

- Market demand  $P = 10 - Q$
- MC upstream  $MC_u = m = 2$
- Downstream firm has no additional MC other than intermediat input charge by upstream firm
- calculate  $P_0^A, P_0^B, Q_0^A, Q_0^B, \pi_0^A, \pi_0^B, \pi_0^A$
- if two firm merge to form a single monopolist, cal  $P^A, Q^A, \pi^A$
- compare welfare of consumer & producer

- 2 Monopolist

if firm not merge

• upstream firm's profit

$$MR_u = MC_u$$

$$10 - 4Q_u = 2$$

$$Q_u^A = 2$$

$$P_u^A = 10 - 2Q_u = 10 - 4 = 6$$

$$\pi_u^A = TR - TC$$

$$= 6(2) - 2(2)$$

$$= 8$$

• downstream firm's profit

$$MR_D = MC_D$$

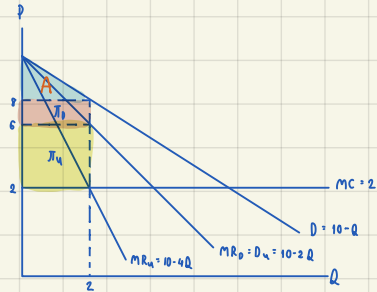
$$10 - 2Q = 6 \quad ; \quad \text{Price that upstream firm sell to downstream firm's MC}$$

$$Q_D^A = 2$$

$$P_D^A = 10 - Q = 8$$

$$\pi_D^A = 2(8) - 2(6)$$

$$= 4$$



if firm merge

$$P = 10 - Q \quad MR = 10 - 2Q \quad MC = 2$$

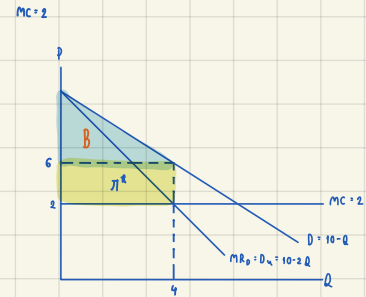
$$MR = MC$$

$$10 - 2Q = 2$$

$$Q^A = 4$$

$$P^A = 10 - 4 = 6$$

$$\pi^A = 2(4) - 2(4) = 16$$



\* comparing A & B, it can clearly be seen that if two firm merge together, it will improve both producer surplus and consumer surplus, including increase profit