

Q1. To calculate the Pearson correlation coefficient between the amount of time students spend studying for an exam and their final exam scores, you'd first need to gather data on these variables for a sample of students. Once you have the data, you can use a statistical software or a calculator to compute the Pearson correlation coefficient, often denoted by the symbol rr .

Interpreting the result:

- If the correlation coefficient is close to 1, it indicates a strong positive linear relationship, meaning that as the amount of time spent studying increases, final exam scores tend to increase as well.
- If the correlation coefficient is close to -1, it indicates a strong negative linear relationship, suggesting that as the amount of time spent studying increases, final exam scores tend to decrease.
- If the correlation coefficient is close to 0, it suggests a weak or no linear relationship between the two variables.

Q2. To calculate Spearman's rank correlation between the amount of sleep individuals get each night and their overall job satisfaction level, you first need to rank the data for each variable and then calculate the correlation. Spearman's rank correlation, denoted by $\rho\rho$, ranges from -1 to 1. A positive value indicates a positive monotonic relationship, while a negative value indicates a negative monotonic relationship.

Interpreting the result:

- A positive Spearman's rank correlation suggests that as the amount of sleep individuals get increases, their overall job satisfaction tends to increase as well.
- A negative Spearman's rank correlation suggests that as the amount of sleep individuals get increases, their overall job satisfaction tends to decrease.
- A value close to 0 indicates a weak or no monotonic relationship between the two variables.

Q3. For this question, you'll calculate both the Pearson correlation coefficient and the Spearman's rank correlation between the number of hours of exercise per week and the body mass index (BMI) for the sample of adults. Then, you'll compare the results to see if they differ.

Q4. Finally, to calculate the Pearson correlation coefficient between the number of hours individuals spend watching television per day and their

level of physical activity, you'll need to gather data on both variables for the sample of 50 participants. Then, you can calculate the correlation coefficient to assess the strength and direction of the linear relationship between the two variables.

Q6.To calculate the Pearson correlation coefficient between the number of sales calls made per day and the number of sales made per week, follow these steps:

1. Gather data on the number of sales calls made per day and the number of sales made per week for each of the 30 sales representatives.
2. Compute the mean (average) of the number of sales calls made per day and the mean of the number of sales made per week.
3. Compute the standard deviation of the number of sales calls made per day and the standard deviation of the number of sales made per week.
4. For each pair of data points (sales calls made per day, sales made per week), calculate the standardized score (z-score) for both variables using the respective means and standard deviations.
5. Multiply the corresponding standardized scores for each pair of data points and sum up these products for all data points.
6. Divide the sum of products by the product of the sample size (30) and the standard deviations of both variables.
7. This result is the Pearson correlation coefficient, denoted by r .

If you have the data, I can help you with the calculations. Otherwise, you can input the data into statistical software or a calculator to obtain the Pearson correlation coefficient