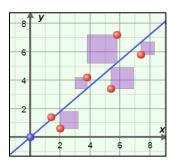


Vocabulary: Least-Squares Best Fit Lines

Vocabulary

- <u>Least-squares best fit line</u> a line that estimates the linear relationship between two variables in a scatter plot.
 - The least-squares best fit line is also called the *least-squares regression line*.
 - The least-squares fit line is the line that minimizes the total sum of the squares of the *residuals*, as shown by the purple squares in the image to the right.



- Outlier a value that is significantly different from the other values in a data set.
 - In a scatter plot with a trend line, the outliers are usually the points farthest from the trend line.
- <u>Residual</u> the difference between an observed value in a data set and its predicted or theoretical value.
 - o In a scatter plot with a trend line, the residual of a point is the vertical difference from the data point to the trend line (the difference between *y*-values).
- Scatter plot a graph of (x, y) points that shows the general relationship between two variables, x and y.
 - Generally, the variable on the horizontal (x) axis is the independent variable, and the variable on the vertical (y) axis is the dependent variable.
- Trend line a line that fits the points in a scatter plot well.
 - The slope of the trend line indicates the type of correlation the variables have.
 - A positive slope indicates a positive correlation, a negative slope indicates a negative correlation, and a slope of zero indicates no correlation.
 - For example, the trend line shown to the right suggests a negative correlation between the variables.

