

week 2.

1	k	L	Q	APL	APK	MPL
(1)	20	0	0	0	0	0
(2)	20	5	20	4	1	4
(3)	20	10	43	4.3	2.15	4.6
(4)	20	15	57	3.8	2.85	2.8
(5)	20	20	67	3.35	3.35	2
(6)	20	25	75	3	3.75	1.6

$$APL = Q/L$$

$$APK = Q/K$$

$$MPL = (Q_2 - Q_1) / (L_2 - L_1)$$

$$(1) APL = 0/0 = 0 / APK = Q/K = 0/0 = 0 / MPL = (20-0)/(5-0) = 4.$$

$$(2) APL = 20/5 = 4 / APK = 20/20 = 1 / MPL = (43-20)/(10-5) = 4.6.$$

$$(6) Q = APL \times L = 3 \times 25 = 75.$$

2. 已知生產函數為  $Q = 21L + 9L^2 - L^3$

(A) L 大於多少時, MPL 開始遞減

$$APL = 21 + 18L - 3L^2$$

$$\rightarrow dMPL/dL = 18 - 6L = 0 \rightarrow L = 3. (A) (d)$$

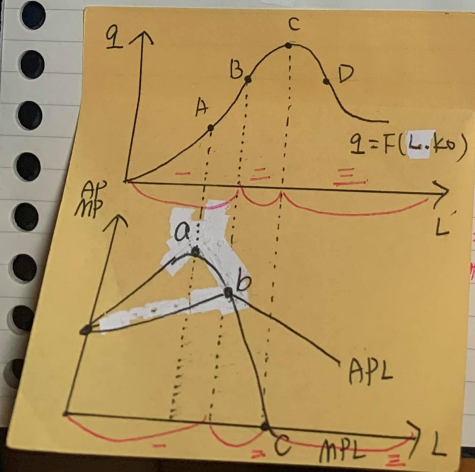
(B) L 等於多少時, TP 達最大 總產量極大時, 其切線斜率為零

$$\text{令 } MPL = 0 \rightarrow L = 7. (C)$$

(C) L 大於多少時, APL 開始遞減

$$APL = 21 + 9L - L^2$$

$$\rightarrow dAPL/dL = 9 - 2L = 0 \rightarrow L = 4.5. (B) (b)$$



• 總產量極大時其切線斜率為零

• MPL 為 TPL 曲線的斜率

• 邊際產量為 0 即  $dQ/dL = MPL = 0$

• APL 在最高點 C 時, 其切線斜率為 0

• MP 達過 AP 最高點時  $MP = AP$

$$\bullet \frac{\partial APL}{\partial L} = \frac{\partial (Q/L)}{\partial L} = \frac{L \frac{\partial Q}{\partial L} - Q}{L^2}$$

量區域

$$= 0$$