

Notes 9.1 & 9.2 Correlation & Linear Regression

Correlation

- A correlation is a _____.
- The data can be represented by _____ where x is the _____ or _____ variable, and y is the _____, or _____ variable.
- One way to determine whether a linear correlation exists between two variables is to use a _____.

Example 1:

The number of hours 12 students spent online during the weekend and the scores of each student who took a test the following Monday are given below:

Hours spent online, x	0	1	2	3	3	5	5	5	6	7	7	10
Test score, y	96	85	82	74	95	68	76	84	58	65	75	50

- Sketch a graph of the distribution and then describe the distribution.
- Find the regression line.
- Find the correlation coefficient.
- Use the regression line to predict the test scores given the time online:
 $x = 4$ hours $x = 9$ hours $x = 15$ hours

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Example 2:

The budgets & worldwide grosses of 15 of the most expensive 20th Century Fox Movies are shown.

Budget, x (millions)	200	150	125	125	115	115	115	110	110	110	105	102	100	100	100
Gross, y (millions)	1835.4	459.4	406.4	542.7	924.3	656.7	848.5	571.1	211.4	150.5	348.8	358.8	365.3	359.1	249.0

- Sketch a graph of the distribution and then describe the distribution.
- Find the regression line.
- Find the correlation coefficient.
- Use the regression line to predict the gross amount of money for the given budget:

\$120,000,000

\$93,000,000