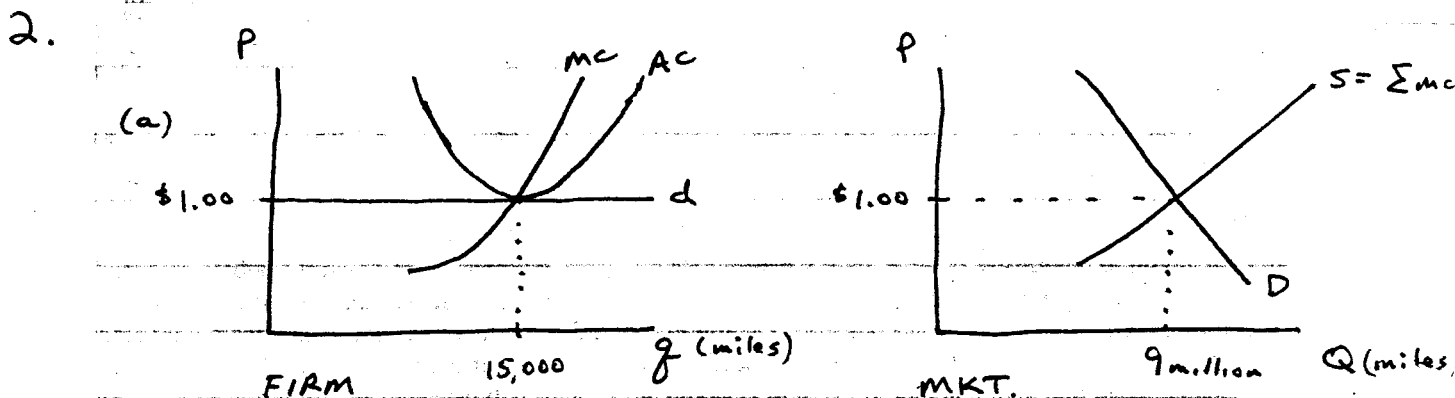
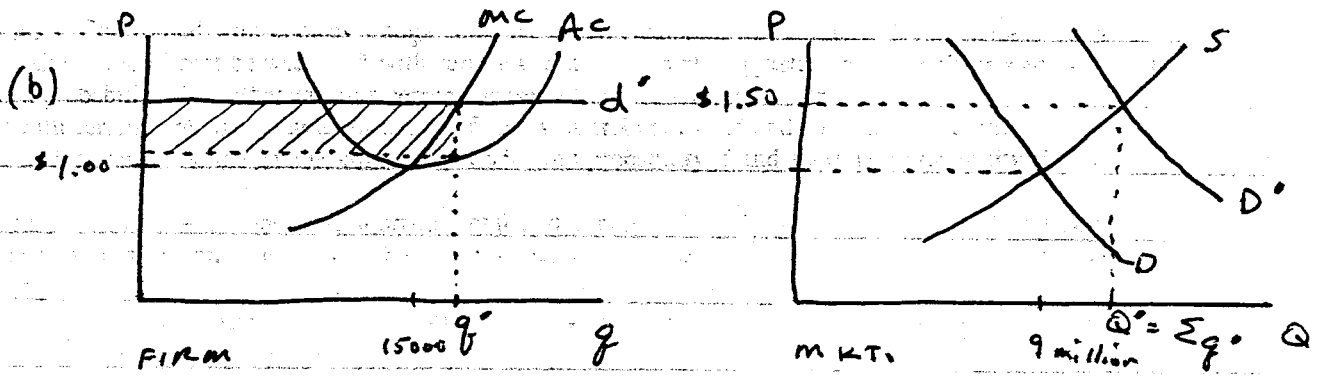


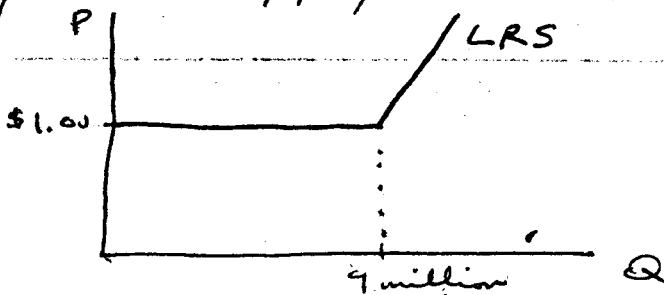
1. 14.6 a. LR supply horizontal at $P^* = MC = AC = 10$.
- b. $Q^* = 1500 - 50P^* = 1000$. Each firm produces $q^* = 20$, $\pi = 0$. There are 50 firms.
- c. $MC = q - 10$, $AC = .5q - 10 + 200/q$
 $AC = \min$ when $AC = MC$ $.5q = 200/q$, $q = 20$.
- d. $P = MC = q - 10$. $q = P + 10$,
 for industry $Q = \sum_1^{50} q = 50P + 500$.
- e. $Q = 2000 - 50P$ if $Q = 1000$, $P = 20$. Each firm produces $q = 20$,
 $\pi = 20(20 - 10) = 200$.
- f. $50P + 500 = 2000 - 50P$ $P = 15$, $Q = 1250$.
 Each firm produces $q = 25$, $\pi = 25(15 - AC)$
 $= 25(15 - 10.5)$
 $= 112.5$.
- g. $P^* = 10$ again, $Q = 1500$, 75 firms produce 20 each.
 $\pi = 0$.



