

例 ① $D: P = 120 - Q$, $TC_A = 2Q_A^2$, $TC_B = 4Q_B^2$

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

$TR = 120Q - Q^2 = (120 - Q_A - Q_B)(Q_A + Q_B)$

$MR = MCA$

$120 - 2(Q_A + Q_B) = 4Q_A$

$MR = MC_B$

$120 - 2(Q_A + Q_B) = 8Q_B$

$\Rightarrow Q_A^* = 40, Q_B^* = 20 \#$
 $P = 220 \#$

例 ② $D: P = 120 - Q$, $TC = 2Q^2$

(A) P^*, Q^*, π^*, Ed, L

$TR = P \times Q$

$= 120Q - Q^2$

$MR = 120 - 2Q \Rightarrow Q^* = 20 \#$

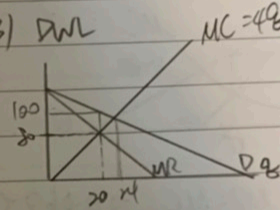
$MC = 4Q \Rightarrow P^* = 100 \#$

$\pi^* = 2400 - 400 - 800 = 1200 \#$

$L = \frac{P - MC}{P} = \frac{100 - 80}{100} = \frac{1}{5} \#$

$Ed = \frac{1}{L} = 5 \#$

(B) DWL



$DWL = \frac{20 \times 4}{2} = 40 \#$

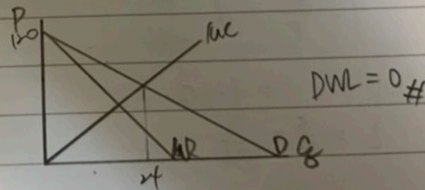
(C) MC 訂正 P^*, Q^*, π^*, DWL

$P = MC$ [完全競争]

$120 - Q = 4Q \Rightarrow Q^* = 24 \#$

$P^* = 96 \#$

$\pi^* = 96 \times 24 - 2 \times 24^2 = 1152 \#$



$DWL = 0 \#$

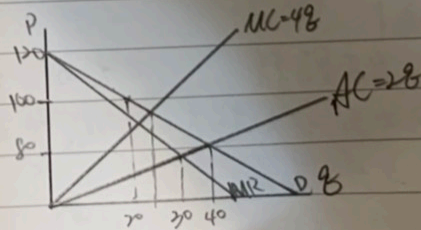
(D) AC 訂正 P^*, Q^*, π^*, DWL

$P = AC$

$120 - Q = 2Q \Rightarrow Q^* = 40 \#$

$P^* = 80 \#$

$\pi^* = 40 \times 80 - 2 \times 40^2 = 0 \#$



$DWL = \frac{120 \times 24}{2} - \frac{40 \times 40}{2} = 640 \#$

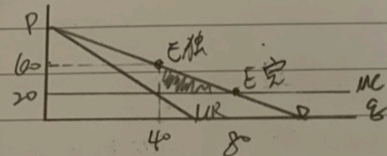
$$P = 100 - Q \quad C = 30 + 20Q$$

A) P^*, Q^*, π^* # $\text{Max } \pi = TR - TC$

$$TR = PQ = 100Q - Q^2$$

$$\begin{cases} MR = 100 - 2Q \\ MC = 20 \end{cases} \Rightarrow Q^* = 40, P^* = 60$$

B) 独占造成 DWL



$$DWL = \frac{1}{2} (40 \times 40) = 800 \text{ #}$$

C) Lerner Index 独占力

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

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

D) 政府課 10 元從量稅 P^*, Q^*, π^*

$$MR = MC + 10 \Rightarrow Q^* = 35, P^* = 65$$

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

E) 課 10% 從價稅 P^*, Q^*, π^*

$$(1 - 10\%) MR = MC \Leftrightarrow MR = (1 + 10\%) MC \Rightarrow P^* = \frac{350}{9}$$

$$\pi^* = \left(\frac{350}{9} \times \frac{60}{9} \times 0.9 \right) - [30 + 20 \times \frac{200}{9}] = 1720 \quad Q^* = \frac{650}{9}$$

F) 課 1000 定額稅 P^*, Q^*, π^*

定額稅對 MR, MC 無影響

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

G) 課 20% 利潤稅 P^*, Q^*, π^*

利潤稅對 MR, MC 無影響, 對 π 有影響

$$Q^* = 40, P^* = 60$$

$$\pi^* = 1570 \times 0.8 = 1256 \text{ #}$$

H) 以完競定價, 損失? DWL?

$$P = MC = 20 \Rightarrow Q^* = 80, P^* = 20$$

$$\pi^* = -30, DWL = 0$$