PRACTICO 5 - Ejercicios monopolio

18.1

$Q = 53 - P$

$CMe = CMg = 5$

a) $\max_{\{Q\}} (53-Q)Q - 5Q$

CPO: $53 - 2Q = 5$

$\boxed{Q = 24}$

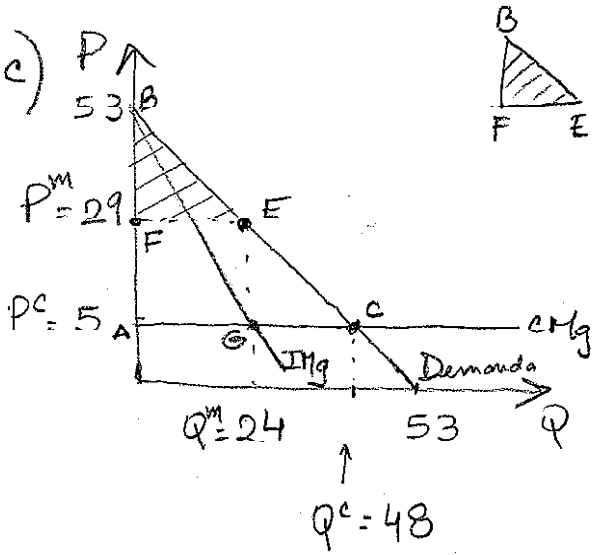
$\boxed{P = 29}$

$\Pi = 24 \times (29 - 5) = 576$

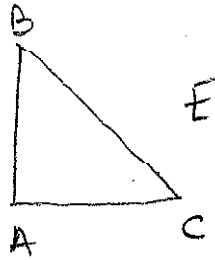
b) $P = 53 - Q = 5 = CMg$

$\boxed{Q = 48}$

c)

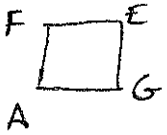


$EC^{monopolio} = \frac{(53-29) \times 24}{2} = 288$



$EC^{competencia} = \frac{(53-5) \times 48}{2} = 1152$

Beneficios del monopolista = 576



288

Pérdida muerta = $\triangle_{GEC} = \frac{(29-5) \times (48-24)}{2}$

$EC^{competencia} = EC^{monopolio} + \Pi^{monopolista} + \text{Pérdida muerta}$

$1152 = 288 + 576 + 288$

Ejercicios monopolio Nicholson (continuación)

10.2

$Q = 70 - P$ $\qquad CMg = CMe = 6$

a) $(70 - Q)Q = IT$

$IMg = -Q + 70 - Q = 70 - 2Q$

CPO: $70 - 2Q = 6$

$\frac{64}{2} = Q$ $\qquad \boxed{Q = 32}$ $\qquad \boxed{P = 38}$

$\Pi = 38(32) - 6(32)$

b) $CT = 0{,}25Q^2 - 5Q + 300$

$CMg = 0{,}50Q - 5$

CPO: $70 - 2Q = 0{,}50Q - 5$

$75 = 2{,}50Q$

$\frac{75}{2{,}5} = Q$ $\qquad \boxed{Q = 30}$ $\qquad \boxed{P = 40}$

$\Pi = 1200 - 0{,}25(900) - 150 + 300$

c) $CT = 0{,}0133Q^3 - 5Q + 250$

$CMg = 0{,}0399Q^2 - 5$

$70 - 2Q = 0{,}0399Q^2 - 5$

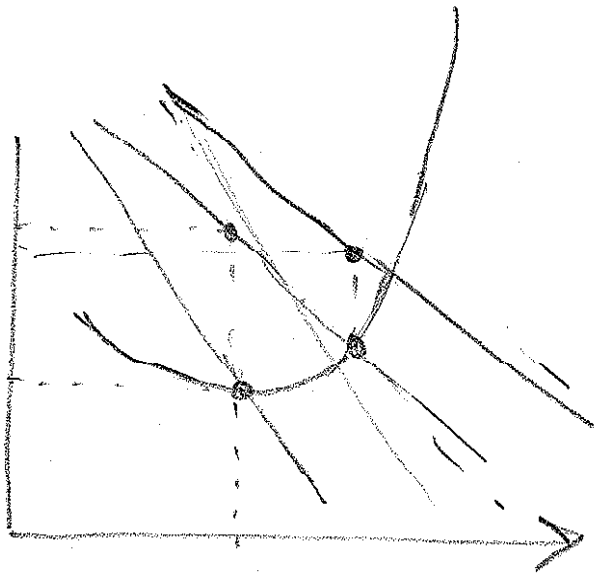
$0 = 0{,}0399Q^2 + 2Q - 75$

$Q = \frac{-2 \pm \left(\sqrt{4 + 300(0{,}0399)}\right)}{0{,}0798} \sim \frac{4}{} = \frac{2}{0{,}0798} = 25$

