A技術

3. (A) 生產成本：$\frac{q}{2} = \frac{L}{2} = \frac{K}{4} \Rightarrow L = 2q$, $K = 4q \Rightarrow C = 1 \times 2q + 2 \times 4q = 10q$

$TC_A = 10q + 40$

B技術

生產成本：$q = \frac{L}{4} = \frac{K}{2} \Rightarrow L = 4q$, $K = 2q \Rightarrow C = 1 \times 4q + 2 \times 2q = 8q$

$TC_B = 8q + 100$

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

(C) $q = 40$, $TC_A = 440$, $TC_B = 420$, 購買 B 技術

(D) $TC_A < TC_B$, $q < 30$, 產量低於 30，購買 A 技術

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

$AC = (\frac{q}{10K}) + (\frac{10K}{q})$, $MC = (\frac{q}{5K})$

(B) $\frac{\partial STC}{\partial K} = \frac{-q^2}{10K^2} + 10 = 0 \Rightarrow \tilde{K} = \frac{q}{10}$ 代 STC

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