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1. a) A decrease in early demand. The price decline in first three month, it has cause a short-run equilibrium to decrease in demand.

b) Constant cost industry. The price in 1990 and 1995 are the same, is $2

c) when price = $1, firms are losing money, they exit the industry. It cause pdd to rise, and firms stop exiting however, as the demand is decrease, producer will be lower.

2. a) $LRATC(Q) = \frac{LRTC(Q)}{Q} = \gamma$

long-run equilibrium Q

$p = \min(LR\ ATC) = \gamma$

$D(p) = \alpha - \beta\gamma$

b) cannot

$LR\ MC(Q) = \frac{d\,LRTC(Q)}{dQ} = \gamma$

$\therefore$ LR MC and LR ATC is horizontal, it can produce any quantity, so can't determine the number of firms.

Q3.

a) $LRTC(Q) = \frac{Q^2}{4} + g.$

$LRMC(Q) = \frac{1}{2}Q \xrightarrow[\text{maximize}]{\text{profit}} \frac{1}{2}Q = p$

$\Rightarrow Q = 2p$

- For firm to produce:

$$p \geq ANSC = \frac{Q^2}{4Q} + \frac{g}{Q}$$

$$= \frac{2p}{4} + \frac{g}{2p} \geq \sqrt{g}$$

- Supply function of 1 firm:

$$S(p) = 2p \quad (p \geq \sqrt{g})$$

- Supply function of n firms in the market:

$$S_n(p) = 2np \quad (p \geq \sqrt{g})$$

- Equilibrium:

$$D(p) = S_n(p) \Leftrightarrow 2np = \frac{10,000}{p}$$

$$\Rightarrow p^* = \sqrt{g} \Rightarrow n = \frac{5000}{g}$$

b) $D(g) = \frac{5000}{g}$

- As $p^* = \sqrt{g}$ | $S(g) = D(g)$:

$\Leftrightarrow \frac{g}{2} = \frac{5000}{g}$

$\Leftrightarrow g = 100$

$\Rightarrow p^* = 10$

c) ~~$D(g) = n = 8$~~

$D(p) = S_n(p)$

$\frac{25,600}{p} = 2np$

$\Rightarrow \begin{cases} p \\ n = \frac{12,800}{pg} \end{cases}$

- $D(g) = S(g) \Rightarrow n = g/2 = \frac{12,800}{g}$

$\Rightarrow g = 160$

$\Rightarrow n = 80$

$p^* = 12.65$

d) Increasing - cost