

Linear Regression on the TI-83/84:

First make sure your data points are entered in order in L1 and L2

Press **STAT**, and use the cursor to highlight **CALC**, then press **8:LinReg(a+bx)** then tell the calculator to store the resulting regression equation in Y_1 by pressing **VARS**, **right-arrow** (to select the Y-VARS menu), **ENTER** (for FUNCTION), then **[ENTER]** (for Y_1) and finally press **ENTER** (your screens may look different and the last two lines on the right screen below may not appear).

LinReg(a+bx) Y_1	LinReg $y=a+bx$ $a=-2.720356845$ $b=.4677438152$ $r^2=.9930371328$ $r=.996512485$
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The screen displays the slope b and the y-intercept a of the regression line, and this equation is automatically entered as Y_1 on the **Y=** screen. You can press **GRAPH** to see how well it fits the data (assuming STATPLOT 1 is still displayed and you have a good window chosen). You can access the value of the correlation, r , by pressing **[VARS] [5]** (to access the statistical variables) then scroll to the **[EQ]** menu (press the right arrow key twice) and finally press **[7:r]** and **[ENTER]**. If you'd like your calculator to always display the correlation r (and also r^2) whenever it does a linear regression (like the right screen above), press **[2nd][CATALOG]**, then **[D]** to jump to the commands which begin with the letter **D**, scroll down a few lines to the command **DiagnosticsOn** and press **[ENTER]** (twice). Now r will automatically be displayed whenever you execute a linear regression command. The residuals of the least squares regression line (the values found by subtracting the true y-values from the regression calculated values) will be stored in a list named **RESID** (or perhaps **RESID**), which can be accessed by pressing **[2nd][LIST]** and then scrolling down to the line with **RESID** on it and pressing **[ENTER]**. You can see a residual plot by setting stat-plot 2 as a scatterplot, with **XList = L1** and **YList = RESID**.