Typical market is in long-run equilibrium. Firms earn zero economic profits.

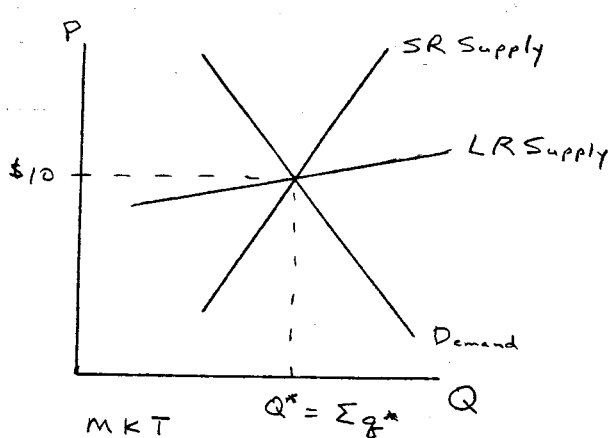
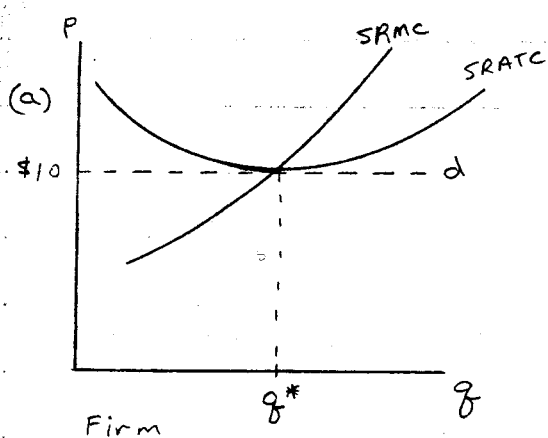


The increased demand causes taxi prices to rise. Existing taxi owners will earn positive economic profits. Normally those profits would attract new firms into the market, but the medallion system prevents entry from occurring. Hence price will remain elevated above the minimum ATC and profits will persist. The medallion system causes the long run supply curve to look like:



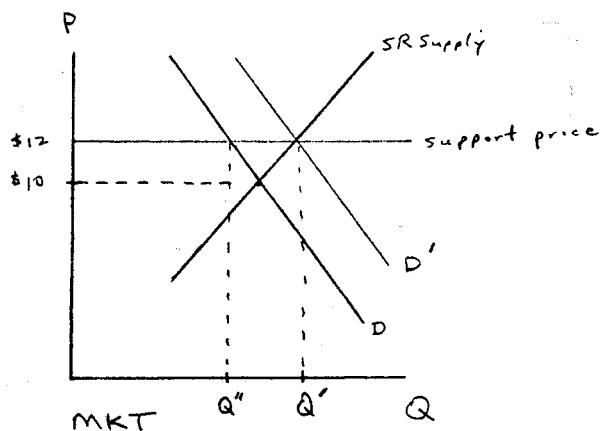
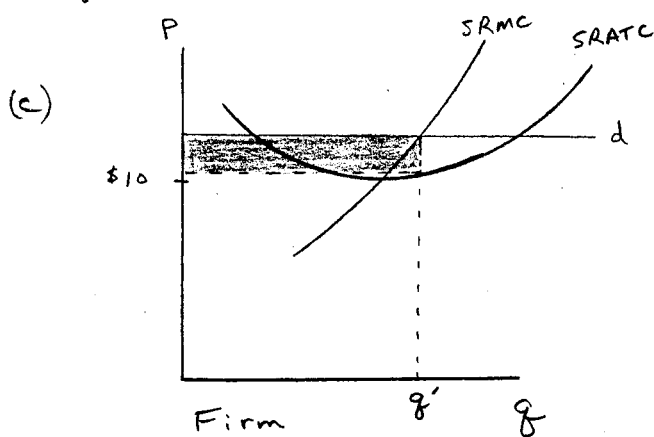
- (c) A typical medallion entitles one to drive a cab in NYC and thus earn positive economic profits. Potential cab owners will bid an amount up to the present discounted value of the future stream of economic profits for a medallion.

3.



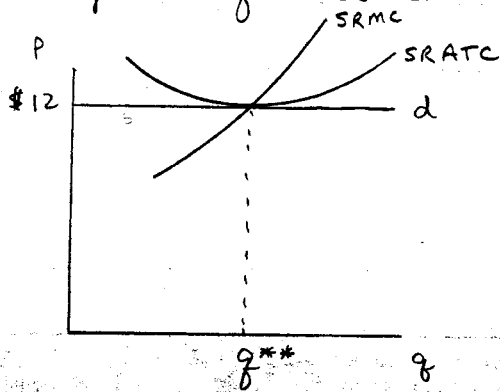
Marginal Firm produces q^* and earns 0 economic profit at $P = \$10$. LR Supply curve for dairy market is upward sloping because it is an increasing cost industry.

