1.a) $MP_L = 6$ $MP_K = 8$

$|MRTS_{LK}| = \left|\frac{\Delta K}{\Delta L}\right| = \frac{MP_L}{MP_K}$

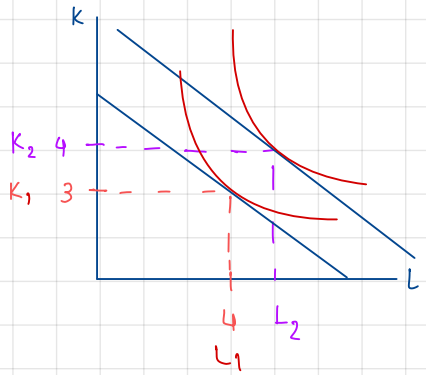
$= \frac{6}{8} = \frac{3}{4}$ ※

$|MRMS_{LK}| = \left|\frac{\Delta K}{\Delta L}\right| = \frac{w}{r}$

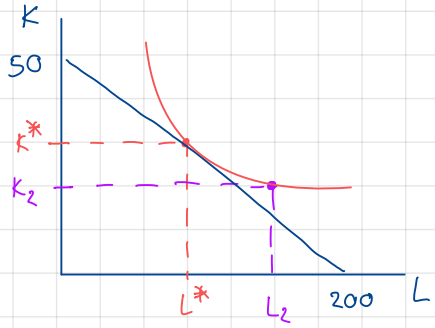
$= \frac{3}{4} = \frac{w}{r}$

∴ interest rate at the equilibrium is 4 ※

1.b)



2.a) $L = 200$ units = \$10 $K = 50$ units = \$20 $MP_K = 8$



∴ When the firm produce too much they have to spent a lot of money and to save the money they have to minimize the cost.

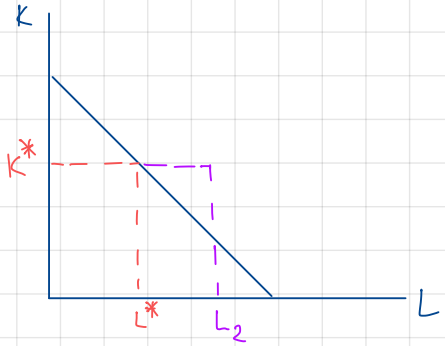
2.b)

$\left|\frac{\Delta K}{\Delta L}\right| = \frac{MP_L}{MP_K} = \frac{MP_L}{8}$

$= \frac{50}{200} = \frac{MP_L}{8}$

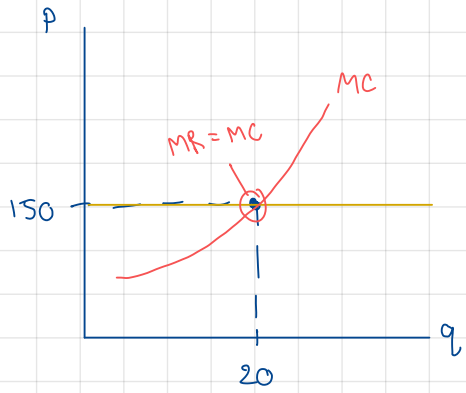
$MP_L = \frac{400}{200} = 2$ ※

2.c)



2.d) Short run is a period of time in which the quantity of at least one input is fixed and other inputs can be varied but long run is a period of time that the quantities of all inputs can be varied.

3. a)



3. b) (AC = 180 AFC = 60)

TR = ?

TR = P · q

150 · 20 = 3000 ✻

profit = ?

π = TR − TC

3000 − 3600 = −600 ✻

TC = ?

$AC = \frac{TC}{q}$

$180 = \frac{TC}{20} \rightarrow TC = 3{,}600$ ✻

AVC = ?

