Week 6 A10826010 3
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4 (A) $q = 10L^{\frac{1}{2}}K^{\frac{1}{2}} \rightarrow L^* = \frac{\bar{q}^2}{100k_0}$

$STC = 10 * \frac{\bar{q}^2}{100k_0} + 10k_0 = \frac{\bar{q}^2}{10k} + 10k$

$SAC = \frac{q}{10k} + \frac{10k}{q}$

$SMC = \frac{dSTC}{dq} = \frac{q}{5k}$

(B) $\frac{dSTC}{dk} = \frac{-q^2}{10k^2} + 10 = 0 \rightarrow \bar{k} = \frac{q}{10}$

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生產函數	$q = 10L^{0.5}K^{0.5}$	$q = 2L + k$	$q = \min(2L, k)$	$q = \max(2L, k)$
TC	$0.2q$	$0.5q$	$1.5q$	$0.5q$
AC	0.2	0.5	1.5	0.5
MC	0.2	0.5	1.5	0.5

(A) $q = 10 \rightarrow AFC$

$\frac{SFC}{q} = \frac{50}{10} = 5$

(B) $AVC = \frac{q^3 + 12q^2 + 9}{q} = q^2 + 12q + 1$

$\frac{dAVC}{dP} = 2q + 12 = 0 \quad q = 6$

(2)

$ME = \frac{dTC}{dP} = 3q^2 - 24q + 1$

$\frac{dMC}{dP} = 6q - 24 = 0 \quad q = 4$