week6:

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

$STC = 10L^* + 10L = \frac{q^2}{10k} + 10k$

$AC = \frac{q}{10k} + \frac{10k}{q} \Rightarrow MC = \frac{8}{5k}$

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

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

7. (A) $AFC = \frac{FC}{q} = \frac{50}{10} = 5$

(B) $AVC = q^2 - 12q + 1 \Rightarrow \frac{dAVC}{dq} = 2q - 12 = 0 \Rightarrow q = 6$

(C) $AVC \downarrow \Rightarrow APL \uparrow \Rightarrow q \geq 6$

(D) $MC = 3q^2 - 24q + 1 \Rightarrow \frac{dMC}{dq} = 6q - 24 = 0 \Rightarrow q = 4$

$MC \downarrow \Rightarrow MP_L \uparrow \Rightarrow q \geq 4$