-style-type: none"> <li>• If the data set represents a <b>SAMPLE</b> of the population use <b>4</b> to calculate the standard deviation.</li> <li>• If the data set represents the entire <b>POPULATION</b> use <b>3</b> to calculate the standard deviation.</li> </ul>	
<p>4.  for the <b>Sum</b> sub-menu.</p>	
<p>5.  for the <b>MinMax</b> sub-menu.</p>	

## LINEAR REGRESSION CALCULATIONS

### Linear Regression Data – Example 3

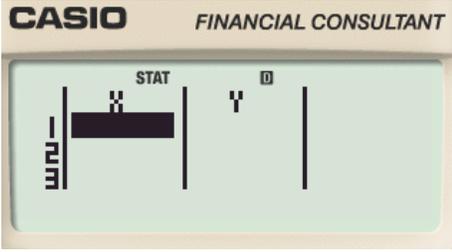
A chemist wants to maximise the copper yield from a particular chemical reaction. She decides to measure the yield (in grams) at various temperatures (°C):

Temperature	150	150	150	200	200	200	250	250	250	300	300	300
Yield	77	77	78	84	85	84	89	89	90	95	95	96

### Entering Data for Paired Variables: Example 3

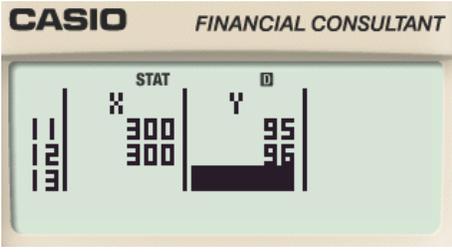
1. Clear the calculator memory (**page 1**)  
*This action will turn the **FREQ** column OFF*



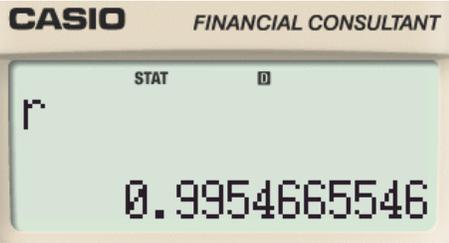
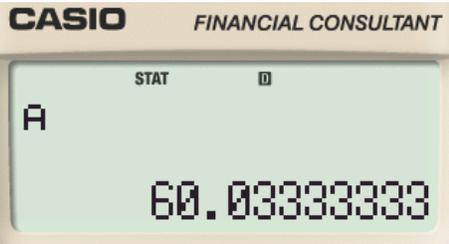
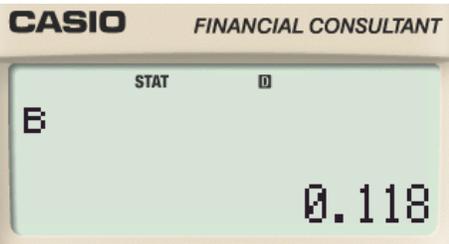
<p>2.  &amp; scroll down  to <b>A+BX</b></p>	
<p>3.  Your screen should have 2 columns, X and Y</p>	
<p>4. First, enter the X values (this case Temperature is the independent variable as we are interested in predicting the Yield given a certain temperature):</p>	

<p>5. Then scroll down  &amp; across  to the Y column and enter the Yield values:</p>
<p>                                         </p>

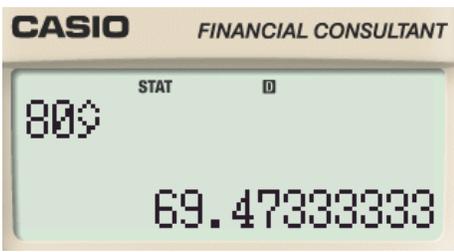
<p><b>NOTE:</b> It is important that you enter the data in the correct matched pairs (i.e. the first X value, 150 should correspond with the first Y value, 77). The order in which the pairs are entered is not important but the <b>order within the pairs is very important.</b></p>	
---	--

<p>Calculation of the correlation coefficient, intercept &amp; slope: Example 3</p>	
<p>1.    </p>	

<p>2.  for the <b>Regression</b> sub-menu.</p>	
<p>3.   will calculate the Correlation coefficient - <b>r</b></p>	
<p>4.        will calculate the Y-intercept value – <b>A</b></p>	
<p>5.        will calculate the Gradient - <b>B</b></p>	
<p>Using the values of <b>A</b> &amp; <b>B</b> you can get the equation of the regression line:  <math display="block">y = 60,033 + 0,118x</math></p>	

<p>To obtain an estimated Yield <math>\hat{y}</math> for a Temperature of 80 °C</p>	
<p>1. Enter the x-value  </p> <p>2.    </p>	

3.

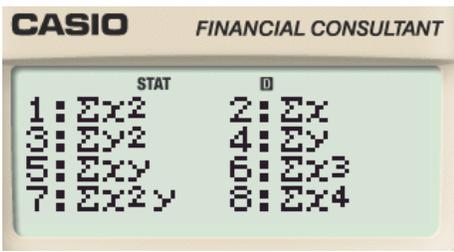


To obtain the sum of the X or Y values

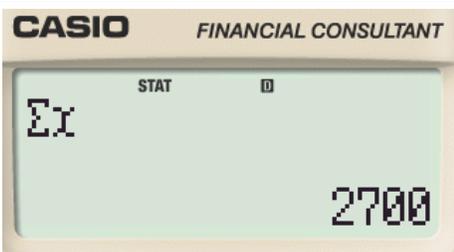
1.



for the **Sum** sub-menu.



2. To calculate the sum of the X data



### STAT Input Precautions

The number of data values you can input depends on

- the type of statistical data you selected &
- the statistical Display setting of the calculator's SET UP screen

Statistical Display \ Statistic Type	OFF (No FREQ column)	ON (FREQ column)
	Single-variable	80 lines
Paired-variable	40 lines	26 lines

To switch the calculator off:

