

Day 46

Decide whether or not there is a correlation and whether it is a positive or negative correlation. Examine the factors and decide if there is enough evidence to state that there is causation as well.

1. The age of a car and its resale price

Correlation? (yes or no) _____

Positive, negative, not applicable (NA) _____

Causation? (yes or no) _____

2. The number of cavities you have and your math test score

Correlation? (yes or no) _____

Positive, negative, not applicable (NA) _____

Causation? (yes or no) _____

Day 47

Which one is true? How do you know?

- a. Correlation means two phenomena are related.
- b. Correlation indicates the occurrence of causation.
- c. Causation only occurs when the correlation is positive
- d. All of the above.

Day 48

Carbon dioxide levels in the atmosphere are increasing. Fossil fuel use is increasing. Knowing just these two facts and no other information, classify this information as a correlation or causation. Positive or negative?

Day 49

Smoking promotes the formation of lung cancer. Which term is most suitable to explain this?

- a. Negative correlation
- b. Positive correlation
- c. Negative and positive correlation
- d. Causation

Answer Key

Day 46

1. Yes, negative, yes
2. No, NA, no

Day 47

A

Day 48

A positive correlation

Day 49

D

Day 42

What does the correlation coefficient tell you about the relationship between two variables?

Day 43

What is the difference between causation and correlation?

Day 44

For the pairs of variables below, indicate what you would expect for the direction (positive, negative, scattered) and the strength (none, weak, moderate, strong) of the association. Be ready to justify your answer.

- | | |
|--|--------------------|
| a. Height and arm span | Positive, Strong |
| b. Height and shoe size | Positive, Moderate |
| c. Height and GPA | Scattered, None |
| d. SAT score and college GPA | Positive, Moderate |
| e. Latitude and average January temperature of American cities | Negative, Moderate |
| f. Lifespan and weekly cigarette consumption | Negative, Moderate |
| g. Serving size and calories of fast food sandwiches | Positive, Moderate |
| h. Air fare and distance to destination | Positive, Moderate |

Answer Key

Day 41

1. Both .5 and .9 would be positive, but the points with a correlation of .9 would be much closer to the line of best fit.
2. Both +.9 and -.9 would be very close to the line of best fit, but +.9 would have a strong positive trend and -.9 would have a strong negative trend.

Day 42

The measure of the strength and direction of the linear relationship between two variables.

Day 43

A correlation between variables shows that there is a relationship, however, does not automatically mean that the change in one variable is the cause of the change in the values of the other variable. Causation indicates that one event is the result of the occurrence of the other event.

Day 44

These answers will vary depending on the student's background information. The most important part is that they have the positive and negative correct and that they can justify the answers.