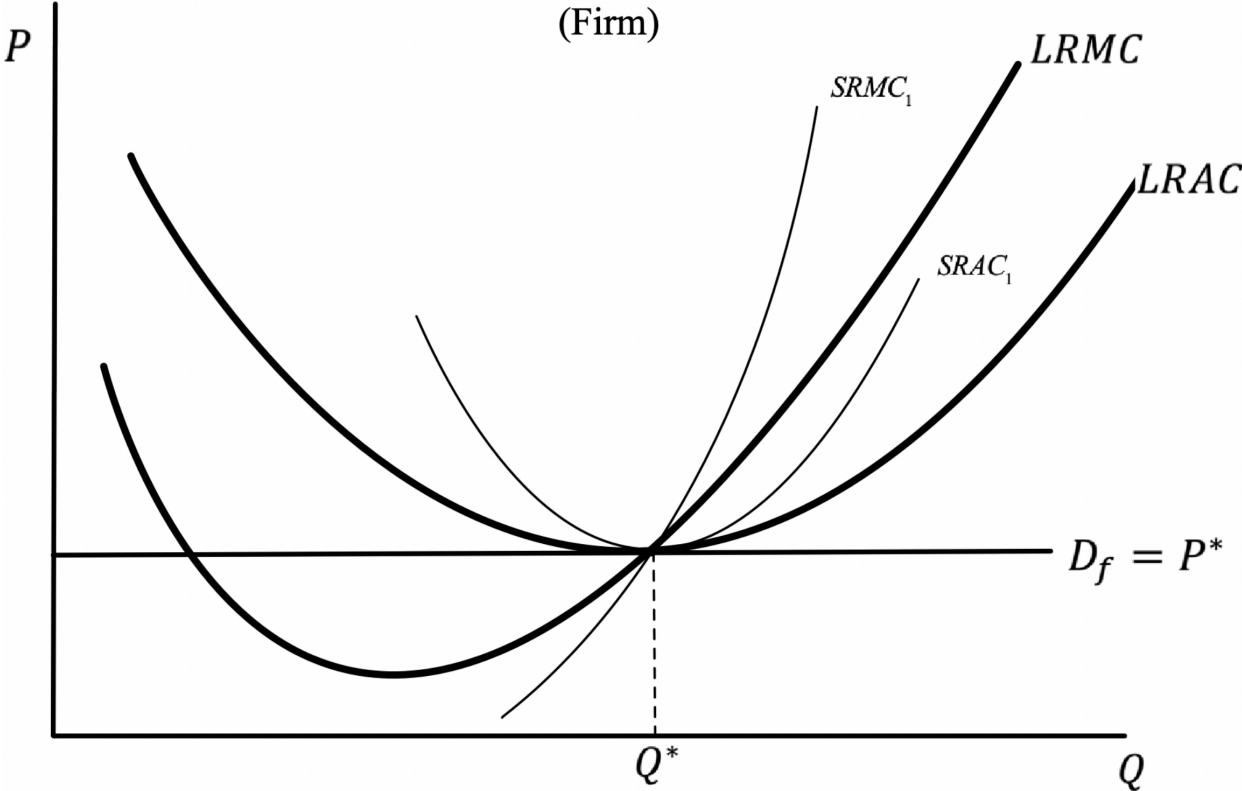


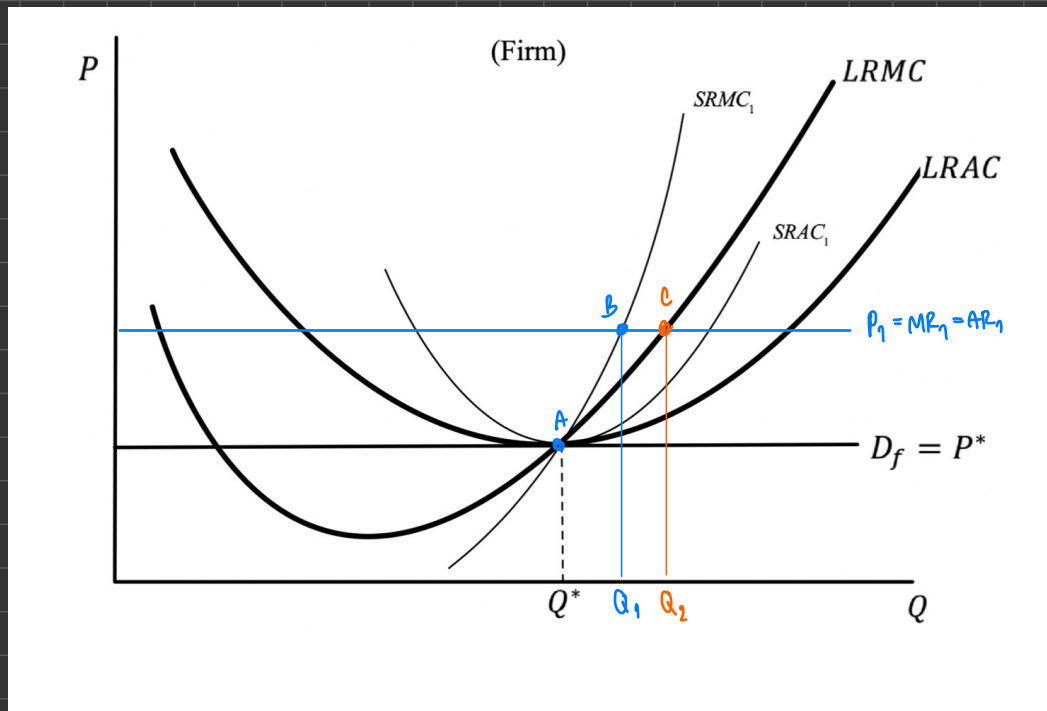
HW#16

Suppose that the market is in a Long-Run equilibrium where the price is at P^* and each firm produces Q^* . With the given $SRMC_1$ and $SRAC_1$ and $LRMC$ and $LRAC$, the market price increases from P^* to P_1 ,

