

5. 獨占廠商在均衡下, 價格是MC的9倍, 求利潤率

$$MR = P \left(1 - \frac{1}{\epsilon_d}\right)$$

$$\Rightarrow MR = \frac{MC}{4} \left(1 - \frac{1}{\epsilon_d}\right) \Rightarrow \text{已知條件}$$

$$\Rightarrow MC = 4MC \left(1 - \frac{1}{\epsilon_d}\right) \Rightarrow \text{均衡條件}$$

$$\text{除MC} \quad 1 = 4 \left(1 - \frac{1}{\epsilon_d}\right) \Rightarrow \epsilon_d = \frac{4}{3}$$

6. Demand function is tangent line, $LMC=k$, 課徵從量稅 t , 消費者所面對的

價格會因此上漲 $\frac{t}{2}$ 元, True or False

設 $P = a - bQ$, 則 $MR = a - 2bQ$, πMax 的條件為: $MR = MC + t \Rightarrow a - 2bQ = k + t$

$$\Rightarrow Q^* = \frac{a - (k+t)}{2b}$$

$$P^* = a - bQ = a - \frac{a - (k+t)}{2} = \frac{a + (k+t)}{2}$$

$$\text{當 } t=0, \text{ 均衡: } P_0 = \frac{a+k}{2}, P^* - P_0 = \Delta P = \frac{t}{2}$$

7. 設 monopoly Demand function 為 $P = 280 - Q$, 而有 A, B 2 個工廠, 來生產產品,

兩工廠成本函數 $TC_A = 2Q_A^2$, $TC_B = 4Q_B^2$, 求均衡下的價格, Q_A, Q_B ?

$$\text{註: } MC_A = 4Q_A, MC_B = 8Q_B$$

$$MC_A = MC_B = MR \Rightarrow 4Q_A = 8Q_B = 280 - 2Q_A - 2Q_B$$

$$\begin{cases} 4Q_A = 8Q_B \\ \Rightarrow Q_A = 2Q_B \end{cases}$$

$$\Rightarrow Q_A = 140 - Q_B$$

$$2Q_A = 280 - 2Q_B$$

$$6Q_B = 280 - 2Q_A$$

$$\Rightarrow Q_A = 140 - 3Q_B$$

$$8Q_B = 280 - (280)$$

$$8Q_B = 280 - 4Q_B - 2Q_B$$

$$Q_B = 20, Q_A = 40$$

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

$$= 280 - (40 + 20)$$

$$= 280 - (40 + 20) = 220 \text{ 元}$$

monopoly
 4. 需求函数 $p=100-q$, $C=30+20q$
 (A) 均衡价格, 产量及利润?

$$MR = 100 - 2q$$

$$MC = 20$$

$$MR = MC = 100 - 2q = 20 \Rightarrow q^* = 40$$

$$p^* = 60$$

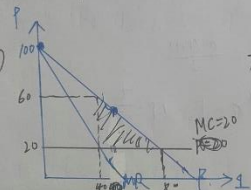
$$\pi = p \cdot q - (30 + 20 \times 40)$$

$$= (40 \times 60) - (30 + 20 \times 40) = 1570$$

(B) 消费者剩余 DWL

$$DWL = \frac{1}{2} (40 \times 40)$$

$$= 800$$



(F) 课以 1000 元的定额税, 求均衡价格, 产量, 利润?

$$q^* = 60$$

$$p^* = 60$$

$$\pi = 1570 - 1000 = 570$$

(G) 若对厂商课以 20% 的利润税, 求均衡价格, 产量, 利润?

$$(1 - 20\%) MR = MC$$

$$\Rightarrow 0.8 \times (100 - 2q) = 20$$

$$\Rightarrow 80 - 1.6q = 20 \Rightarrow 1.6q = 60 \Rightarrow q = 37.5$$

$$\pi = 0.8 \pi_{\text{前}} = 0.8 \times 1570$$

$$= 1256$$

(H) 按 MC 定价, 会有多少 DWL? 厂商会有多少损失?

$$p = MC \Rightarrow 100 - 2q = 20 \Rightarrow q^* = 80, p^* = 20$$

$$\text{厂商损失} = (80 \times 20) - (30 + 20 \times 80) = -30$$

$$DWL = 0$$

$$\text{福利} = \frac{p - MC}{p} = \frac{60 - 20}{60} = \frac{2}{3}$$

(D) 若每单位课以 10 元的从量税, 求均衡价格, 产量, 利润?

$$MR = MC + 10 \Rightarrow 100 - 2q = 30$$

$$\Rightarrow q^* = 35, p^* = 65$$

$$\pi = (65 \times 35) - (30 + 20 \times 35) - (10 \times 35) = 1195$$

(E) 若课以 10% 的价税率, 求均衡价格, 产量, 利润?

$$(1 - 10\%) MR = 0.9 MR = MC$$

$$\Rightarrow 0.9 (100 - 2q) = 20 \Rightarrow 90 - 1.8q = 20$$

$$\Rightarrow q^* = \frac{70}{1.8} = \frac{350}{9}$$

$$p^* = 100 - 2q = 100 - \frac{700}{9} = \frac{910}{9}$$

$$\pi = \left(\frac{910}{9} \times \frac{350}{9} \right) - (30 + 20 \times \frac{350}{9}) = 1331$$