

8. TECHNOLOGY CORNER

LEAST-SQUARES REGRESSION LINES ON THE CALCULATOR

TI-Nspire instructions in Appendix B; HP Prime instructions on the book's Web site.

Let's use the Ford F-150 data to show how to find the equation of the least-squares regression line on the TI-89. Here are the data again:

Miles driven	70,583	129,484	29,932	29,953	24,495	75,678	8359	4447
Price (in dollars)	21,994	9500	29,875	41,995	41,995	28,986	31,891	37,991
Miles driven	34,077	58,023	44,447	68,474	144,162	140,776	29,397	131,385
Price (in dollars)	34,995	29,988	22,896	33,961	16,883	20,897	27,495	13,997

1. Enter the miles driven data into L1/list1 and the price data into L2/list2. Then make a scatterplot. Refer to the Technology Corner on page 150.
2. To determine the least-squares regression line:

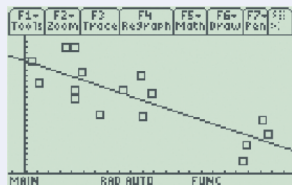
TI-89

- In the Statistics/List Editor, press **F4** (CALC); choose Regressions and then LinReg ($a+bx$).
- Enter list1 for the Xlist, list2 for the Ylist; choose to store the RegEqn to y1(x); and press **ENTER**.



Note: If you do not want to store the equation to Y1, then leave the StoreRegEq prompt blank (OS 2.55 or later) or use the following command (older OS): `LinReg (a+bx) L1, L2`.

3. Graph the regression line. Turn off all other equations in the Y= screen and use ZoomData to add the least-squares line to the scatterplot.



4. Save these lists for later use. On the home screen, use the **[STO▶]** key to help execute the command `list1→MILES: list2→PRICE` on the TI-89.

AP[®] EXAM TIP When displaying the equation of a least-squares regression line, the calculator will report the slope and intercept with much more precision than we need. However, there is no firm rule for how many decimal places to show for answers on the AP[®] exam. Our advice: Decide how much to round based on the context of the problem you are working on.