Week 5.

3. (A). TC_A = 生產成本 + 租賃/資本成本

$q = \sqrt{L} \cdot \sqrt{K}$ ⇒ $L = q$, $K = 4q$

$TC_A = 10q + 40$.

$TC_B = 1 \times 4q + 2 \times 2q + 100$

$= 8q + 100$.

(B). $q = 20$, $TC_A = 240$, $TC_B = 260$. → (A)

(C). $q = 40$, $TC_A = 440$, $TC_B = 420$ → (B).

(D). $8q + 100 > 10q + 40$

⇒ $q < 30$. 才對 → (A)

4. (A). $q = 10 L^{0.5} K^{0.5}$ ⇒ $L^* = \frac{q^2}{100K}$

$STC = 10L^* + 10K$ ⇒ $\left(\frac{q^2}{10K}\right) + 10K$

$AC = \frac{q}{10K} + \frac{10K}{q}$

$MC = \frac{q}{5K}$

(B). $\frac{\partial STC}{\partial K} = \frac{-q^2}{10K^2} + 10 = 0$. ⇒ $\hat{K} = \frac{q}{10}$,

⇒ $TC = STC(K = \hat{K}) = \frac{-q^2}{10 \times \frac{q}{10}} + 10\frac{q}{10} = \frac{q}{2}$