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4. 獨占廠商面臨的需求函數  $P = 100 - Q$   
成本函數  $C = 30 + 20Q$

(A) 均衡價格、產量、利潤為多少?

$$TR = (100 - Q)Q = 100Q - Q^2$$

$$MR = 100 - 2Q$$

$$MC = 20$$

$$\Rightarrow 100 - 2Q = 20, Q = 40, P = 60$$

$$\pi = 2400 - 800 = 1600$$

(B) 無謂損失為多少?

$$\frac{40 \times 40}{2} = 800$$

(C) 獨占力?

$$\frac{P - MC}{P} = \frac{60 - 20}{60} = 0.67$$

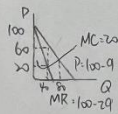
(D) 每單位課以 10 元之從量稅，求稅後  $P, Q, \pi$

$$\pi = 100 - Q^2 - (30 + 20Q) - 10Q$$

$$= -Q^2 + 70Q - 30$$

$$\text{產量} = \frac{d\pi}{dQ} = -2Q + 70 = 0 \quad Q = 35, P = 65$$

$$\pi = 2275 - 1225 = 1050$$



(E) 課 10% 從價稅，求稅後  $P, Q, \pi$

$$\pi = -Q^2 + 70Q - 30 - 0.1(100Q - Q^2)$$

$$= -Q^2 + 70Q - 30 - 10Q + 0.1Q^2$$

$$= -0.9Q^2 + 60Q - 30$$

$$\text{產量} = -1.8Q + 60 = 0 \quad Q = 33.33, P = 66.67$$

$$\pi = 2222 - 696.6 = 1525.4$$

(F) 課 100 元的定額稅，求稅後  $P, Q, \pi$

價格、產量不影響

$$\pi = 1570 - 100 = 1470$$

(G) 課 20% 利潤稅，求稅後  $P, Q, \pi$

價格、產量不影響

$$\pi = 1570(1 - 0.2) = 1256$$

(H) 按 MC 訂價，廠商會有多少損失?

無謂損失為多少?

$$P = MC \quad 100 - Q = 20 \Rightarrow Q = 80, P = 20$$

$$\pi = 1600 - 1600 = 0$$

5. 設獨占廠商均衡下， $P$  是  $MC$  的 4 倍，求均衡時之需求彈性

$$P = 4MC$$

$$\frac{P - MC}{P} = \frac{1}{\epsilon} \Rightarrow \frac{4MC - MC}{4MC} = \frac{1}{\epsilon} \Rightarrow \frac{3}{4} = \frac{1}{\epsilon}$$

$$\epsilon = 4, \epsilon = \frac{4}{3}$$

6. 若需求函數為線性， $LMC = k$  則課徵從量稅七元，消費者面對的價格會因此上漲  $\frac{1}{2}$  元。對 or 錯

7. 需求函數  $P = 280 - Q$ ,  $TC_A = 29Q^2$ ,  $TC_B = 49Q^2$ ，求均衡下的  $P, Q$

$$TR = 280Q - Q^2, MR = 280 - 2Q, MC_A = 49Q, MC_B = 89Q$$

$$280 - 2Q = 49Q$$

$$Q_A = 46.67$$

$$P = 233.33$$

$$280 - 2Q = 89Q$$

$$Q_B = 28$$

$$P = 252$$