



week 14

$$(A) MR_A = MC \cdot 160 - 2Q_A = 20 \Rightarrow Q_A = 40 \Rightarrow P_A = 60$$

$$MR_B = MC \cdot 80 - 2Q_B = 20 \Rightarrow Q_B = 30 \Rightarrow P_B = 50, TC = 60 \times 40 + 50 \times 30 - 20 \times (40 + 30) \\ = 2500 = PS, CS = CSA + CSB = 800 + 450 = 1250, TS = CS + PS = 3750 \text{ 元}$$

B/ 先将需求水平相加 = (统一定價)

$$\begin{cases} P = 100 - Q, & Q \leq 20 \\ = 90 - 0.5Q, & Q > 20 \end{cases} \Rightarrow \begin{cases} MR_1 = 160 - 2Q, & Q \leq 20 \\ MR_2 = 20 - Q, & Q > 20 \end{cases}$$

$$\text{令 } MR_1 = MC \Rightarrow 160 - 2Q = 20 \Rightarrow Q = 40 \text{ (不合)}, \pi_1 = 55 \times 10 - 20 \times 10 = 2450 = PS$$

$$\text{解 } MR_2 = MC \Rightarrow 90 - Q = 20 \Rightarrow Q = 70 \text{ (合)} \Rightarrow P = 55$$

$$CS = CSA + CSB = 1012.5 + 312.5 = 1325, TS = 3712.5 \text{ 元}$$

$$(C) F = (80 - P) \times Q/2 = (80 - P) \frac{(80 - P)}{2} = \frac{(80 - P)^2}{2}$$

$$\pi = 2F + (P - 20)(Q_A + Q_B) = (80 - P)^2 + (P - 20)(180 - 2P) = P^2 + 60P + 2800$$

$$\text{由一階條件解} = P = 30, \text{ 故 } F = 1250, Q = 120, \pi = 3700$$

$$CS = CSA(P = 30) + CSB(P = 30) - 2F = 2450 + 1250 - 2500 = 1200$$

$$TS = CS + PS = 1200 + 3700 = 4900.$$