(b) Inframarginal firms are those which could profitably produce milk even if the market price fell below \$10 per hundredweight. Since average cost is related to the productivity of the land, the above-normal return is called an economic rent for those inframarginal firms.



Gov't purchases cause demand to shift outward to D' and price to rise to \$12. Cost to taxpayers is $(Q' - Q'')$ times \$12. Cost to consumers is \$2 times Q'' .

3. (d) Marginal farmer in LR equilibrium:



4. 18.6 A multiplant monopolist would still produce where $MR = MC$ and would equalize MC among plants. This answer assumes the number of plants is fixed. If the number of plants is subject to choice by monopolist, this number should be chosen so that given the quantity to be produced, overall total costs are minimized.

18.8 a. For P.C. $MC = \$10$. For monopoly $MC = \$12$.

5. $Q_D = 1000 - 50P$

P.C.: $P = MC = \$10$. Thus $Q = 1000 - 50(10) = 500$.

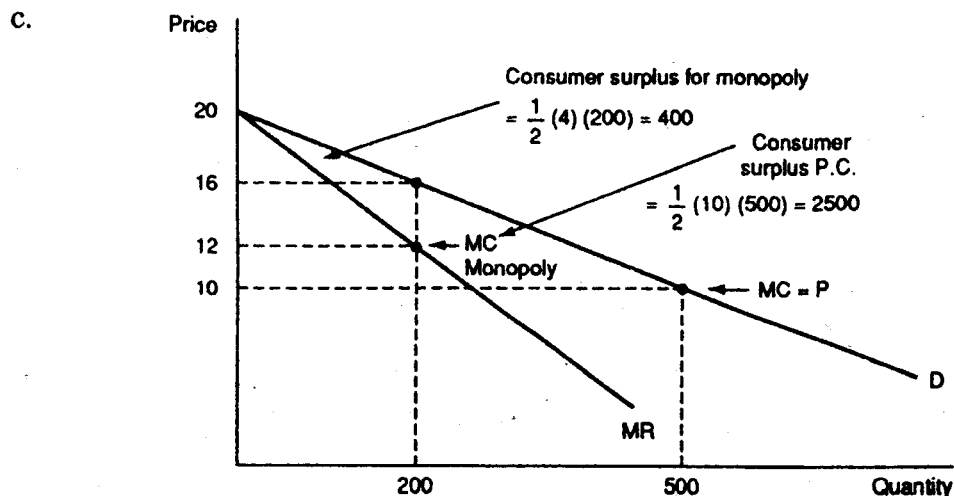
Monopoly: $P = 20 - \frac{1}{50}Q$, $PQ = 20Q - \frac{1}{50}Q^2$

Produce where $MR = MC$. $MR = 20 - \frac{1}{25}Q = 12$.

$Q = 200, P = \$16$

b. See graph below.

Loss of consumer surplus =
 Consumer surplus P.C. - Consumer surplus monopoly =
 $2500 - 400 = 2100$.



Of this 2100 loss, 800 is a transfer into monopoly profit, 400 is a loss from increased costs under monopoly, and 900 is a "pure" deadweight loss.

6.

$$Q_I = 200 - 4P_I$$

$$Q_u = 200 - 8P_u$$

$$mc = .1(Q_u + Q_I)$$

$$(a) \quad P_I = \frac{200 - Q_I}{4}$$

$$P_u = \frac{200 - Q_u}{8}$$

$$\frac{\partial P_I Q_I}{\partial Q_I} = 50 - Q_I/2$$

$$\boxed{MR_I}$$

$$\frac{\partial P_u Q_u}{\partial Q_u} = 25 - Q_u/4$$

$$\boxed{MR_u}$$
(b) for π_{max}

$$MR_I = MR_u = mc$$

$$MR_I = MR_u \Rightarrow 50 - Q_I/2 = 25 - Q_u/4$$

$$200 - 2Q_I = 100 - Q_u$$

$$100 - 2Q_I + Q_u = 0$$

$$MR_I = mc \Rightarrow 50 - Q_I/2 = .1Q_I + .1Q_u$$

$$500 - 5Q_I = Q_I + Q_u$$

$$500 - 6Q_I - Q_u = 0$$

substituting $-Q_u = 100 - 2Q_I$:

$$500 - 6Q_I + 100 - 2Q_I = 0$$

$$8Q_I = 600$$

$$Q_I = 75 \quad P_I = \$31.25$$

$$Q_u = 50 \quad P_u = \$18.75$$

(c) no price discrimination:

$$P_I = P_u = P; \quad Q = Q_I + Q_u$$

$$Q = 200 - 4P + 200 - 8P = 400 - 12P$$

$$P = \frac{400 - Q}{12}$$

$$PQ = \frac{400Q - Q^2}{12}$$

$$MR = \frac{\partial PQ}{\partial Q} = 33.\bar{3} - \frac{Q}{6}$$

$$MR = mc \Rightarrow 33.\bar{3} - \frac{Q}{6} = \frac{Q}{10}$$

$$\frac{4}{15}Q = 33.\bar{3}$$

$$Q = 125$$

$$P = \$22.92$$