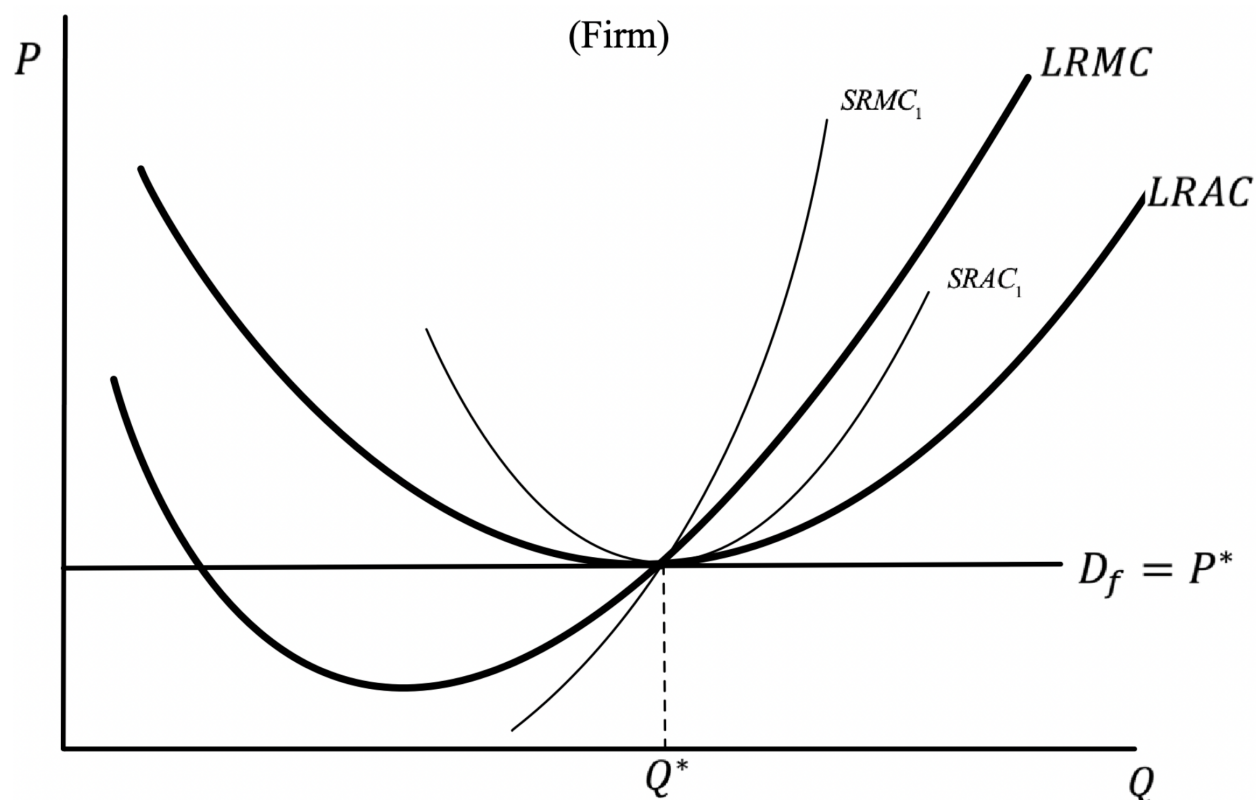


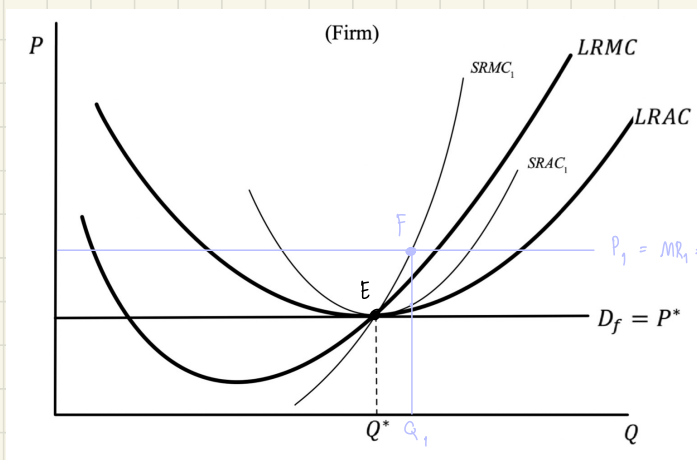
HW#16

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 ,

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



a) • Short Run



At the old equilibrium (Point E), Price = P^* and Output = Q^*

The Equilibrium conditions at point E

- 1) $MR(Q^*) = SRMC(Q^*)$
- 2) slope of $MR(Q^*) < \text{slope of } SRMC(Q^*)$

When price increases from P^* to $P_1 \Rightarrow$ new equilibrium is at point F

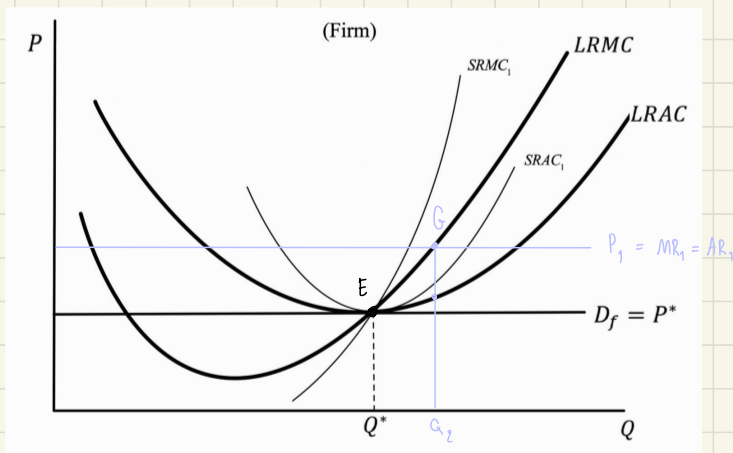
At the new equilibrium (Point F), Price = P_1 and Output = Q_1

The equilibrium conditions at point F

- 1) $MR(Q_1) = SRMC(Q_1)$
- 2) slope of $MR(Q_1) < \text{slope of } SRMC(Q_1)$

$\therefore$ the output change from Q^* to Q_1 in short run

• Long Run



