

Do Now

A public opinion survey explored the relationship between age and support for increasing the minimum wage. The results are summarized in the two-way table to the right.

In the 21 to 40 age group, what percentage supports increasing the minimum wage?

- (A) 12.5%
 (B) 20%
 (C) 25%
 (D) 50%
 (E) 75%

$$\boxed{50\%} = \frac{25}{50}$$

	For	Against	No opinion	Total
21 - 40	25	20	5	50
41 - 60	20	35	20	75
Over 60	55	15	5	75
Total	100	70	30	200

May 17-9:44 AM

Bivariate Data Analysis

-Statistical study that data is collected on two variables

-used to establish whether there is a relationship between the two variables

Linear Regression

-Calculating the equation of the line of best fit

Correlation

-a mutual relationship or connection between two or more things.

-interdependence of variable quantities

May 16-7:17 AM

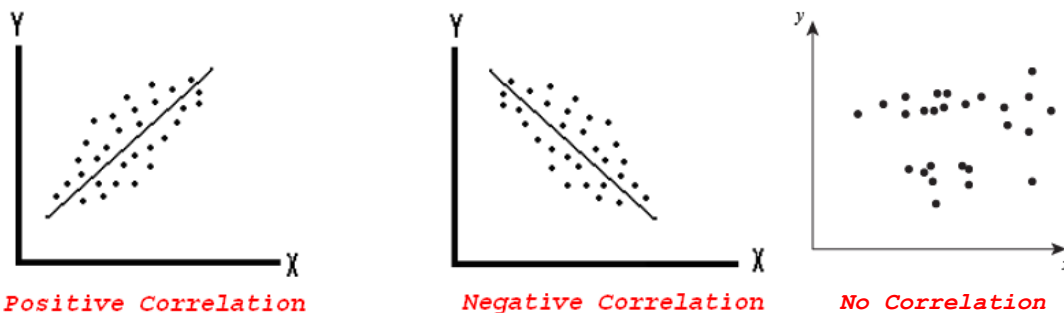
Positive Correlation

-a relationship between two variables in which both variables move in together

-as one variable decreases, the other variable also decreases and vice versa.

Negative Correlation

-an inverse relationship between two variables - when one variable decreases, the other increases.



May 16-7:50 AM

Causal Relationship

-exists when the change in one variable actually causes the change in the other

- if there is a causal relationship then there must be correlation

EX: The amount of rainfall received and the level in the lake

EX: The number of hours worked and how much money is made

Not Causal Relationships

-exists when the change in one variable does not causes the change in the other

EX: The number of storks and birth rate in Denmark

EX: In the start of the 20th century it was noted that there was a strong correlation between 'Number of radios' and 'Number of people in Insane Asylums'

May 16-8:06 AM

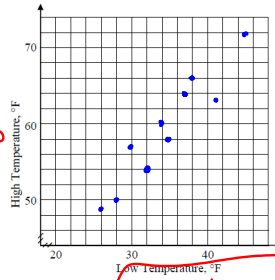
Exercise #1: A survey was taken of 10 low and high temperatures, in Fahrenheit, in the month of April to try to establish a relationship between a day's low temperature and high temperatures.

Low Temperature, x	26	28	30	32	34	35	37	38	41	45
High Temperature, y	49	50	57	54	60	58	64	66	63	72

(a) Construct a scatter plot of this bivariate data set on the grid below.

(b) Enter data into lists (L1 & L2) on your calculator.

(c) Use your calculator to find the equation for the line of best fit. Round the slope of the line to the nearest hundredth and the y-intercept to the nearest integer.



Stat → CALC

Option 4

$y = ax + b$ $a = m = \text{slope}$
 $b = \text{y-intercept}$

$y = 1.16x + 19$

(e) Use your line of best fit to estimate the high temperature for a day in April given that the low temperature was 42 degrees. Illustrate your answer on your graph.

x-value

$y = 1.16(42) + 19$
 $y = 67.72$

(f) Would you characterize the relationship between the low and high temperature as a positive correlation or a negative correlation? Explain.

Your regression line has a positive slope.

Positive correlation

May 15-6:55 AM