3/23 #HW

No.
Date

3. A技術權利金#40, B技術權利金#100, 技術的生產函數.

技術A: $q = \text{Min}[L/2, K/4]$

B. $q = \text{Min}[L/4, K/2]$. 假設 $w=1$, $r=2$.

(A). TC: $q = aL = bK$

$L^* = \frac{q}{a}$, $K^* = \frac{q}{b}$. A: $LTC = wL^* + rK^*$

$= 1 \cdot 80 + 2 \cdot 160 = 400$ (320)

$\frac{L}{2} = \frac{K}{4} = 40$ B $LTC = 1 \cdot 400 + 2 \cdot 200 = 800$

$\frac{L}{4} = \frac{K}{2} = 100$

(B) 若公司生產20單位, 應購買哪一種技術. A.

$(\frac{20}{2}, \frac{20}{4}) = (10, 20)$

A: ~~40~~ $(10+40) = $ ~~2000~~ 50 ✓.

B: $(\frac{20}{4}, \frac{20}{2}) = (5, 10)$

~~100~~ $(5+20) = 25$~~00~~

(C) 若公司生產40單位. B.

$(\frac{40}{2}, \frac{40}{4}) = (20, 10)$

~~40~~ $(20+20) = $ ~~1600~~ 40.

$(\frac{40}{4}, \frac{40}{2}) = (10, 20)$

~~100~~ $(10+40) = 5000$. ✓

(D) 在產量低於多少時, 應購買A技術

chey-culture

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4. $q = 10L^{0.5}K^{0.5}$，且 $w = r = 10$。但設 K 固定 K_0

(A) 求短期成本，變動成本，邊際成本函數。

TC　　MC = 2

$|MRTS| = \frac{MP_L}{MP_K} = \frac{w}{r} = 1$.

$\Rightarrow L^* = K^* = 0.1q$

$q = 10L^{0.5}K^{0.5} = 10 \cdot (100)^{0.5} = 100$.

$TC = rK^* + wL^*$

$= 10 \cdot 0.1q + 10 \cdot 0.1q = 2q$.

$MC = 2$