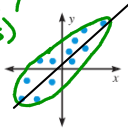


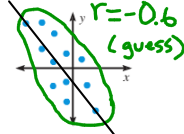
Line of Best Fit

r = Correlation Coefficient

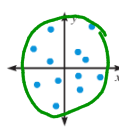
$r \approx 0.7$
(guess)



Positive correlation



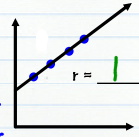
Negative correlation



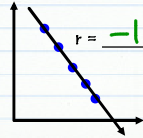
Approximately no correlation

$r \approx 0$
(guess)

Perfect Positive Correlation



$r = 1$

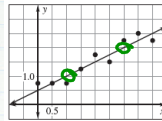


$r = -1$

Perfect Negative Correlation

Approximating a best-fit line on graph paper:

1. Make scatterplot
2. Draw line that comes as close to as many points as possible.
3. Find two points on the line.
4. Use the two points to find an equation for the line.



$(1, 1)$ $(3, 2)$

$$m = \frac{2-1}{3-1} = \frac{1}{2}$$

$$y = \frac{1}{2}x + \frac{1}{2}$$

$$y = mx + b$$

$$2 = \frac{1}{2}(3) + b$$

$$2 = \frac{3}{2} + b$$

$$\frac{1}{2} = b$$

Using a graphing calculator:

1. Input data into L1 and L2. (Press STAT-Edit)
2. Do a linear regression. (Press STAT-Right arrow to CALC-choose 4:LinearRegression)

OIL PRODUCTION The table shows the U.S. daily oil production y (in thousands of barrels) x years after 1994.

x	0	1	2	3	4	5	6	7	8
y	6660	6560	6470	6450	6250	5880	5820	5800	5750

- Approximate the best-fitting line for the data.
- Use your equation from part (a) to predict the daily oil production in 2009.

$x=15$

$$y = -129.83x + 6702$$

b. $y = 4754.6$ thousands of barrels