

Warm-Up:

Given the following points $(-2, 3)$ and $(2, 11)$,
write an equation in slope-intercept form.

$$m = \frac{11 - 3}{2 - (-2)} = \frac{8}{4} = 2$$

$$y = mx + b$$

$$11 = 2(2) + b$$

$$11 = 4 + b$$

$$7 = b$$

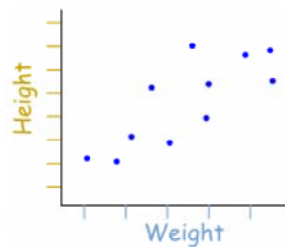
$$y = 2x + 7$$

Scatter Plots and Lines of Best Fit- Notes

pg.22

Definitions

Scatter Plot: A graph of plotted points that show the relationship between two sets of data.



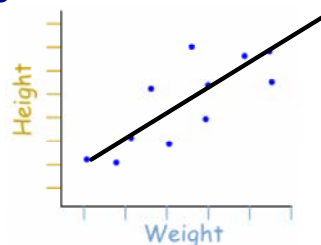
$$3. -35x - 7y = 56$$

$$4. x + 3y = -4$$

pg.22

Correlation: A relationship between two sets of data. It doesn't mean one causes the other.

Line of Best Fit: a line that closely fits the data in a scatter plot

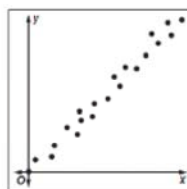


3. $-35x - 7y = 56$

4. $x + 3y = -4$

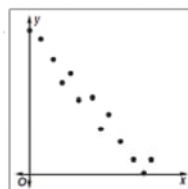
Positive correlation

When one value increases, the other increases.



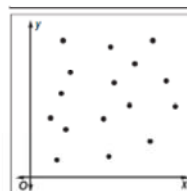
negative correlation

When one value increases, the other decreases.



no correlation

There is no relationship between the data.



pg.23

Think about the following scenarios and decide what type of correlation they are showing.

1. Number of pets a person has and number of books a person has read.

no correlation

2. Test scores vs. shoe sizes.

no correlation

3. Hours studying vs. grades

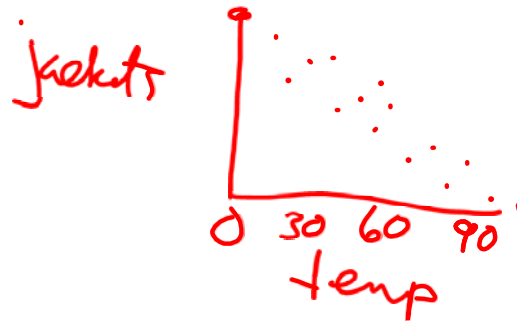
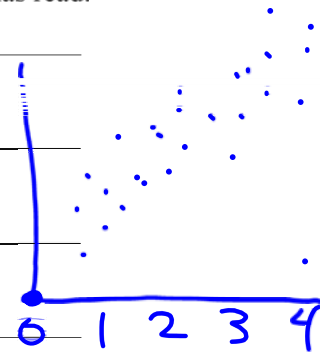
positive

4. Hours in the mall vs. amount of money spent.

positive

5. Temperature and number of people wearing jackets.

negative



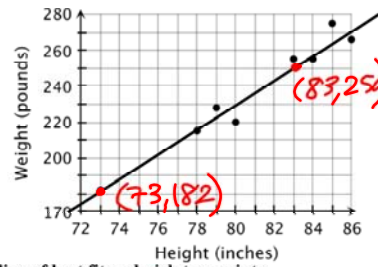
How to write an equation and use it to make predictions from a scatter plot:

- 1.) Draw your line of best fit.
- 2.) Identify 2 points on the line and find the slope
- 3.) Use point-slope [$y - y_1 = m(x - x_1)$] to write an equation for the line
- 4.) Simplify your equation and analyze your results.

The table and graph give the height (in inches) and weight (in pounds) of some of the NBA's greatest players.

Player	Height	Weight
Kareem Abdul-Jabbar	86	266
Larry Bird	80	220
Wilt Chamberlain	85	275
Patrick Ewing	84	255
Magic Johnson	83	255
Michael Jordan	78	215
Scottie Pippen	79	228
Isiah Thomas	73	182

(Source: www.nba.com/history/players/50greatest)



a.) Use the following graph to draw a line of best fit and pick two points.

$$m = \frac{250 - 182}{83 - 73} = \frac{68}{10} = \frac{34}{5}$$

b.) Write an equation for the line

$$y - 182 = \frac{34}{5}(x - 73)$$

c.) Use your equation from part (b) to predict the weight of an NBA player whose height is 71 inches.

$$y - 182 = \frac{34}{5}x - 496.4$$

$$y = \frac{34}{5}x - 314.4$$

$$y = \frac{34}{5}(71) - 314.4$$

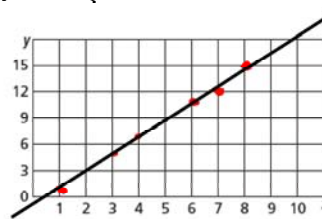
$$y = 168.4$$

$$y = mx + b$$

Extra examples (2.5 Worksheet)

1.

x	y
1	1
3	5
4	7
6	11
7	12
8	15
10	19



$$y = 2x - 1$$

$$m = \frac{11 - 5}{6 - 3} = \frac{6}{3} = 2$$

$$y = 2(10) - 1$$

$$y = 19$$

$$5 = 2(3) + b$$

$$5 = 6 + b$$

$$-1 = b$$