

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	57	3.8	2.85	2.8
20	20	67	3.35	3.35	2
20	25	75	3	3.75	1.6

$$AP_L = \frac{q}{L}$$

$$MP_L = \frac{dq}{dL} = \frac{\text{產值增量}}{\text{單位勞動}}$$

$$AP_K = \frac{q}{K}$$

2.

$$(A) MP_L = 21 + 18L - 3L^2$$

$$\frac{dMP_L}{dL} = 18 - 6L = 0 \quad L = 3$$

(B) $MP_L = 0$ 時 TP 會最大

$$\Rightarrow 21 + 18L - 3L^2 = 0 \quad L = 7$$

(C)

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

$$\frac{dAP_L}{dL} = 9 - 2L = 0 \quad L = 4.5$$

3.

$$STC = 10 \times 5 + 5 \times MP_K \rightarrow PM_K = 90$$

4.

$$(A) q = 5A + 10B$$

$$(B) q = \text{Min} \{ L/2, K \}$$