STA 3180 Statistical Modelling: ANOVA

Extra Practice Problems: ANOVA

1. Explain how to calculate the sum of squares for a one-way ANOVA.

Answer: To calculate the sum of squares for a one-way ANOVA, we first need to calculate the mean of each group. Then, we subtract the mean from each observation in the group and square the result. Finally, we sum up all of the squared differences to get the sum of squares.

[CORRECT]

2. Calculate the sum of squares for the following data:

Group A: 2, 4, 6

Group B: 3, 5, 7

Answer:

Group A Mean = (2 + 4 + 6) / 3 = 4
Group B Mean = (3 + 5 + 7) / 3 = 5

Sum of Squares = (2 - 4)^2 + (4 - 4)^2 + (6 - 4)^2 + (3 - 5)^2 + (5 - 5)^2 + (7 - 5)^2

Sum of Squares = 4 + 0 + 4 + 4 + 0 + 4

Sum of Squares = 16

[CORRECT]

3. Explain how to calculate the degrees of freedom for a one-way ANOVA.

Answer: The degrees of freedom for a one-way ANOVA is calculated by subtracting 1 from the total number of groups. For example, if there are 3 groups, the degrees of freedom would be 2 (3 - 1 = 2).

[CORRECT]

4. Calculate the degrees of freedom for the following data:

Group A: 2, 4, 6

Group B: 3, 5, 7

Answer:

The degrees of freedom for this data is 1 (2 - 1 = 1).

[CORRECT]