Residual Values (Residuals) in Regression Analysis
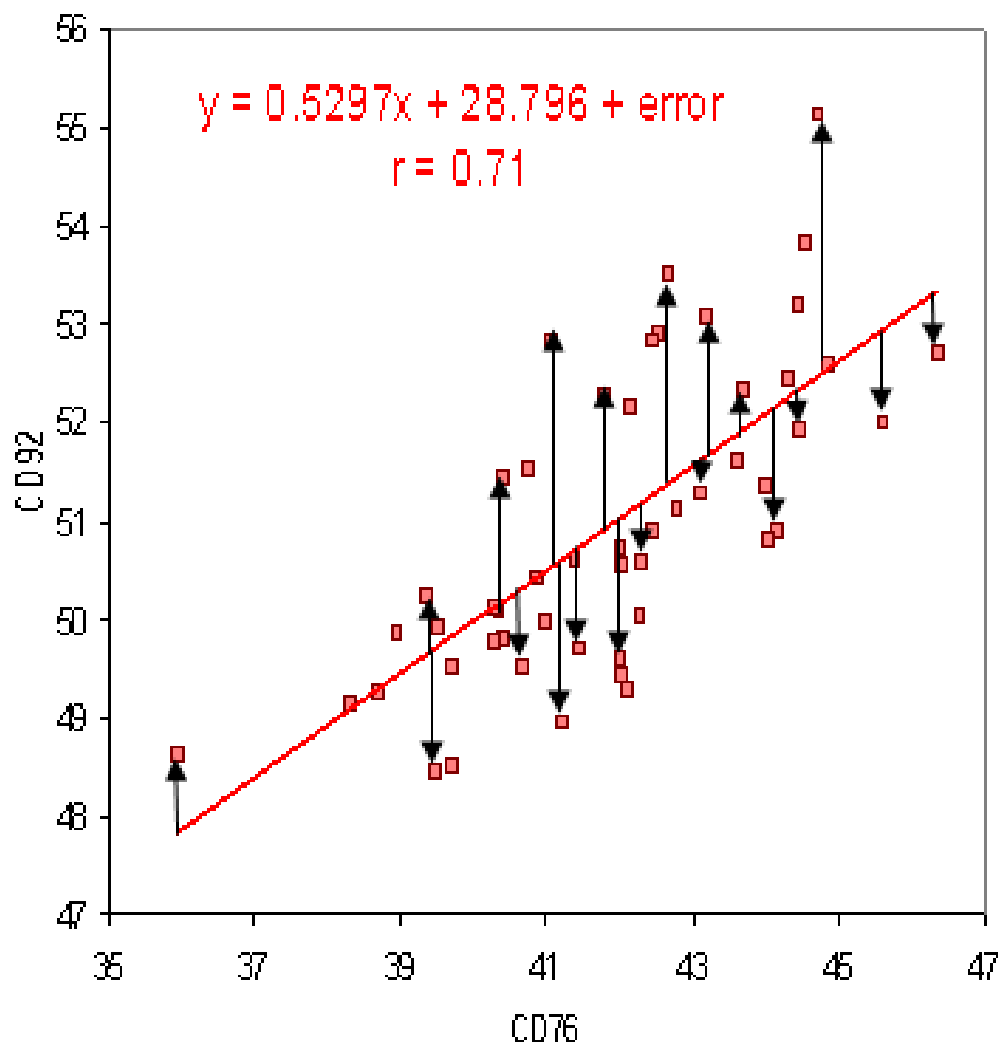
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https://www.statisticshowto.com/residual/

What is a Residual in Regression?

When you perform simple linear regression (or any other type of regression analysis), you get a line of best fit. The data points usually don't fall *exactly* on this regression equation line; they are scattered around. A residual is the vertical distance between a data point and the regression line.

Each data point in a regression has one residual. A residual is positive if is is ABOVE the regression line, and a residual is NEGATIVE if it is BELOW the regression line. If the regression line literally passes through the data point, the residual for that data point is zero.

Residuals on a scatter plot. Image: nws.noaa.gov

Because residuals are the difference between any data point and the regression line, they are sometimes called "errors." Error in this context doesn't mean that there's something wrong with the analysis; it just means that there is some unexplained difference. In other words, the residual is the error that isn't explained by the regression line.