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Solved Examples on ANOVA

Example 1: Three different kinds of food are tested on three groups of rats for 5 weeks. The objective is to check the difference in mean weight(in grams) of the rats per week. Apply one-way ANOVA using a 0.05 significance level to the following data:

Food I	Food II	Food III
8	4	11
12	5	8
19	4	7
8	6	13
6	9	7
11	7	9

Solution:

$H0: \mu1= \mu2=\mu3$

H1: The means are not equal

Since, $\bar{X}1 = 5$, $\bar{X}2 = 9$, $\bar{X}3 = 10$

Total mean = $\bar{X} = 8$

- *$SSB = 6(5 - 8)2 + 6(9 - 8)2 + 6(10 - 8)2 = 84$*
- *$SSE = 68$*
- *$MSB = SSB/df1 = 42$*
- *$MSE = SSE/df2 = 4.53$*
- *$f = MSB/MSE = 42/4.53 = 9.33$*

Since f > F, the null hypothesis stands rejected.