

$$\begin{aligned}
 1. \quad SSE &= \sum \sum (x_{ij} - \bar{x}_i)^2 = \sum \sum x_{ij}^2 - \sum \frac{(\sum x_{ij})^2}{j_i} \\
 &= 59^2 + 64^2 + 57^2 + 52^2 + 58^2 + 54^2 + 58^2 + 65^2 + 71^2 - \\
 &\quad \left(\frac{(59 + 64 + 57)^2}{3} + \frac{(52 + 58 + 54)^2}{3} + \frac{(58 + 65 + 71)^2}{3} \right) \\
 &= 32440 - 32310.67 \\
 &= \underline{129.33}
 \end{aligned}$$

$$\begin{aligned}
 SST_r &= \sum_i \frac{(\sum x_{ij})^2}{j_i} - \frac{(\sum \sum x_{ij})^2}{n} \\
 &= 32310.67 - 32162.84 \\
 &= \underline{147.83}
 \end{aligned}$$

$$\begin{aligned}
 2. \quad \text{at } \alpha &= 0.05 & df_{Tr} &= 2 & f_{0.05, 2, 6} &= 5.14 \\
 & & df_E &= 6 & &
 \end{aligned}$$

$$MST_r = \frac{SST_r}{2} = 73.915 \quad f = \frac{73.915}{21.56} = 3.43 < 5.14$$

$$MSE = \frac{SSE}{6} = 21.56$$

Do not reject H_0 .

$$3. \quad \mu_b - \mu_c = 10$$

$$CI. = 10 \pm 2.45 \sqrt{21.56 \cdot \frac{2}{3}}$$

$$t_{0.025, 6} = 2.45$$

$$= \underline{(0.71, 19.29)}$$