完競

例1. $Q^d = 2000 - 10P$, $n = 40$

$STC = q^2 + 50q + 100$

(1) 廠商短期供給曲線

P > AVC 的 MC 曲線

$P = MC = 2q + 50$

$AVC = q_1 + 50$

$P > AVC$

$2q_1 + 50 > q_1 + 50$ (恆成立)

$P = 2q_1 + 50$

$q_1 = \frac{P}{2} - 25$ ※

(2) 市場供給曲線 ※個別水平加總.

$Q = \sum_{1}^{40} q_1$

$= 40(\frac{P}{2} - 25)$

$= 20P - 1000$ ※

(3) 市場均衡、價格、數量.

※ $S = P$

$20P - 1000 = 2000 - 10P$

$P^* = 100$, $Q^* = 1000$ ※

(4) 廠商最適產量、利潤

$q_1 = \frac{P}{2} - 25$

$= \frac{100}{2} - 25 = 25$ ※

$TV = TR - TC$

$= 100 \times 25 - (25^2 + 50 \times 25 + 100)$

$= 525$ ※

延伸, $Q^d = 2000 - 10P$, $n = 40$

$STC = q_1^2 + 80q + 300$

(1) $MC = 2q_1 + 80 = P$

$AVC = q_1 + 80$

$q_1 = \frac{P}{2} - 40$ ※

(2) $20P - 1600 = 2000 - 10P$

$P^* = 120$, $Q^* = 800$ ※

(3) $Q = \sum_{1}^{40} q_1$

$= 40(\frac{P}{2} - 40)$

$= 20P - 1600$ ※

(4) $q_1 = \frac{P}{2} - 40$

$= \frac{120}{2} - 40 = 20$ ※

$TV = 120(20) - (20^2 - 80 \cdot 20 + 300)$

$= 100$ ※

延伸, $Q^d = 3500 - 10P$, $STC = q_1^2 + 50q_1 + 100$, $n = 40$

(1) $MC = 2q_1 + 50 = P$

$AVC = q_1 + 50$

$q_1 = \frac{P}{2} - 25$ ※

(2) $Q = \sum_{1}^{40} q_1$

$= 20P - 1000$ ※

(3) $20P - 1000 = 3500 - 10P$

$P^* = 150$, $Q^* = 2000$ ※

(4) $q_1 = \frac{P}{2} - 25$

$= \frac{150}{2} - 25 = 50$ ※

$TV = 150 \cdot 50 - (50^2 - 50 \cdot 50 + 100) = 2400$