

5/19. 隨堂練習.

5. $P = 100 - Q^*$, $C = 30 + 20Q^*$

(A) 均衡價格, 產量, 利潤:

$$\text{Max } \pi = TR - TC$$

$$MR = MC$$

$$TR = P \cdot Q = (100 - Q) \cdot Q = 100Q - Q^2$$

$$MR = \frac{dTR}{dQ} = 100 - 2Q$$

$$TC = 30 + 20Q$$

$$MC = 20$$

$$MR = MC$$

$$100 - 2Q = 20$$

$$Q^* = 40$$

$$P^* = 100 - 40 = 60$$

$$\pi^* = P(Q) \cdot Q - TC$$

$$= (40 \times 60) - (30 + 20 \times 40)$$

$$= 1570$$

$$P^* = 60, Q^* = 40, \pi^* = 1570$$

(D) $MR = MC + 10$

$$100 - 2Q = 20 + 10$$

$$Q^* = 35$$

$$P^* = 65$$

$$\pi^* = (35 \times 65) - (30 + 20 \times 35)$$

$$= 2275 - 730$$

$$= 1545$$

(E) $MR = (1 + 10\%)MC$

$$\Rightarrow (1 + 10\%)MR = MC$$

$$100 - 2Q = 0.9 \times 20$$

$$Q^* = 41$$

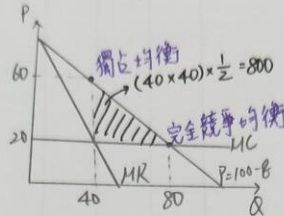
$$P^* = 59$$

$$\pi^* = (41 \times 59) - (30 + 20 \times 41)$$

$$= 2419 - 850$$

$$= 1569$$

(B) 無謂損失?



(C) 獨占力.

$$L = \frac{P - MC}{P}$$

$$= \frac{60 - 20}{60} = \frac{2}{3}$$

(F)

定額稅不影響MC

(G) $\text{Max } \pi^* = (1 - 20\%) \pi$

$$= (1 - 20\%) (TR - TC)$$

$$\Rightarrow 0.8MR = 0.8MC$$

$$\Rightarrow MR = MC$$

(H) $P = MC$

$$100 - Q = 20, Q^* = 80, P^* = 20$$

$$\Rightarrow \text{故虧損} = (80 \times 20) - (30 + 20 \times 80)$$

$$= -30$$

$$\Rightarrow \text{無謂損失} = 0$$

$$3. P = 280 - Q, TC_A = 2Q_A^2, TC_B = 4Q_B^2$$

$$\text{Max } \pi = TR - TC$$

$$= PQ - TC_A - TC_B$$

$$= (280 - Q_A - Q_B)(Q_A + Q_B) - 2Q_A^2 - 4Q_B^2$$

$$MR = 280 - 2(Q_A + Q_B)$$

$$= 280 - 2Q_A - 2Q_B$$

$$MC_A = MC_B = MR$$

$$4Q_A = 8Q_B = 280 - (2Q_A + 2Q_B)$$

$$\begin{cases} 6Q_A + 2Q_B = 280 \\ 2Q_A + 10Q_B = 280 \end{cases}$$

$$28Q_B = 560$$

$$Q_B = 20$$

$$Q_A = 40$$

$$P = 280 - 20 - 40 = 220$$