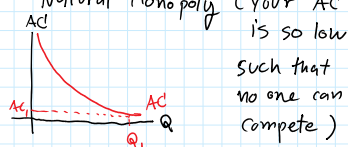


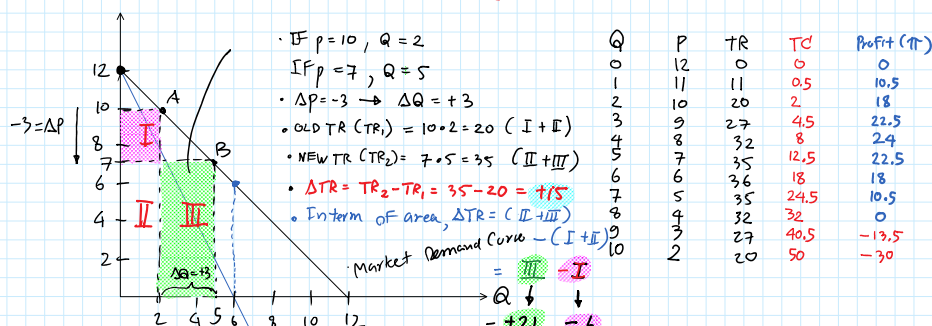
Monopoly

- a single seller selling a product w/o close substitutes
(This guy is so called "Monopolist".)
- He captures entire market $\Rightarrow$ He faces w/ Market Demand curve
- He is a price Maker, not price taker, i.e., he has ability to set price he charges on buyers.
(= He has a market power)
- Monopoly power May come from
 - own the major inputs that use to produce the product
 - get exclusive right to be an only one seller
(concession = अनुमति)
 - Patents/ copy right/ franchise
 - Natural Monopoly (Your AC is so low such that no one can compete)



- In monopoly, MR is not equal to price (P). In fact, $MR < P$
[Recall that $MR = P$ in perfectly competitive mkt]

Consider a demand Function: $P(Q) = 12 - Q$



Let's find MR curve ...

Recall that $MR = \frac{\Delta TR}{\Delta Q}$

$$TR = P(Q) \cdot Q$$

↓ our DEMAND FUNCTION

$$= (12 - Q) \cdot Q$$

$$TR = 12Q - Q^2$$

$$MR = \frac{dTR}{dQ} = \frac{d[12Q - Q^2]}{dQ} = \frac{d12Q}{dQ} - \frac{dQ^2}{dQ} = 12 - 2Q$$

$$MR = 12 - 2Q$$

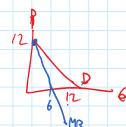
MR equation

• AREA III = quantity effect due to the fact that lower price attracts more sale.

• AREA I = price effect due to the fact he must sell ALL UNITS AT THE NEW LOWER PRICE!

$$P = 12 - Q$$

Demand equation



AREA III = price × change in quantity
(the height) (the width)

$$= \overset{7}{P} \cdot \overset{3}{\Delta Q}$$

AREA I = - quantity × change in price = -Q · ΔP

$$\Delta TR = \text{AREA III} - \text{AREA I}$$

$$\text{AREA I} = - \text{quantity} \times \text{change in price} = -Q \cdot \Delta P$$

$$\begin{aligned} \text{So } \Delta TR &= \text{AREA III} - \text{AREA I} \\ &= (P \cdot \Delta Q) - (-Q \cdot \Delta P) \\ &= P \cdot \Delta Q + Q \cdot \Delta P \end{aligned}$$

$$\text{Then } MR = \frac{\Delta TR}{\Delta Q} = \frac{P \cdot \Delta Q + Q \cdot \Delta P}{\Delta Q} = P + Q \cdot \frac{\Delta P}{\Delta Q}$$

$$\boxed{MR = P + Q \cdot \frac{\Delta P}{\Delta Q}}$$

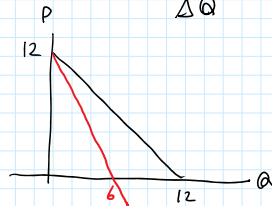
→ since $Q \cdot \frac{\Delta P}{\Delta Q}$ is negative, then $MR < P$!!!

