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5.(a) $MRTS_{LK} = \frac{K}{L} = \frac{\Delta(\frac{K}{L})}{\Delta MRTS_{LK}} = 1$

$G = 1 \times \frac{MRTS}{(\frac{K}{L})} = 1$

(b) $MRTS_{LK} = \frac{MP_L}{MP_K} = \frac{MP_L}{MP_K} = \frac{1}{2}$ 0 $MRTS_{LK} = 0$

$\frac{d\ln\frac{K}{L}}{d\ln(\frac{1}{2})} = \infty$

替代彈性 $G = \frac{\%\cdot G(\frac{K}{L})}{\%\ \Delta MRTS_{LK}} = \frac{\Delta(\frac{K}{L})}{\Delta MRTS_{LK}} - \frac{MRTS_{LK}}{(\frac{K}{L})}$

$MRTS_{LK} = \frac{MP_L}{MP_K}$, $MP_L = \frac{1}{2}L^{\frac{1}{2}}K^{\frac{1}{2}}$; $MP_K = \frac{1}{2}L^{\frac{1}{2}}K^{\frac{1}{2}}$

| 8 | $q = 5L$ | $q = 2L + 3K$ | $q = Min(L, K)$ | $q = (0.2L^{-0.5} + 0.8K^{-0.5})^{-2}$ |
|---|---|---|---|---|
| 邊際產量 | $MP_L = 5$ | $MP_L = 2$ | 拆定無法微分 | $MP_L = 0.2(0)^{-3}L^{-1.5}$ |
| | $MP_K = 5$ | $MP_K = 3$ | | $MP_K = 0.8(0)^{-3}K^{-1.5}$ |
| 邊際報酬遞減率 | $\frac{K}{L}$ | $\frac{2}{3}$ | 1、0、∞ | $\Delta = 0.2L^{-0.5} + 0.8K^{-0.5}$ |
| 規模報酬 | IRS | CRS | CRS | $0.25(\frac{K}{L})^{1.5}$ CRS |
| 生產彈性 | $\varepsilon_L = \varepsilon_K = 1$ | $\varepsilon_L = \frac{2L}{2L+3K}$ $\varepsilon_K = \frac{3K}{2L+3K}$ | 拆定無法積分 | $\varepsilon_L = \frac{0.2L^{-0.5}}{\Delta}$ $\varepsilon_\lambda = \frac{0.8K^{-0.5}}{\Delta}$ |
| 生產力彈性 | 2 | 1 | 1 | 1 |
| 替代彈性 | 1 | ∞ | 0 | $\frac{2}{3}$ |

9、T(1) $F(\lambda L, \lambda K) = \lambda Q$

F(2)

T(3)

10、(A) $F(\lambda L, \lambda K) = [(\lambda L)^{\alpha} + (\lambda K)^{\alpha}]^{\beta} = \lambda^{\alpha\beta} \cdot q$. $\alpha\beta = 1$ CRS; $\alpha\beta > 1$ IRS $\Rightarrow$ IRS; $\alpha\beta < 1 \Rightarrow$ DRS

(B) 左右取 e $\Rightarrow q = e^{5} \cdot L^{0.5} \cdot K^{0.2} \Rightarrow$ DRS

(C) $F(\lambda L, \lambda K) = [\min(a\lambda L, b\lambda K)]^{\alpha} = \lambda^{\alpha} q$ $\alpha = 1 \Rightarrow$ CRS. $\alpha > 1 \Rightarrow$ IRS

$\alpha < 1 \Rightarrow$ DRS