

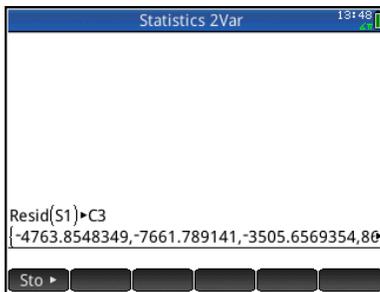


## TECHNOLOGY CORNER

### 9. Residual plots on the HP Prime

Let's continue the analysis of the Ford F-150 miles driven and price data from the previous Technology Corner (page 171). You should have already made a scatterplot, calculated the equation of the least-squares regression line, and graphed the line on your plot. Now, we want to calculate residuals and make a residual plot. We can use the **Statistic 2Var** app function **Resid** to calculate the residuals and store them in a list. The syntax for the **Resid** function is **Resid(Sn)**, where **Sn** is one of the five Symbolic view definitions S1-S5.

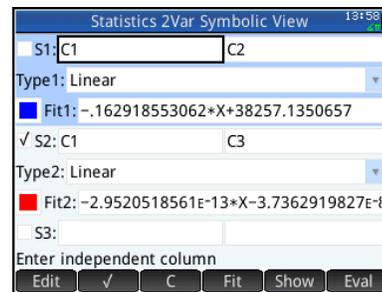
- Calculate the residuals and store them in list C3 of the **Statistics 2Var** app.
  - With H1 defined from the previous Technology Corner, press **H** to go to the Home view. Press **D**, tap **App**, tap **Statistics 2Var**, and select **Resid**. Enter S1 as the argument and tap after the right parenthesis. Tap **Sto** then enter C3 and press **E**.



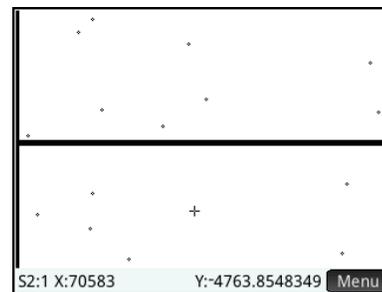
- Tap **M** to see the residuals in list C3 of the **Numeric view**.

	C1	C2	C3	C4
1	70583	21994	-4.763855E3	
2	129484	9500	-7.661789E3	
3	29932	29875	-3.505657E3	
4	29953	41995	8.6177644E3	
5	24495	41995	7.7285549E3	
6	75678	28986	3.0582152E3	
7	8359	31891	-5.004299E3	
8	4447	37991	458.36373E3	
9	34077	34995	2289.6404E3	
10	58023	29988	1.1838881E3	

- Uncheck H1 (select it and tap **✓**). Specify H2 with list C1 as the x-variable and list C3 as the y-variable.



- Press **P** to see the residual plot.



The x axis in the residual plot serves as a reference line: points above this line correspond to positive residuals and points below the line correspond to negative residuals.

- Press **M** to return to the **Numeric view** and tap **Stats**. Tap **Y** to see the sum of the residuals, which is very near zero. The standard deviation of the residuals is shown as well.

Stats		14:07	
X	S2		
$\bar{y}$	-5.625E-8		
$\Sigma Y$	-.0000009		
$\Sigma Y^2$	4.61288E8		
sY	5.54549E3		
$\sigma Y$	5.36940E3		
serrY	1.38637E3		
5545.49371849			
Stats	X	Y*	Size Column OK

Tap **OK** when you are done.