Let's check this fact on the diagram o.o.o

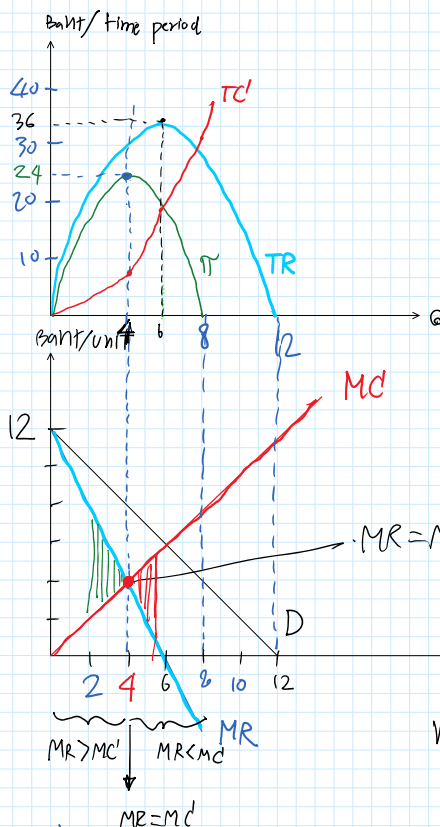
- At $P = 7$, $Q = 5$. So $TR = 7 \times 5 = 35$ baht

$$\text{Then } AR = \frac{TR}{Q} = \frac{35}{5} = 7 \text{ baht/unit}$$

$$MR = P + Q \cdot \frac{\Delta P}{\Delta Q} = 7 + 5(-1) = 2 \text{ baht/unit.}$$



Monopolist's output decision



- at $Q=4$ π is max (=24)

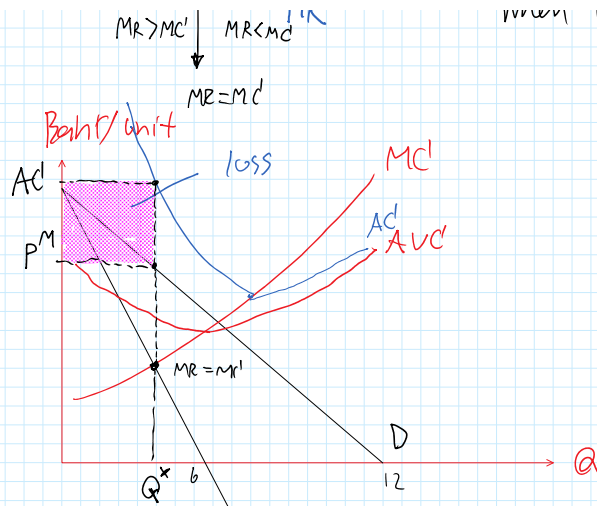
- at $Q=6$, TR is max (=36)

- $0 < Q < 4$, $\pi \uparrow$ when $Q \uparrow$
at $Q=4$ π is at the peak
 $Q > 4$, $\pi \downarrow$ when $Q \uparrow$

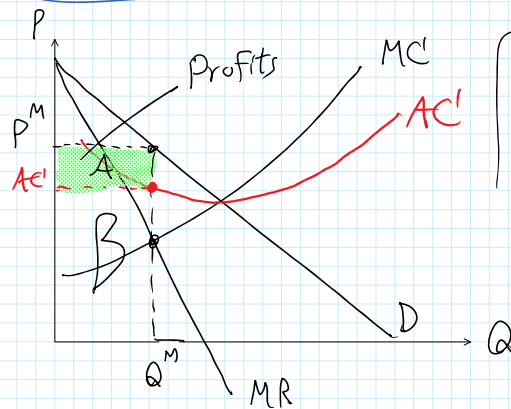
$MR = MC \Rightarrow$ profit maximizing rule.

At $Q=4$, $MR = MC$.
(monopolist's π is maximized)

When $MR > MC$, the monopolist's profit will increase if he
increases output



Monopolist can also face losses when $AC^M > P^M$.



