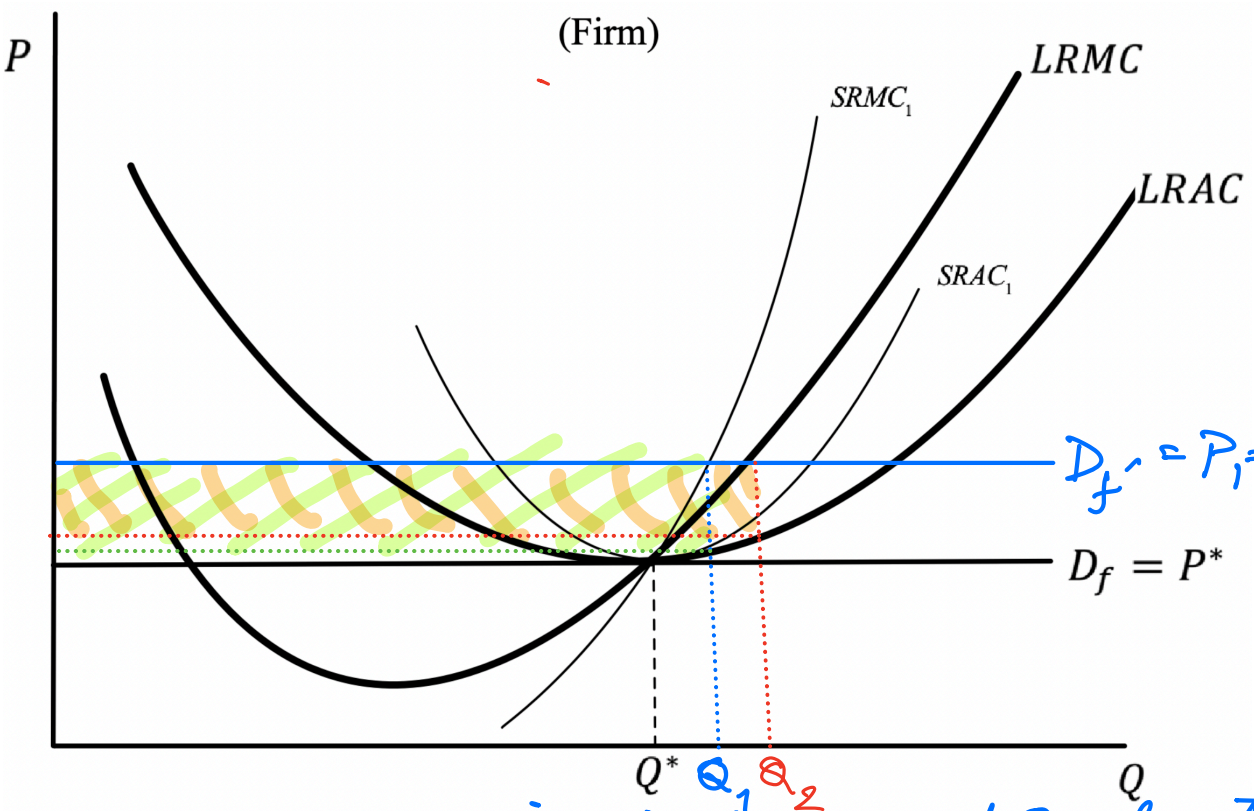
HW#16

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). In Short Run, the firm will produce at Q_1 where the profit will be maximized because

1) $P_1 = MR_1 = SRMC(Q_1)$ and

2) slope $MR_1 = 0$ < slope $SRMC(Q_1)$

In Long Run, the firm maximizes profits at Q_2 wh

1) $P_1 = MR_1 = LRMC(Q_2)$ and

2) slope $MR_1 = 0$ < slope of $LRMC(Q_2)$

b) Profit in Short Run is area shaded in = $[P_1 - SRAC(Q_1)] \times Q_1$

Profit in Long Run is area shaded in = $[P_1 - LRAC(Q_2)] \times Q_2$

C) Maximum profit in Short run is less than maximum profit in Long run because

profit in Short Run $= [P_1 - SRAC(Q_1)] \times Q_1$

$< [P_1 - LRAC(Q_1)] \times Q_1$

$< [P_1 - LRAC(Q_2)] \times Q_2$

the first inequality is true because

$SRAC(Q_1) > LRAC(Q_1)$.

The second inequality is true because LR profit is maximized at Q_2 therefore

profit at Q_1 < profit at Q_2

$[P_1 - LRAC(Q_1)] \cdot Q_1 < [P_1 - LRAC(Q_2)] \cdot Q_2$