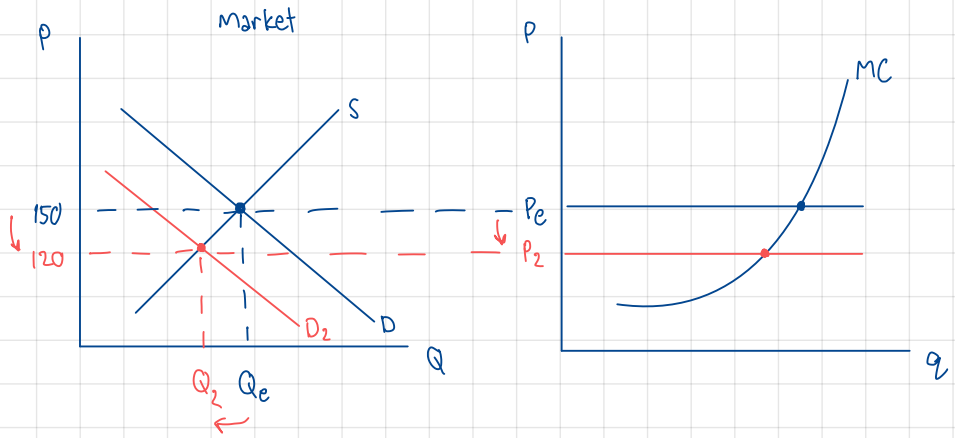
AC = AFC + AVC

180 = 60 + AVC

AVC = 120 ✻

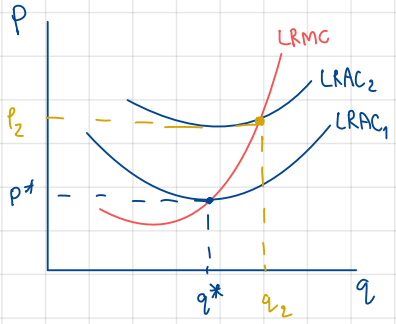
3. c) No, because TR < TC so, the firm has loss.

3. d)



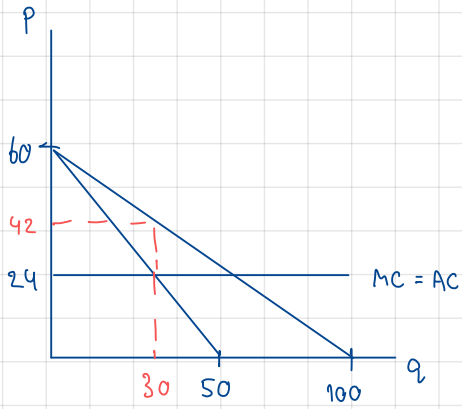
4.a) LRAC is the average of total cost per one output. So, when the government grants a lump sum subsidy to every firmer the LRAC will be increase but do not affect the LRMC.

4.b) The lump sum subsidy will change the quantity



4.c) This Excess profit will affect the market price in the long run by increasing supply, so the price in market will be decrease.

5.a)



MR = ?

$P = 60 - 1.2Q$ ※

5.b)

$MR = MC$

$60 - 1.2Q = 24$

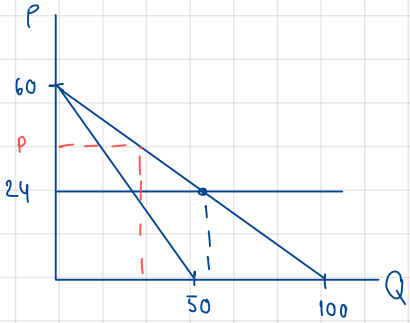
$60 - 24 = 1.2Q$

$Q = 30$ ※

$P = 60 - 0.6(30) = 42$

∴ Profit $= (P - C) \cdot Q = (42 - 24) \cdot 30 = 540$ ※

5.c)



∴ The intervention prevent HL to receive too much money and remove DWL.

$P = MC$

before intervention

CS = 1 PS = 2(π) DWL = 3

After intervention

CS = 1+2+3 PS = - DWL = -

6.a) $MR = LRMC \quad CS = -1 \quad DWL = 3 \quad (p^* - c) = 2$

6.b) $i = \frac{P - MC}{P}$

$= \frac{50 - 10}{50} = \frac{4}{5}$ ✱✱

6.c) Monopoly loss profit because $f < LRAC$

6.d) No because the firm is at normal profit.