隨堂2、

市場需求曲線為 $Q^d = 3500 - 10P$

問 (1)廠商短期供給 (2)市場供給 (3)市場均衡價格必數量 (4)廠商最適數量與利潤

利潤極大化：

$P = MC = 2q_i + 50$

$\Rightarrow q_i = \frac{P}{2} - 25$ #

市場需求函數

$Q^S = \sum_{i=1}^{40} q_i = 40(\frac{P}{2} - 25) = 20P - 1,000$ #

$Q^d = 3,500 - 10P = Q^S = 20P - 1000$

$P = 150$

$Q^* = 2,000$ #

$q_i = \frac{P}{2} - 25 = \frac{150}{2} - 25 = 50$

$\pi = Pq_i - STC = 1500 \cdot 50 - 5100 = 2,400$

1500

當 Q^d ↑

$P = 100 \to 150$ (↑)

$Q^* = 1,000 \to 2,000$ (↑)

$q_i = 25 \to 50$ (↑)

$\pi = 525 \to 2,400$ (↑)

隨堂3、

生產成本上升 $STC = q_i^2 + 80q + 300$

問 (1) (2) (3) (4)

$P = MC = 2q_i + 80$

$q_i = \frac{P}{2} - 40$ #

$Q^S = \sum_{i=1}^{40} q_i = 40(\frac{P}{2} - 40) = 20P - 1600$ #

$Q^d = 2,000 - 10P = 20P - 1600$

$P^* = 120$

$Q^* = 800$ #

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

$\pi = Pq_i - STC = 2400 - 2,300 = 100$

120 20

當生產成本↑

$P = 100 \to 120$ (↑)

$Q^* = 1000 \to 800$ (↓)

$q_i = 25 \to 20$ (↓)

$\pi = 525 \to 100$ (↓)