Options

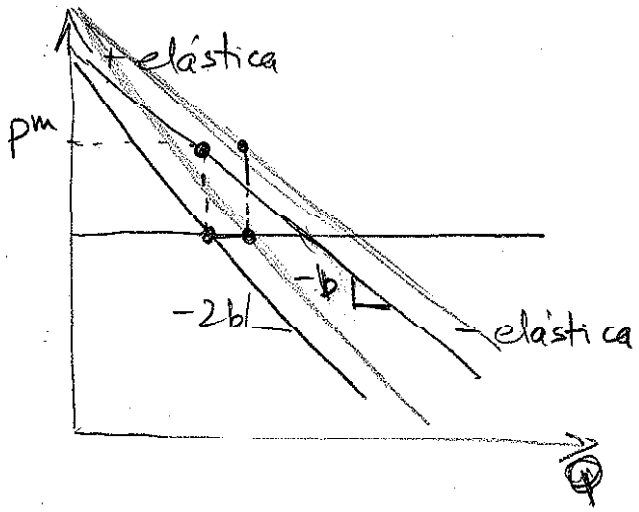
18.4

a, b)



c) $e_{qp} \uparrow$, CMg cte

Si demanda es lineal:
$P = a - bQ$



$$\frac{\partial Q}{\partial P} \cdot \frac{P}{Q}$$

$$\frac{1}{b} \cdot \frac{P(Q)\downarrow}{Q\uparrow} \rightarrow e_{qp} \downarrow \text{ con } Q$$

$$IMg = P'(Q)\,Q + P$$
$$-bQ + a - bQ = a - 2bQ$$

Si la demanda se desplaza hacia afuera x un factor exog.

$$P = a + a_1 - bQ$$
$$IMg = a + a_1 - bQ = c$$
$$\frac{a + a_1 - c}{b} = Q$$

$$\Delta Q = \frac{a_1}{b}$$
$$\Delta P = -\frac{b a_1}{b} = -a_1$$

Ejercicio 18.5

$$Q = (20-P)\left(1+0{,}1A-0{,}01A^2\right)$$

$$CT = 10Q + 15 + A$$

a) $A = 0$

$$\Pi = (20-Q)Q - 10Q - 15$$

$$\frac{\partial \Pi}{\partial Q} = 20 - 2Q - 10 = 0$$

$$Q = 5$$

$$P = 15$$

$$\Pi = 15 \times 5 - 50 - 15 = 10$$

b) $\Pi = P(20-P)\left(1+0{,}1A-0{,}01A^2\right) - 10(20-P)\left(1+0{,}1A-0{,}01A^2\right) - 15 - A$

Definimos $f(A) = 1 + 0{,}1A - 0{,}01A^2$

$$\Pi = \left(20P - P^2 - 200 + 10P\right) f(A) - 15 - A$$

$$= \left(30P - P^2 - 200\right) f(A) - 15 - A$$

$$\frac{\partial \Pi}{\partial P} = (30 - 2P) f(A) = 0 \qquad \boxed{P = 15}$$

$$\frac{\partial \Pi}{\partial A} = \underbrace{\left(30P - P^2 - 200\right)}_{\downarrow \text{ si } P=15} \frac{\partial f(A)}{\partial A} - 1 = 0$$

$$25\left(0{,}1 - 0{,}02A\right) = 1$$

$$0{,}1 - 0{,}04 = 0{,}02A$$

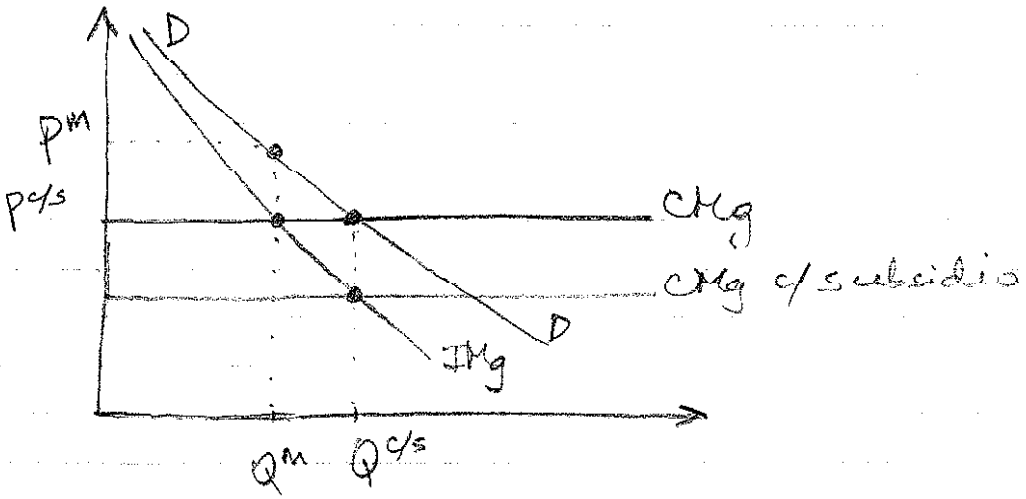
$$\rightarrow \boxed{A = 3}$$

$$\begin{cases} f(A) = 1.21 \\ Q = (20-15)\,1.21 = 6.05 \\ \Pi = 90.75 - 78.5 = 12.25 \end{cases}$$

Ejercicio 18.9

a) Subsidio fijo → no afecta decisiones marginales de producción del monopolista

b) Subsidio por unidad de producto



c) Max EC - CT

Regla óptima del monopolista:

$$P\left(1+\frac{1}{e}\right) = CMg$$

Objetivo del regulador

$$P = CMg$$

c/ subsidio $P\left(1+\frac{1}{e}\right) = CMg - t \rightarrow P\left(1+\frac{1}{e}\right) = P - t$

$$1+\frac{1}{e} = 1-\frac{t}{P}$$

$$\frac{t}{P} = -\frac{1}{e}$$