Finding the Line of Best Fit Using the TI-89

Objective: To draw the scatter diagram for the given data, find the equation of the line of best fit and graph the line of best fit on the scatter diagram.

<table>
<thead>
<tr>
<th>Data</th>
<th>x</th>
<th>3</th>
<th>5</th>
<th>7</th>
<th>9</th>
<th>11</th>
<th>13</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>y</td>
<td>0</td>
<td>2</td>
<td>3</td>
<td>6</td>
<td>9</td>
<td>11</td>
</tr>
</tbody>
</table>

(Clear previously saved functions.)
Create the scatter diagram as explained earlier.

Apps
6: Data/Matrix Editor
3: New
Type: Data
Folder: Folder of your choice (Math)
Variable: Data1
Enter
Enter

Key in data: x values in c1, y values in c2

Set up plot

F2: Plot Setup (Select a plot number that is not in use)
F1: Define
Plot Type: Scatter
Mark: Box (or select your choice of marker)
x: c1 Enter
y: c2 Enter
Freq and Categories: No
Enter
Diamond Graph

Set viewing window if all the marks do not show.

F2: Zoom
9: ZoomData
To find the line of best fit:

Apps
6: Data/Matrix Editor
1: Current
F5 Calc
Calculation Type: Arrow Right then 5: LinReg (that stands for linear regression)
x: c1
y: c2
Store RegEq to . . : Arrow right then select y1(x) (or any other function number)
Enter
Freq and Categories? No
Enter

The calculator gives the equation form and the values for a (slope) and b (y-intercept). In this case a = 1.128571 and b = -3.861905. The corr value tells how closely the line fits the data. The closer the number is to 1, the closer the data fits the equation. The equation of the line is

\[ y = 1.128571 \times x - 3.861905 \]

To graph the line of best fit with the scatter diagram

Enter
Diamond Graph