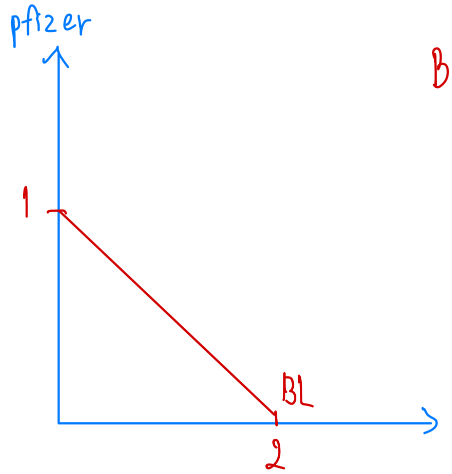
1.) a.

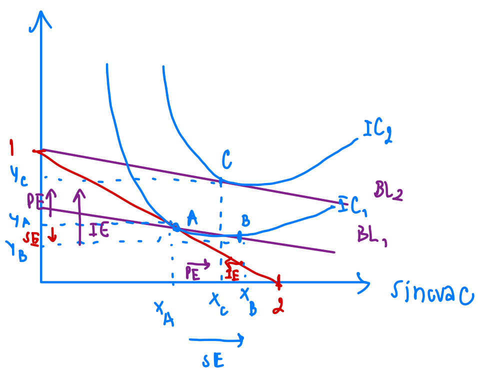


$BL: I = P_x X + P_y Y$

$40 = 20X + 40y$

Assume that this sinovac and Pfizer are not perfect substitution, the indifference curve will be a convex shape

b.)

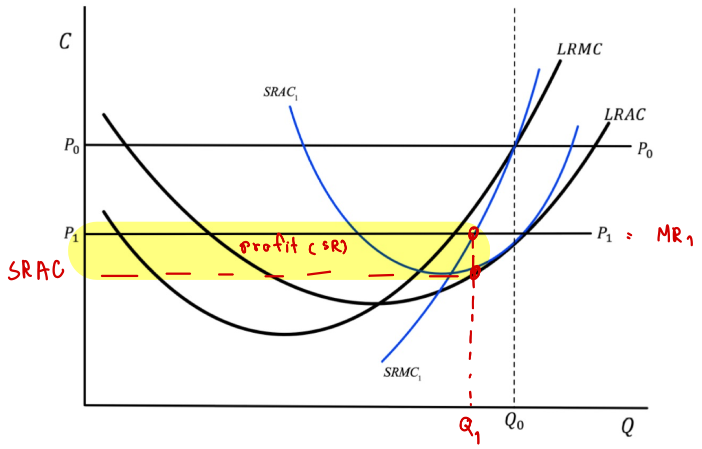


$P_x \downarrow$ by half from $20 \Rightarrow 10$

$40 = 10x + 40y$

- In substitution effect, when P sinovac decrease, consumer will increase sinovac and substitute by decrease Pfizer in order to maintain his constant Utility ($A \to B$)
- In income effect, when P sinovac decrease, purchasing power will increase from BL_1 to BL_2 the consumer will decrease sinovac as an inferior good, and increase pfizer as a normal good ($B \to C$)
- In Price effect, when P sinovac decrease, consumer will increase sinovac as an ordinary good ($A \to C$)

2. a)

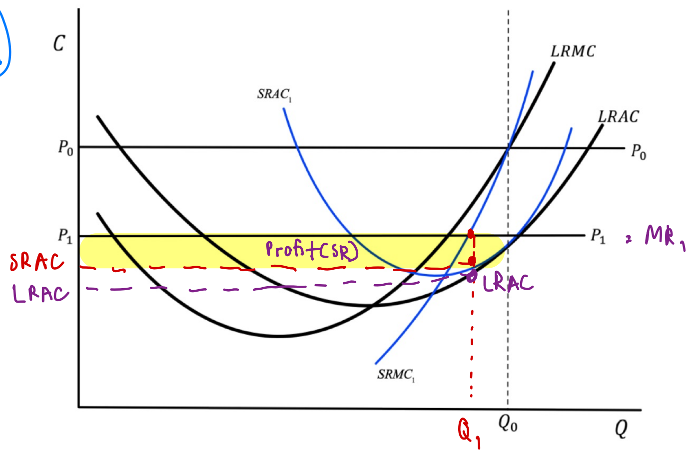


∴ Max π : MR = MC

$P_1 = SRMC_1$

∴ $\pi_{SR} = (P_1 - SRAC_1) = Q_1$

b.)



