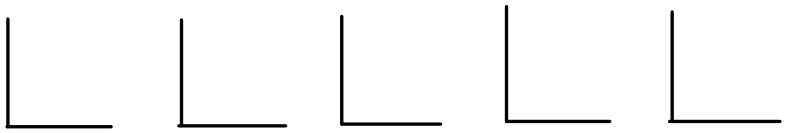
Scatter Plots and Linear Correlation

A scatter plot helps reveal a relationship by showing a general trend in data. The arrangement of points helps determine the type and strength of the relationship.

Based on the arrangement of points, the correlation is classified as positive/negative/non-linear/zero and strong/weak/moderate.



When there appears to be a linear correlation, a line of best fit can be drawn to approximate the trend in the data. The line of best fit is sometimes called the *least squares line* or the *regression line*. The line can be used to make predictions about the relationship.

Example Text Pg. 318 #1

It is important to think logically about the relationship between two variables because a scatter plot may indicate that there is a correlation when, in reality, there is no causal relationship at all. Common sense must prevail. There is a good example of this at the top of Page 405 in your textbook. The graph shows a positive correlation between jersey number and total points but in reality, we know that your jersey number has nothing to do with your ability to score points.

Outlier: a point in a data set that does not follow the trend (skews the line of best fit as well as calculations such as the mean)

Correlation Coefficient, r: a measure of the strength of a linear correlation

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Example Classify the correlation.

a. r = -0.55

b. r = 0.45

c. r = 0.12

d. r = -0.97