At the old equilibrium (Point E), Price = P^* and Output = Q^*

The Equilibrium conditions at point E

- 1) $MR(Q^*) = LRMC(Q^*)$
- 2) slope of $MR(Q^*) < \text{slope of } LRMC(Q^*)$

When price increases from P^* to $P_1 \Rightarrow$ new equilibrium is at point G

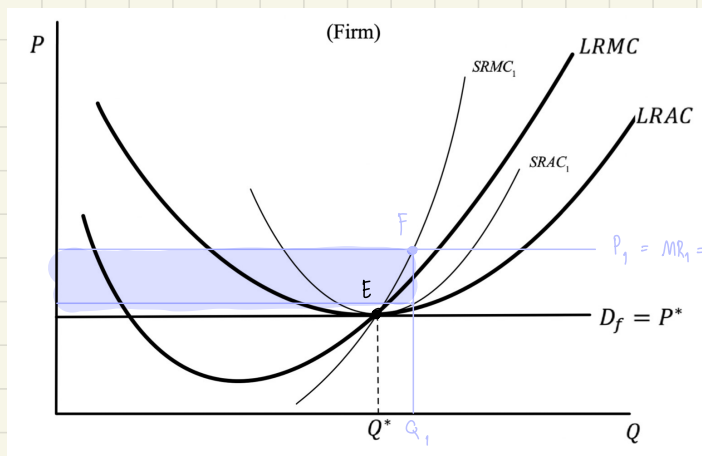
At the new equilibrium (Point G), Price = P_1 and Output = Q_2

The equilibrium conditions at point G

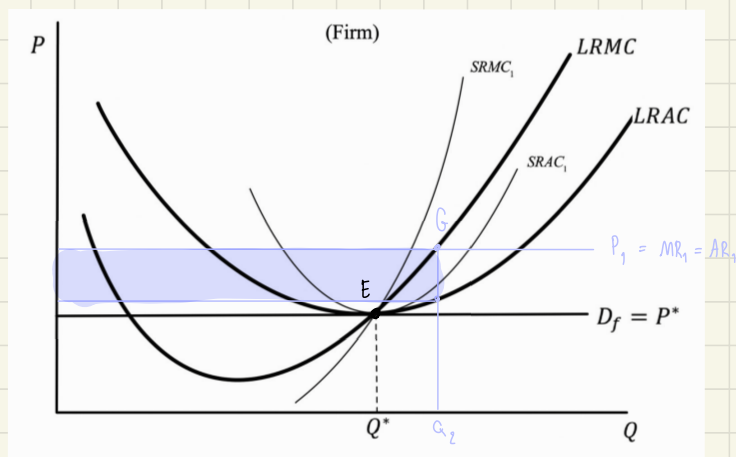
- 1) $MR(Q_2) = LRMC(Q_2)$
- 2) slope of $MR(Q_2) < \text{slope of } LRMC(Q_2)$

$\therefore$ the output change from Q^* to Q_2 in long run

b) • short run



• long run



c) In long run, firm will have bigger profit than short run because at the same price in long run has higher quantity and $SRAC$ will always above $LRAC$.