

9.7

$$T_1 = 120 + 180 = 300$$

$$T_2 = 140 + 120 + 130 = 390$$

$$T_3 = 190 + 170 + 210 = 570$$

$$T_4 = 240 + 300 = 540$$

$$T = 300 + 390 + 570 + 540 = \sum_{i=1}^4 \sum_{j=1}^3 y_{ij} = 1800$$

$$\sum_{i=1}^4 \sum_{j=1}^3 y_{ij}^2 = 120^2 + 180^2 + 140^2 + \dots + 240^2 + 300^2 = 354,400$$

$$SST = 354,400 - \frac{(1800)^2}{10} = 30400$$

$$SSTR = \frac{(300)^2}{3} + \frac{(390)^2}{3} + \frac{(570)^2}{3} + \frac{(540)^2}{2} - \frac{(1800)^2}{10} = 25800$$

$$SSE = SST - SSTR = 30400 - 25800 = 4600$$

變異來源	平方和	自由度	均方
處理	$SSTR = 25800$	$4-1=3$	$MSTR = \frac{25800}{3}$
隨機誤差	$SSE = 4600$	$10-4=6$	$MSE = \frac{4600}{6}$
總和	$SST = 30400$	$10-1=9$	