

①

K	L	q	AP _L	AP _K	MP _L
20	0	0			
20	5	20	4	1	4
20	10	43	4.3	2.15	4.6
20	15	59	3.8	2.85	2.8
20	20	67	3.35	3.35	2
20	25	75	3	3.75	1.6

$$AP_L = \frac{q}{L}, \quad MP_L = \frac{dq}{dL}, \quad AP_K = \frac{q}{K}$$

② $q = 21L + 9L^2 - L^3$

(A) $\frac{d^2q}{dL^2} = 0 = 18 - 6L \rightarrow$ 故 $L > 3$ 時 MP_L 遞減

(B) $\frac{dq}{dL} = 0 = 21 + 18L - 3L^2 \rightarrow$ 故 $L = 7$ or -1 (不合)

(C) $MP = AP$ 時, 為 AP 最高點 $\rightarrow 21 + 18L - 3L^2 = \frac{21L + 9L^2 - L^3}{L}$
 $\rightarrow 2L^2 - 9L = 0 \rightarrow L(2L - 9) = 0 \rightarrow L = 0$ (不合) or $\frac{9}{2}$
 故 $L = \frac{9}{2}$ 時, AP_L 遞減

③ $q = \alpha L + \beta K \rightarrow 500 = 5 \cdot 10 + \beta \cdot 5 \rightarrow \beta = 90 *$

④ (A) $q = 5A + 10B$

(B) 令麵包師傅 = A; 烤箱 = B
 $\min[2A, B]$