1. $Q^d = 2000 - 10p$ $n=40$

$STC = q_1^2 + 60q_1 + 100$

(1) # $p \geq AVC$ 时 MC 的线

$p \geq MC = 2q_1 + 60$

$AVC = q_1 + 60$

$p \geq AVC$

$2q_1 + 60 \geq q_1 + 60$ (此时定) $\rightarrow p = 2q_1 + 60$

$q_1 = \frac{p}{2} - 26$ #

(2) # 个别供给函数

$Q = \sum q_1$

$= 40(\frac{p}{2} - 26)$

$= 20p - 1040$ #

(3) # $S = D$

$20p - 1040 = 2000 - 10p$

$p^* = 100$, $Q^* = 1000$ #

(4) $q_1 = \frac{p}{2} - 26$

$= \frac{100}{2} - 26 = 24$ #

$TV = TR - TC$

$= 100 \cdot 25 - (25^2 + 60 \times 25 + 100)$

$= 525$ #

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

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

$AVC = q_1 + 50$

$q_1 = \frac{p}{2} - 25$ #

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

$= 20p - 1000$ #

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

$p^* = 150$, $Q^* = 2000$ #

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

$= \frac{150}{2} - 25 = 50$ #

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

3. $Q^d = 2000 - 10p$, $n = 40$ $STC = q_1^2 + 80q + 200$

(1) $MC = 2q + 80 = p$

$AVC = q_1 + 80$

$q_1 = \frac{p}{2} - 40$ #

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

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

$= 20p - 1600$ #

(3) $20p - 1600 = 2000 - 10p$

$p^* = 120$, $Q^* = 800$ #

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

$= \frac{120}{2} - 40 = 20$ #

$TV = 120(20) - (20^2 + 80 \times 20 + 200)$

$= 1800$ #