Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Positive Correlation Negative Correlation No Correlation

The value of r: The correlation coefficient, r, is a measure of the strength and direction of a linear relationship between two quantities in a set of data.

The magnitude (absolute value) of *r* indicates how closely the data points fit a linear pattern.

If r = 1, the points all fall on a line.

The closer $\left|r\right|$is to 1, the stronger the correlation.

The closer $\left|r\right|$ is to zero, the weaker the correlation.

 The sign of *r* indicates the direction of the relationship – positive or negative.

Example:

Below are season statistics from some of the players on NCSU’s 2012-2013 men’s basketball team.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Minutes Played | 1135 | 1105 | 1189 | 1129 | 944 | 849 | 27 | 423 | 124 |
| Points Per Game | 528 | 445 | 441 | 408 | 425 | 292 | 15 | 118 | 17 |

1. Create a scatter plot of the number of minutes played and the total points per game.
2. What type of function models the data?
3. Make a prediction for the value of r.
4. Describe the strength and direction of the scatterplot from the data above.
5. Find the equation for the function that best describes the data.
6. What is the value of r and what does the value of r tell you about the equation that you found to model your function?
7. What is the meaning of the slope and y-intercept in the context of the problem? Use the model to predict the points per game for a player that plays 100 minutes.

Independent Practice

Below are season rushing statistics from some of Appalachian State University’s 2006 football players.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Carries | 302 | 188 | 61 | 49 | 20 | 10 |
| Yards | 1676 | 1153 | 315 | 159 | 98 | 62 |

1. Create a scatter plot of the number of carries and the number of rushing yards.
2. What type of function models the data?
3. Make a prediction for the value of r.
4. Describe the strength and direction of the scatterplot from the data above.
5. Find the equation for the function that best describes the data.
6. What is the value of r and what does the value of r tell you about the equation that you found to model your function?
7. What is the meaning of the slope and y-intercept in the context of the problem? Use the model to predict the number of rushing yards for a player that has 100 carries.