$$q_2^* = BR(q_1)$$

$$\Pi_2 = f(q_1) = \bar{\Pi_2} \longrightarrow q_1^*$$

$$\Pi_1 = \Pi_1(q_i^*, 0)$$

8.8. (a) $EV_i = 512.35$

$EV_{ii} = 0.7\sqrt{500,000 + 52,500}$ $= 616.36$
$\qquad\qquad + 0.3\sqrt{50,000 + 52,500}$

$\bar{EV}_{iii} = 620.20$

(b) $\Pi_a = (0.3)(450,000) = 135,000$

$$\sqrt{552,500 - \Pi_m} = 620.20$$

$$\Pi_m = 167,852$$

9.2 (a) $w = MRP_L$

$$10 - \frac{L}{40} = \frac{L}{80}$$

$$\frac{3L}{80} = 10 \quad \rightarrow \quad L = \frac{800}{3}$$
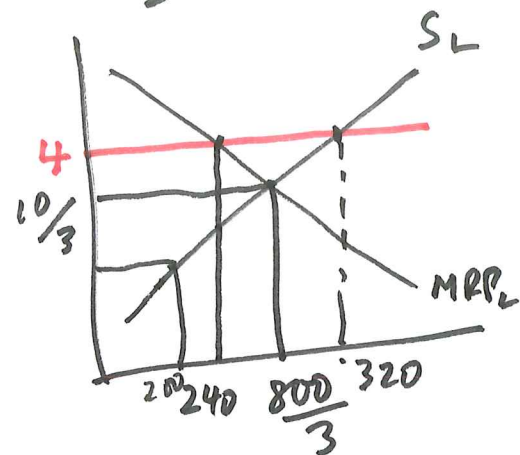
(b) $E = wL$

$$= \frac{L^2}{80}$$

$$ME = \frac{L}{40} = 10 - \frac{L}{40} \quad \rightarrow \quad \frac{2L}{40} = 10$$
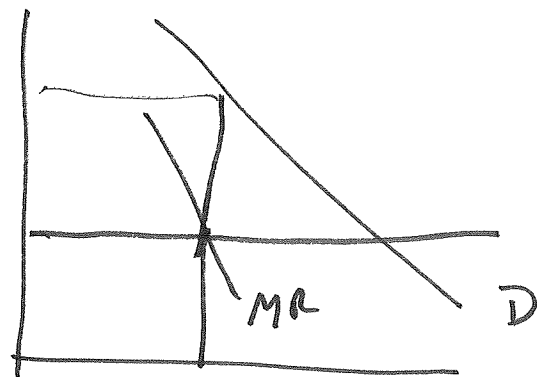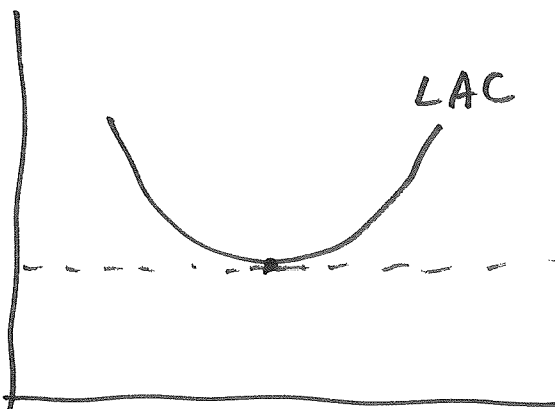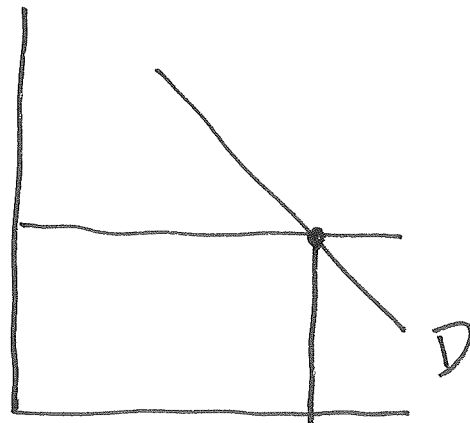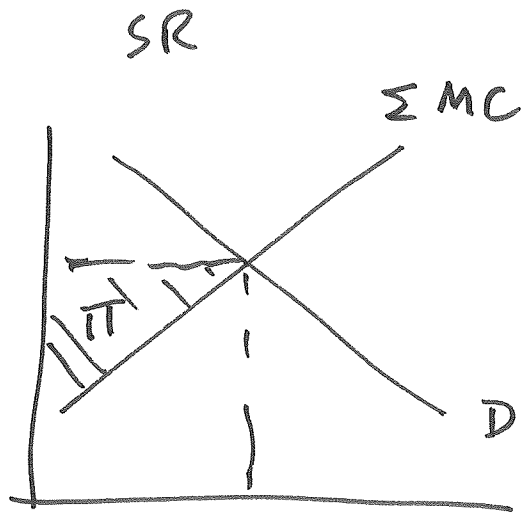
$$w = \frac{5}{2}, \quad L = 200$$

