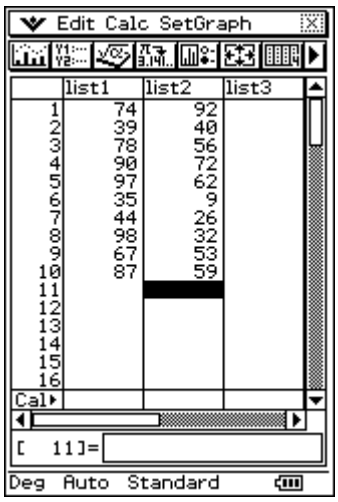
This activity assumes that you already know the steps to calculate a regression line as explained in the Basic level Help Sheet 411.

The data below from (sheet 411) shows the number of births and deaths for ten similar sized suburbs in a city during a one year period.

$$\begin{bmatrix} 74 & 39 & 78 & 90 & 97 & 35 & 44 & 98 & 67 & 87 \\ 92 & 40 & 56 & 72 & 62 & 9 & 26 & 32 & 53 & 59 \end{bmatrix}$$

Enter the data into lists 1 and 2 and check that StatGraph 1 is set to produce a scatter plot.



Tap **Calc**, **Linear Reg**. *

Check the settings are as shown, ensuring that Copy Residual is set to list3.

This will automatically calculate the residuals ($y - \hat{y}$) for each data point and place them in list3.

** Note that the method explained in this help sheet also applies to any other regression model appropriate for the data used.*

Tap **OK** to confirm Set Calculation settings.

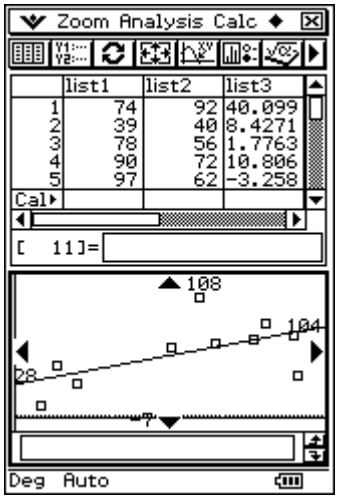
The linear regression coefficients are displayed.

Tap **OK** to close the Stat Calculation window.

The regression line is drawn through the scatter plot in the lower window.

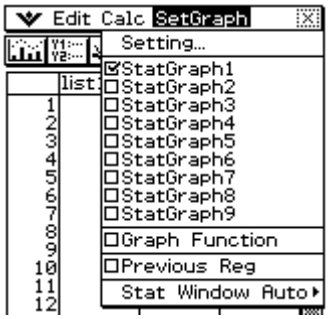
In the upper window the residuals ($y - \hat{y}$) can be seen in list3.

Tap ⊠ in the top right hand corner of the screen to close the graph window.

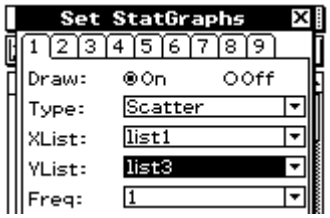


To create a residual plot:

Tap **SetGraph**, un-tick Previous Reg.



Change the settings for StatGraph 1 by selecting list1 and list3 as shown at right.



Tap the DrawGraph icon  .

The residual plot is drawn in the bottom window.