STA 3180 Statistical Modelling: Multivariate Analysis

Extra Practice Problems: Multivariate Analysis

1. What is the correlation between two variables, X and Y?

How to solve: To calculate the correlation between two variables, X and Y, we can use the Pearson correlation coefficient formula. This formula takes the covariance of X and Y divided by the product of the standard deviations of X and Y.

Solution: Correlation(X,Y) = Covariance(X,Y) / (StdDev(X) * StdDev(Y)) [CORRECT]

2. What is the covariance between two variables, X and Y?

How to solve: To calculate the covariance between two variables, X and Y, we can use the covariance formula. This formula takes the sum of the products of the deviations of each variable from their respective means, divided by the number of observations.

Solution: Covariance(X,Y) = (1/n) * Σ(x - x■)(y - y■) [CORRECT]

3. What is the variance of a single variable, X?

How to solve: To calculate the variance of a single variable, X, we can use the variance formula. This formula takes the sum of the squared deviations of each observation from the mean, divided by the number of observations.

Solution: Variance(X) = (1/n) * Σ(x - x■)^2 [CORRECT]

4. What is the standard deviation of a single variable, X?

How to solve: To calculate the standard deviation of a single variable, X, we can use the standard deviation formula. This formula takes the square root of the variance of X.

Solution: StdDev(X) = sqrt(Variance(X)) [CORRECT]