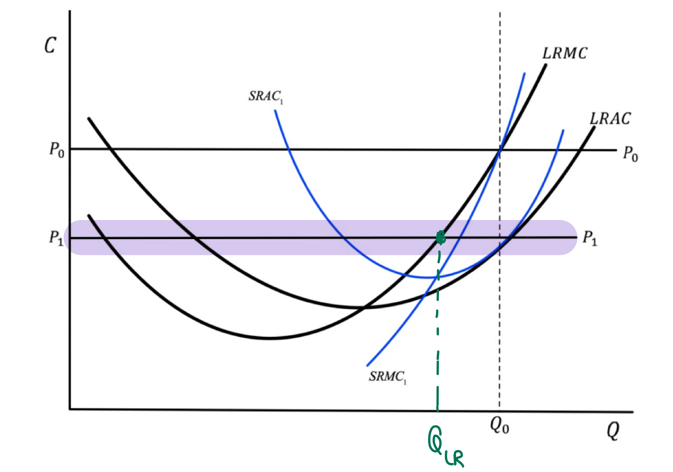
∴ $\pi_{SR} = (P_1 - SRAC) \times Q_1$

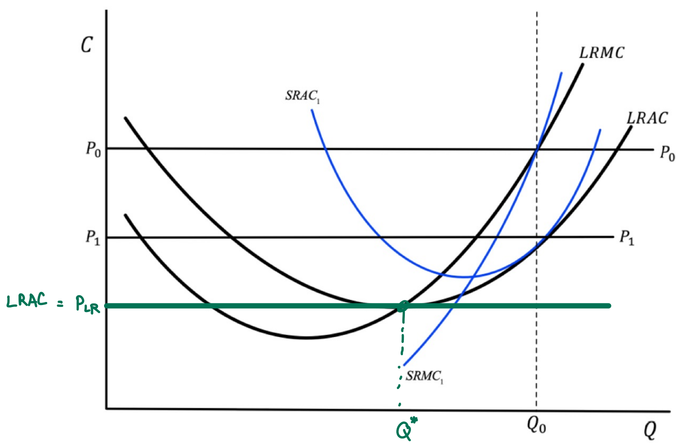
$\pi_{LR} = (P_1 - LRAC) \times Q_1$

* Since LRAC < SRAC

∴ $\pi_{LR} > \pi_{SR}$

c.)





LR equilibrium at P_1 : P_1 = LRMC

$\boxed{\text{Ans}}$ Q_{LR} is Q^* at Long Run P_1

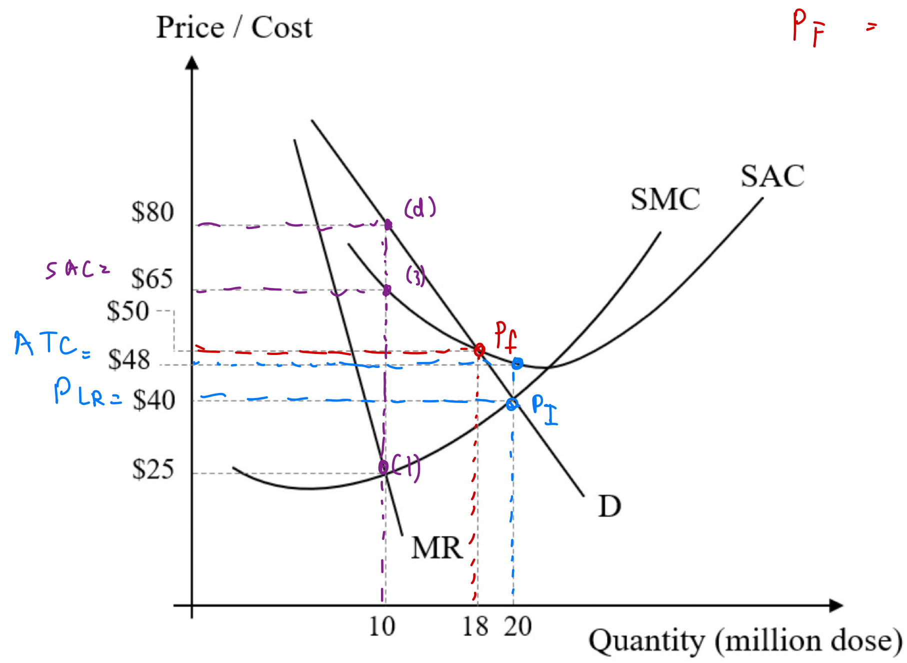
LR equilibrium : P^*_{LR} = LRMC = min LRAC

$\boxed{\text{Ans}}$ Q^* when no new sellers enter.

3)

P_I = $P = MC$

P_F = $P = ATC$ (profit = 0)



a.) Q^*_M = 10 million doses

P^*_M = \$80 per doses

b.) $\pi = (80-65) \times 10 = \$150$ million

c.) Q^*_M = 18 millions doses

P^*_F = \$50 per doses

d.) When Government $Q^* = 20$ million dose, Monopoly faces loss since $ATC > P^*_I$

∴ Government must subsidize that loss in order to create incentive for monopoly to produce.

∴ Subsidize = $(ATC - P) \times Q^*$
= $(48 - 40) \times 20$
= \$160 million

each person will pay at \$40

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