Week 14

3.

(A) $MR_A = MC = 100 - 2q_A = 20$ $\begin{cases} q_A = 40 \\ p_A = 60 \end{cases}$

$MR_B = MC = 80 - 2q_B = 20$ $\begin{cases} q_B = 30 \\ p_B = 50 \end{cases}$

(B) $\begin{cases} p = 100 - q & q \le 20 \\ = 90 - 0.5q & q > 20 \end{cases} \Rightarrow \begin{cases} MR_1 = 100 - 2q & q \le 20 \\ MR_2 = 90 - q & q > 20 \end{cases}$

令 $MR_1 = MC \Rightarrow 100 - 2q = 20 \Rightarrow q = 40$ (不合)

$MR_2 = MC \Rightarrow 90 - q = 20 \Rightarrow q = 70$ (合) $p = 55$

$\Rightarrow TU_2 = 55 \times 70 - 20 \times 70 = 2450 = PS$

$CS = CS_A + CS_B = 1012.5 + 312.5 = 1325$

$TS = 3775$

(C) $T = \frac{(80-p) \times q}{2} = (80-p)(80-p)/2 = (80-p)^2/2$

$TU = 2T + (p-20)(q_A + q_B) = (80-p)^2 + (p-20)(180-2p)$

$= -p^2 + 60p + 2800$

由一階條件可解，$p = 30$ $T = 125$ $q = 120$ $TU = 3700$

$CS = 2450 + 1250 - 2500 = 1200$

$TS = 1200 + 3700 = 4900$

No.

Date