Week 5.

隨9. 技A = $q = \min\{L/2, K/4\}$. 假設 $w=1, r=2$.

技B = $q = \min\{L/4, K/2\}$.

(A). A成本函數 = 生產成本 + 權利金成本.

生產成本 = $q = L/2 = K/4 \Rightarrow L = 2q, K = 4q$.

$\rightarrow C = 1\times 2q + 2\times 4q = 10q$.

$TC_A = 10q + 40$ #

B. 成本函數 (TCB).

生產函數 = $q = L/4 = K/2 \Rightarrow L = 4q, K = 2q$.

$\rightarrow C = 1\times 4q + 2\times 2q = 8q$.

$TC_B = 8q + 100$ #

(B). $q = 20$, $TC_A = 240$, $TC_B = 260$ $\Rightarrow$ 買A.

(C). $q = 40$, $\begin{cases} TC_A = 440 \\ TC_B = 420 \end{cases}$ $\Rightarrow$ 買B.

(D). 令 $TC_A < TC_B$

$10q + 40 < 8q + 100$

$2q < 60$, $q < 30$ $\Rightarrow$ 低於 30 #.

隨11. (A) $q = 10L^{0.5}K^{0.5} \Rightarrow L = \frac{q^2}{100K}$.

$STC = 10\times\frac{q^2}{100K} + 10K = q^2/10K + 10K$ #

$AC = (q/10K) + (10K/q)$

$MC = q/5K$

(B). $\frac{dSTC}{dK} = \frac{-q^2}{10K^2} + 10 = 0 \rightarrow K\% = \frac{q}{10}$.

$STC(K = K\%) = \frac{q^2}{10\times(q/10)} + 10\frac{q}{10} = q + q = 2q$. #