Week 7 作業

1, $Q^d = 2000 - 10P$　　$STC = q^2 + 50q + 100$　　$n = 40$

① ~~廠商~~ 廠商短期供給

$MC = 2q + 50$　　$q = \frac{MC}{2} - 25$

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

② 市場供給

$Q^s = 2000 - 10P$

$40(\frac{P}{2} - 25) = 20P - 1000$

③ 市場均衡價与量

$2000 - 10P = 20P - 1000$

$30P = 3000$

$P = 100$　　$Q = 1000$

④ 廠商最適量与利潤

$q = \frac{100}{2} - 25$

$= 25$

利潤

$\pi = Pq - STC$

$100(25) - (25)^2 + 50(25) + 100$

$= 525$

2, $Q^d = 3500 - 10P$　　$STC = q^2 + 50q + 100$

①廠商短期供給

$MC = 2q + 50$　　$q = \frac{P}{2} - 25$

② 市場供給

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

$= 20P - 1000$

③ 市場均衡價与量

$20P - 1000 = 3500 - 10P$

$30P = 4500$

$P = 150$　　$Q = 2000$

④ 廠商最適量与利潤

$q = \frac{150}{2} - 25$

$= 50$

$\pi = Pq - STC$

$150(50) - (50)^2 + 50(50) + 100$

$7500 - 5100$

$= 2400$

3, $Q^d = 2000 - 10P$ $STC = q^2 + 80q + 300$

① 厂商短期供给

$MC = 2q + 80$ $q = \frac{P}{2} - 40$

② 市场供给

$Q^s = 40\left(\frac{P}{2} - 40\right)$

$= 20P - 1600$

③ 市场均衡价与量

$20P - 1600 = 2000 - 10P$

$30P = 3600$ $P = 120$ $Q = 800$

④ 厂商最适量与利润

$q = \frac{120}{2} - 40$

$= 20$

$\pi = P_q - STC$

$120(20) - (20^2) + 80(20) + 300$

$= 100$