(c) min wage of \$4

$$10 - \frac{L}{40} = 4$$

$$\frac{L}{40} = 6 \quad \rightarrow \quad \underline{\underline{L = 240}}$$

SR

ΣMC

π I

D

D

LAC

MR   D

$C(g) = 50 + 50q^2$

9.10 · (a) $MC = 100 q$

$P = 100 q \rightarrow q^s = \frac{1}{100} \cdot P$

$Q^s = P$

$160 - p = p \rightarrow 2p = 160 , \quad P = 80$

$Q = 80$

(b) $AC(q) = \frac{50}{q} + 50q$

$\frac{dAC}{dq} = -\frac{50}{q^2} + 50 = 0 \rightarrow \frac{50}{q^2} = 50$
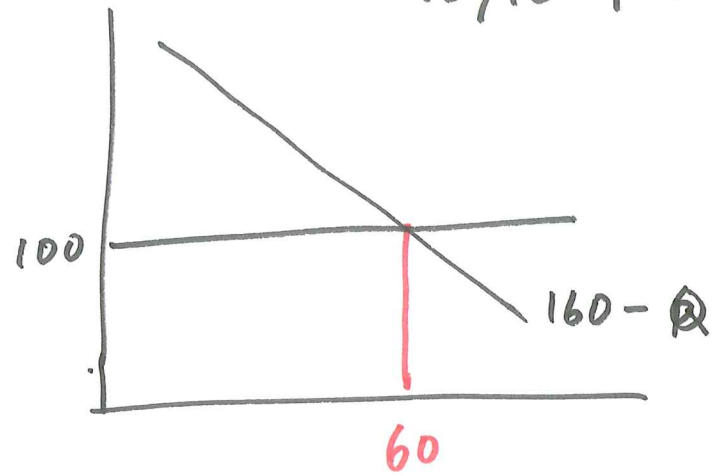
$q^2 = 1 , \quad q = 1$

$AC = 100$

$$160 - Q = 100$$
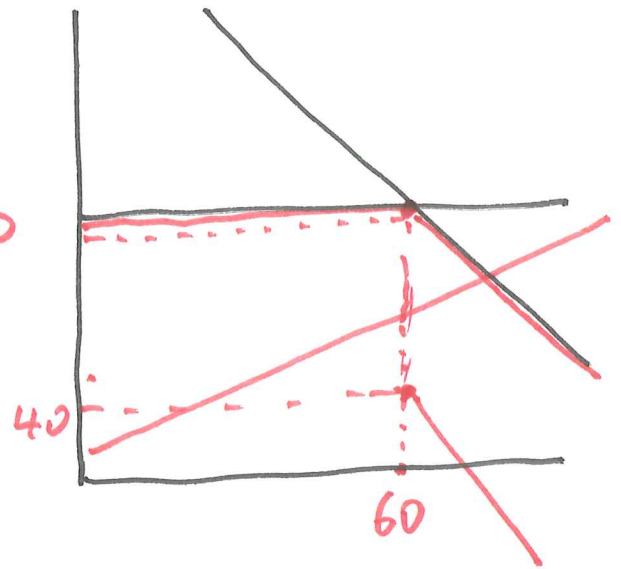$$Q = 60$$
$$P = 100$$
$$g = 1, \quad n = 60$$

