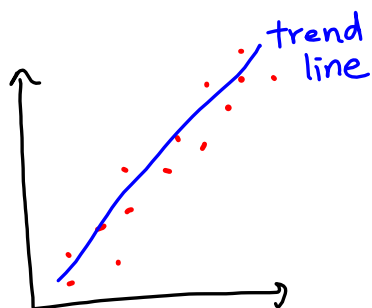


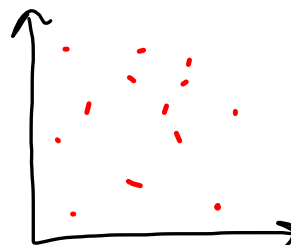
Sec. 5.7 Scatter Plots and Trend Lines



positive correlation



negative correlation



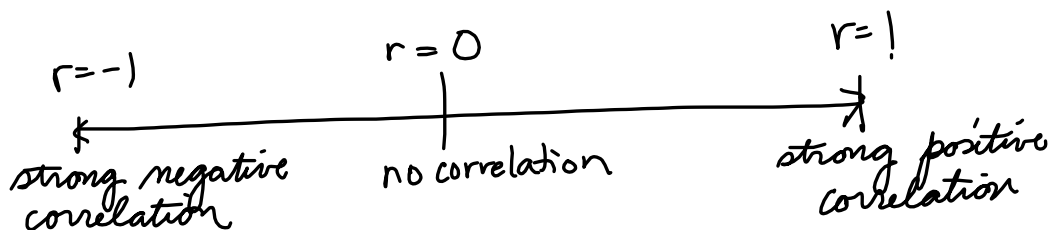
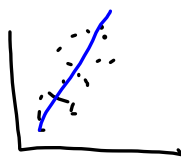
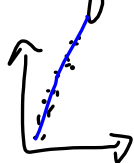
no correlation

Interpolation: estimating a value between two known values

Extrapolation: predicting a value outside the range of known values

Line of best fit: the trend line that shows the relationship between two sets of data most accurately

Correlation coefficient: r , tells how closely the equation models the data



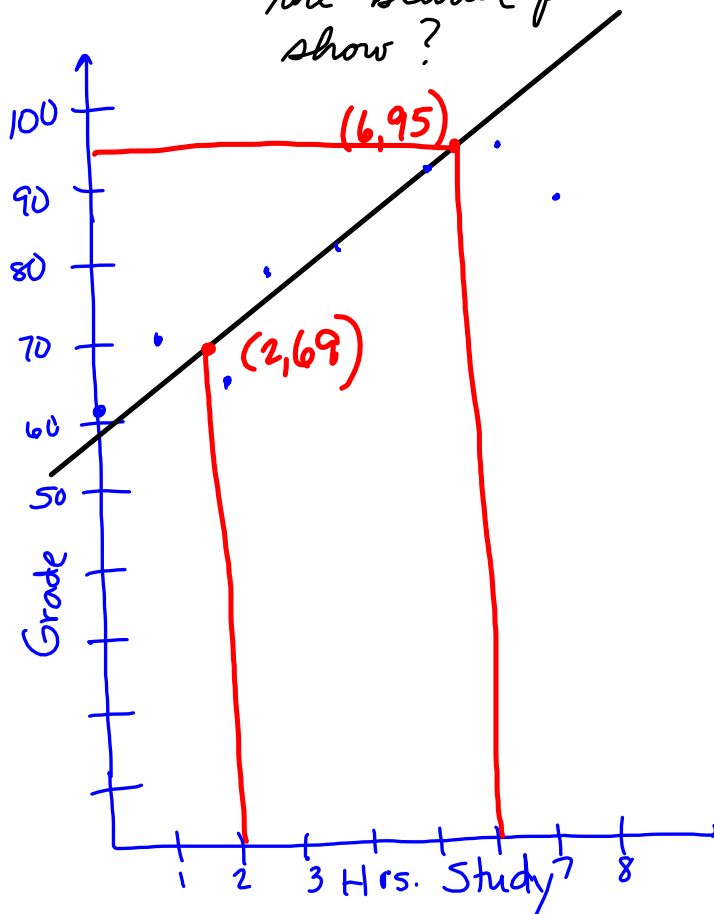
Problem 1:

Study Time vs. Grade

S.T. (hrs)	Grade Earned
7	88
3	79
5	92
1	71
0	62
6	94
4	82
2	65

a. Make a scatter plot of the data

b. What type of relationship does the scatter plot show?



c. Draw a trend line and write its equation.

(2, 69) (6, 95)

$$m = \frac{95 - 69}{6 - 2} = \frac{26}{4} = \frac{13}{2} = \underline{\underline{6.5}}$$

$$y - 69 = 6.5(x - 2)$$

$$y - 69 = 6.5x - 13$$

$$\begin{array}{r} y - 69 = 6.5x - 13 \\ +69 \qquad \qquad +69 \\ \hline \end{array}$$

$$y = 6.5x + 56$$

d. Predict your grade after studying 3 hours.

$$x = 3$$

$$y = 6.5(3) + 56$$

$$y = 19.5 + 56$$

$$y = 75.5$$