- a) Show how the firm will change its output in Short Run and Long Run.
- b) Indicate the profit the firm receives in Short Run and Long Run.
- c) Explain why the profit in Long Run is bigger than profit in Short Run.



a)



• Short Run

— At the old equilibrium (Point A)

Price = P^*

Output = Q^*

equilibrium condition

1) $MR(Q^*) = SRMC(Q^*)$

2) Slope of $MR(Q^*) <$ slope of $SRMC(Q^*)$

When Price increase from $P^* \rightarrow P_1$ new equilibrium is at point B

— At point B

Price = P_1

Output = Q_1

equilibrium condition

1) $MR(Q_1) = SRMC(Q_1)$

2) Slope of $MR(Q_1) <$ slope of $SRMC(Q_1)$

\therefore The output increase from Q^* to Q_1 in SR

• Long Run

— At the old equilibrium (Point A)

Price = P^*

Output = Q^*

equilibrium condition

1) $MR(Q^*) = SRMC(Q^*)$

2) Slope of $MR(Q^*) <$ slope of $SRMC(Q^*)$

When Price increase from $P^* \rightarrow P_1$ new equilibrium is at point C

— At point C

Price = P_2

Output = Q_2

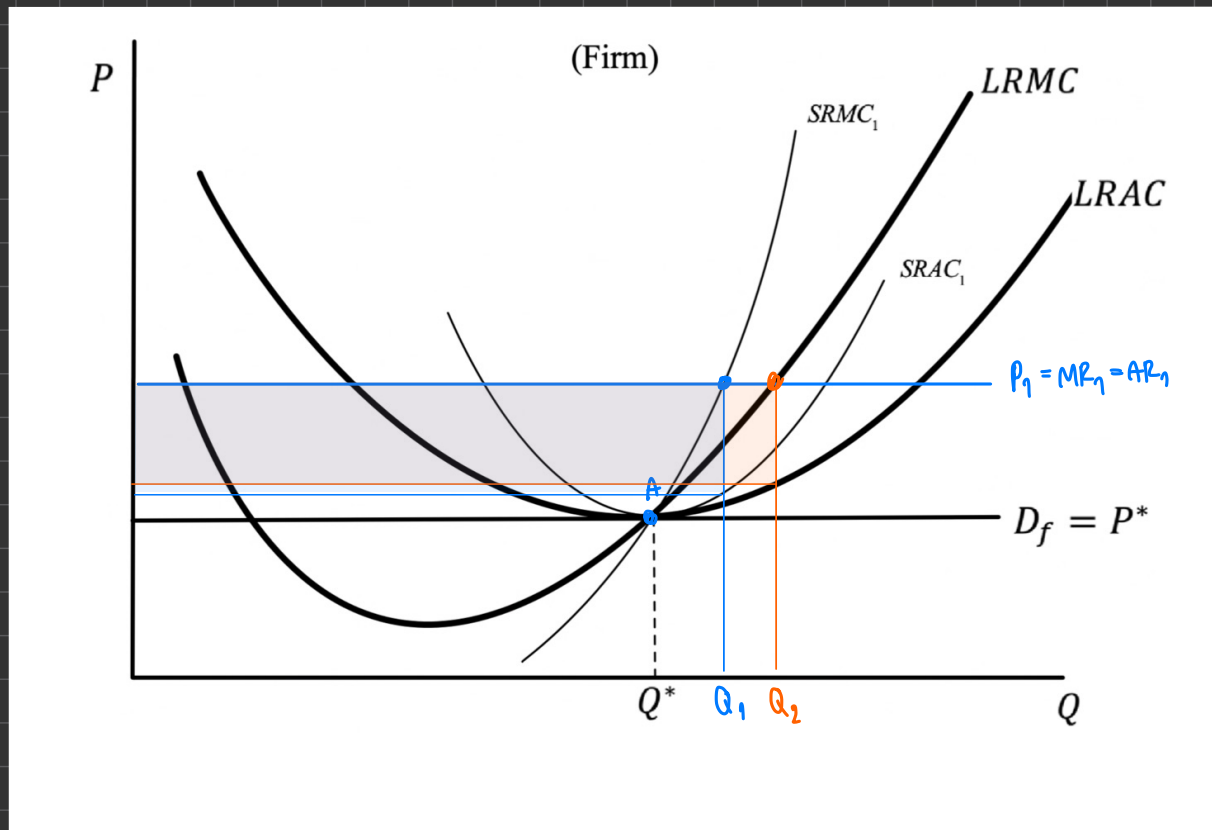
equilibrium condition

1) $MR(Q_2) = SRMC(Q_2)$

2) Slope of $MR(Q_2) <$ slope of $SRMC(Q_2)$

\therefore The output increase from Q^* to Q_2 in LR

b)



Long Run

$$\text{Profit} = Q_2 \times [LRMC(Q_2) - LRAC(Q_2)]$$

Short Run

$$\text{Profit} = Q_1 \times [SRMC(Q_1) - SRMC(Q_1)]$$

c) In Long Run at the same Price of Short Run the Quantity is higher.