9.7

$T_1 = 120 + 180 = 300$

$T_2 = 140 + 120 + 130 = 390$

$T_3 = 190 + 170 + 210 = 570$

$T_4 = 240 + 300 = 540$

$T = 300 + 390 + 570 + 540$

$\quad = \sum_{i=1}^{K} \sum_{j=1}^{n_i} y_{ij} = 1800$

$\sum_{i=1}^{4} \sum_{j=1}^{n_i} y_{ij}^2 = 120^2 + 180^2 + 140^2 \cdots + 300^2 = 354400$

$STT = 354400 - \frac{(1800)^2}{10} = 30400$

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

$\quad - \frac{(1800)^2}{10} = 25800$

$SSE = SST - SSTR = 30400 - 25800$

$\quad\quad = 4600$

9.8

$H_0 : \alpha_1 = \alpha_2 = \alpha_3 = \alpha_4$

F檢定變異教分析表

變異來源	平方和	自由度	均方	F值
包裝材料 & 隨机設差	$SSTR = 25800$	$4-1 = 3$	$MSTR = \frac{25800}{3} = 8600$	$\frac{8600}{767}$
	$SSE = 4600$	$9-3 = 6$	$MSE = \frac{4600}{6} = 767$	$= 11.2$
總和	$SST = 30400$	$10-1 = 9$		

$\because F = 11.2 > F_{0.05}(3, 6)$

$\therefore$ 棄卻 H_0。包裝對食品銷售量有顯著差異。