

Investigate The Effect of Outliers on Regression Lines

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Often no matter how hard we try, students, at least mine, do not realize anything about Linear Regression. All they know is it will given then a linear model and they push the button.

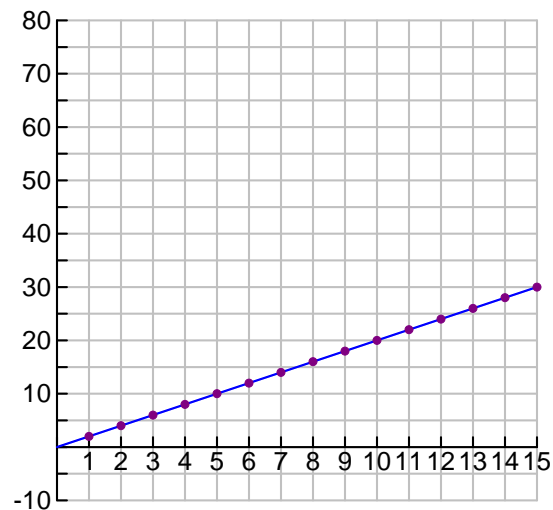
Students might realize there are two different methods given on the calculator to "find that line" but they have no idea why, or what the difference is between the two.

In this activity the student will begin investigating linear regression by looking at the effect of outliers on the regression line. The worksheet is interactive. To start the investigation follow the directions listed below.

- Double click on the stat list.
- Click on **File**
- Click on **Edit Object Within Document**
- Change values in L2 and observe the effect on the regression line. Try points at the ends and points in the middle. What happens when you change an endpoint to an outlier?
- If you get finished and want to investigate the effect of various point changes on the Med-Med line, double click on the graph and click on the box next to the red Y2(x). Close the graph box. Go to **File** to enable **Edit Object Within Document** and investigate the effect of various points changes on the Median-Fit line (red) and how it compares to the Least-Square line (blue).

Tip: You can also press Shift and then double-click to edit the List Editor in place.

L1	L2
1	2
2	4
3	6
4	8
5	10
6	12
7	14
8	16
9	18
10	20
11	22
12	24
13	26
14	28
15	30



Linear Regression (ax+b)

$$f(x) = 2.x + 0.$$