Case where the monopolist gains positive profit.

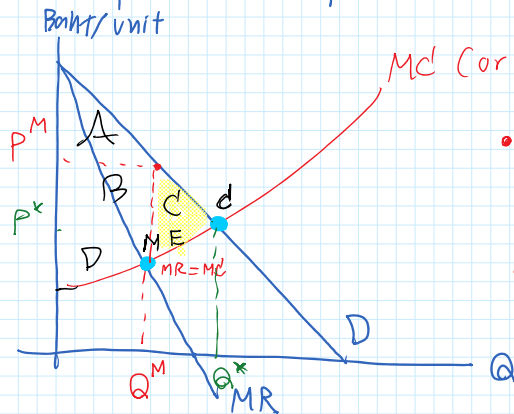
$$TR = A + B$$

$$TC = B$$

$$\pi = (A + B) - B = A$$

Welfare costs of Monopoly

We are going to compare CS, PS, TS between Monopoly and perfect Competitive Market...



• Under monopoly, $Q = Q^M$ and $P = P^M$ (by profit maximizing rule)

• Under perfectly competitive market.

$$Q = Q^* \text{ and } P = P^*$$

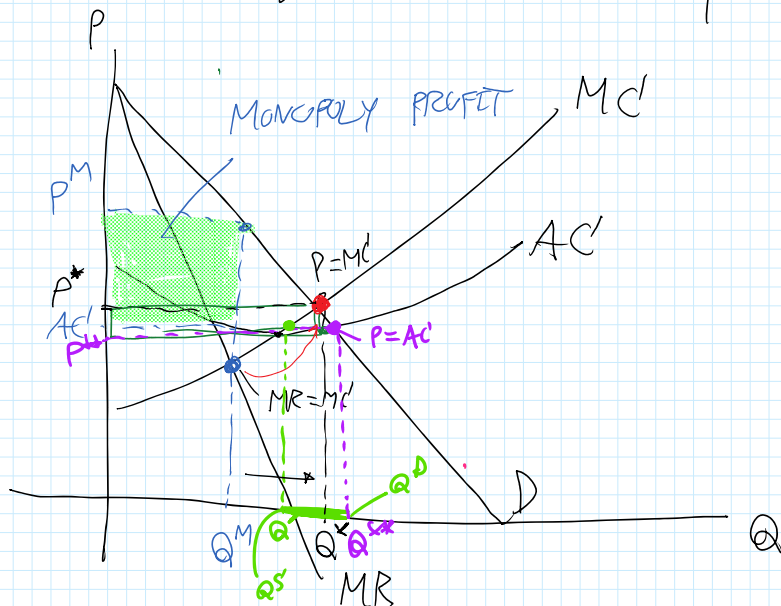
(by intersection between Demand curve and supply curve)

	Perfect Competition	Monopoly	Δ
CS	$A + B + C$	A	$-B - C < 0$
PS	$D + E$	$B + D$	$+B - E > 0$
TS	$A + B + C + D + E$	$A + B + D$	$-C - E$

Monopolist charges too high price ($P^M > P^*$) and produces too little quantity ($Q^M < Q^*$)

PS $D+E$ $7+1+15-E > 0$ and produces too little quantity ($Q^M < Q^*$) ☹️
 TS $A+B+C+D+E$ $A+B+D -C-E$
 Deadweight loss

how to regulate the monopolist then?



If govt asks the monopolist to use
marginal cost pricing, i.e.,
 charge $P = MC$,

Result P^* (which is lower
 * than P^M) ☺️
 Q^* which is greater than Q^M

☺️

Result

- $P = P^{**}$ (even lower than P^* under MC pricing)
- $Q^D = Q^{**} > Q^S = Q^1 \rightarrow$ shortage occurs !!!

Case 2 ask the monopolist to charge
 since $P = AC$, monopolist obtains

$P = AC$ (Average Cost Pricing)
 $\pi_{EC} = 0$. (he still operate, not leaving business)