例 9.10

$H_{00}: \mu_1 = \mu_2 = \mu_3$, $5 = 6+5+6 = 17$

$$SST = \sum_{i=1}^{3}\sum_{j=1}^{n_i} y_{ij}^2 - \frac{T^2}{n} = 39.159 - 33.264 = 5.895$$

$$SSTR = \sum_{i=1}^{k}\left(\frac{T_i^2}{n_i}\right) - \frac{T^2}{n} = 37.873 - 33.264 = 4.609$$

$SSE = SST - SSTR = 1.286$

由變異數分析表可知 $F = 25.05 > F_{0.05}(2,14) = 3.74$

拒絕 H_0，認為三種減肥藥對減重影響中有明顯差異

例 9.12

$m = \binom{3}{2} = 3$, $F_{0.05}(3-1, 17-3) = 3.74$

$$S = \sqrt{MSE} = \sqrt{0.092} = 0.303$$

$$\sqrt{(k-1)F} = \sqrt{(3-1)3.74} = 2.73$$

信賴區間

$\mu_2 - \mu_1$: $(1.53-0.63) \pm 2.73 \times 0.303 \times \sqrt{\frac{1}{6}+\frac{1}{5}} = (0.399, 1.401)$ 不包含 0

$\mu_3 - \mu_2$: $(1.91-1.53) \pm 2.73 \times 0.303 \times \sqrt{\frac{1}{6}+\frac{1}{6}} = (-0.098, 0.858)$ 包含 0.

$\mu_3 - \mu_1$: $(1.91-0.63) \pm 2.73 \times 0.303 \times \sqrt{\frac{1}{6}+\frac{1}{5}} = (0.719, 1.781)$ 不包含 0.