(c) $\quad P = 160 - Q$

$TR = 160Q - Q^2$

$MR = 160 - 2Q \quad \text{for } Q > 60$

@ $Q = 60$, $\quad MR = 40$

$C_T = 100 + 10 q_T + \frac{1}{2} q_T^2$

$\dfrac{dC_T}{dq_T} = 10 + q_T \qquad$ @ $q_T = 60$, $\quad MC_T = 70$

$AC_T = \dfrac{100}{q_T} + 10 + \dfrac{1}{2} q_T$

$\dfrac{dAC_T}{dq_T} = -\dfrac{100}{q_T^2} + \dfrac{1}{2} = 0$
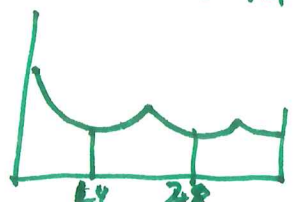
$\dfrac{100}{q_T^2} = \dfrac{1}{2}$

$q_T^2 = 200, \quad q_T = 10\sqrt{2}$
$\qquad\qquad\qquad = 14.14$

$AC_T = \dfrac{100}{14.14} + 10 + 7.07$

$\qquad = 24.14$

9.12 (a) $D = 450 - 15p$

$MC = 10q - 10 = P$

$q = 1 + \dfrac{P}{10}$

$Q^s = 90 + 9P$

$90 + 9p = 450 - 15p \rightarrow P = 15$

$Q = 225$

$q = 2.5$

$D_a = 50$, $D_b = 175$

(b) $C = 5q^2 - 10q + 20$

$AC = 5q - 10 + \dfrac{20}{q}$

$\dfrac{dAC}{dq} = 5 - \dfrac{20}{q^2} = 0 \rightarrow q^2 = 4 \rightarrow q = 2$

$AC_2 = 10$
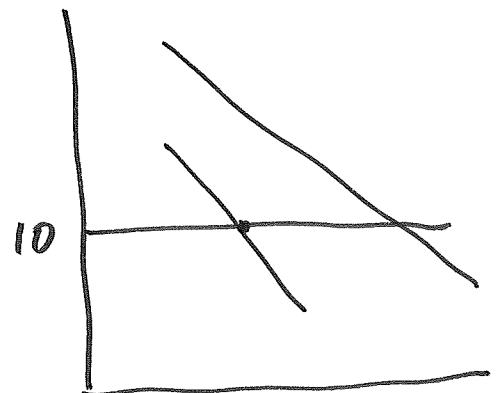
$P = 10$, $D_a = 100$, $D_b = 200, Q = 300$

$n = 150$

(c) $Q_a = 50$

$P_a = 15$

$Q_b = 100$

$P_b = 30$

10.2.

	L	R
T	2,1	0,0
B	0,0	1,2

	LL	LR	RL	RR
T	2,1	2,1	0,0	0,0
B	0,0	1,2	0,0	1,2

NE : (T, LL) , (T, LR) , (B, RR)

SPE :   (T, LR)

10.3. (a)

	B1 Little cartel	B2 cheat
Cartel	80,20	64,32
Cheat	80,16	60,24

Grand

N.E.   Cartel, Cheat

9.7

$$\Pi = pQ - wL$$

$$L = \frac{w}{2} - 10$$

$$= (100 - Q)Q - (Q + 20)\frac{Q}{2}$$

$$\frac{w}{2} = L + 10$$

$$w = 2L + 20$$

$$= \cancel{1400Q}$$

$$= 100Q - Q^2 - \frac{Q^2}{2} - 10Q$$

$$= 90Q - \frac{3}{2}Q^2$$

$$\frac{d\Pi}{dQ} = 90 - 3Q = 0 \qquad Q = \frac{90}{3} = 30$$

(b)

$$\boxed{P \cdot MP_L = w}$$

$$(100 - \cancel{2Q}) \cdot 2 = Q + 20$$

$$200 - 2Q = Q + 20$$

$$\cancel{3Q = 120}$$

$$\cancel{Q = 40}$$

$$3Q = 180 \rightarrow Q = 60$$