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1) $Q(P) = P^{\epsilon}$

$$\frac{dQ}{dP} = \epsilon P^{\epsilon-1}$$

$$\frac{dQ}{dP} \cdot \frac{P}{Q} = \epsilon P^{\epsilon-1} \cdot \frac{P}{P^{\epsilon}}$$

$$= \epsilon P^{\epsilon-1} \cdot P^{1-\epsilon}$$

$$= \epsilon$$

2) $Q = 10 - P$

$P = 10 - Q$

$TR = 10Q - Q^2$

$MR = 10 - 2Q$, $MC = 0$

find $MR = MC$ (Profit maximization)

$10 - 2Q = 0$

$Q = 5$

Monopoly cannot sell at the same amount in competitive market

$TR = Q^{\frac{1}{\epsilon}+1}$

$MR = \left(\frac{1}{\epsilon}+1\right) Q^{\frac{1}{\epsilon}}$

$\epsilon = -2$

find $MR = MC$

$1 = \left(\frac{1}{\epsilon}+1\right) Q^{\frac{1}{\epsilon}}$

$$Q^{\frac{1}{\epsilon}} = \frac{1}{\frac{1}{\epsilon}+1}$$

$$Q^{\frac{-1}{2}} = \frac{1}{\frac{-1}{2}+1}$$

$$Q^{\frac{-1}{2}} = \frac{1}{\frac{1}{2}}$$

$Q^{\frac{-1}{2}} = 2$

$Q = \frac{1}{4}$

$$\frac{dQ}{dP} \cdot \frac{P}{Q} = \epsilon \cdot \frac{Q^{\frac{1}{\epsilon}}}{Q}$$

$$= -2 \cdot \frac{2}{\frac{1}{4}}$$

$$= -16$$

3) $P = 448 - Q$ (Cournot)

$Q = 448 - P$

$R = PQ - Q$

$= (448 - Q_i - Q_{ii})Q_i - Q_i^2$

$= 448Q_i - Q_i^2 - Q_{ii}Q_i - Q_i^2$

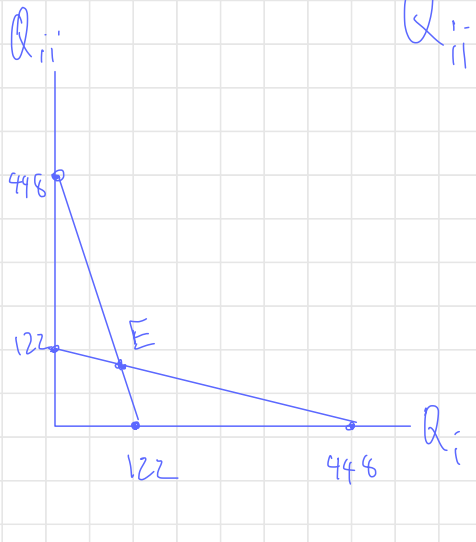
$= 448Q_i - Q_{ii}Q_i - 2Q_i^2$

$\frac{d\pi}{dQ_i} = 448 - Q_{ii} - 4Q_i = 0$

$4Q_i = 448 - Q_{ii}$

$Q_i = 122 - \frac{1}{4}Q_{ii}$

$Q_{ii} = 448 - 4Q_i$



$Q_i = 122 - \frac{1}{4}Q_{ii}$

$Q_{ii} = 122 - \frac{1}{4}Q_i$

$Q_i = 122 - \frac{1}{4}(122 - \frac{1}{4}Q_i)$

Stackleberg

Firm 1 (leader)

$Q_1 = 112 - 0.25Q_2$

$P = 448 - [112 - 0.25Q_2] - Q_2$

$P = 446 - 112 + 0.25Q_2 - Q_2$

$= 336 - 0.75Q_2$

Firm 2 = follower

$TR_2 = P \cdot Q_2$

$TR_2 = [336 - 0.75Q_2]Q_2$

$= 336Q_2 - 0.75Q_2^2$

$MR_2 = 336 - 1.5Q_2$

$MR = MR$ (Profit maximization)

$336 - 1.5Q_2 = 2Q_2$

$3.5Q_2 = 336$

$Q_2 = 96$

$\therefore Q_1 = 112 - 0.25(96)$

$= 88$

4) My example of industry that contain dominant and fringe firms would be the world internet service (as a Dominant firm) and True, Dtac, AIS (as a Fringe firm). In this case, all of these internet providers (or fringe firm) pay the world internet service to be authorized for providing their customer using internet. By doing so, internet prodivers can set any level of price for customer to their internet package. However, the world internet service controls and manipulate the price of the internet to those internet providers.