

Econ 100B (Grossman)—Winter 2010

Answers (but not detailed solutions) to Spring 09, free-response question 2

The answers to parts a through g you can get simply by looking at the chart summarizing the results of the extended oligopoly models comparison example from the second set of lecture slides on oligopoly (from 2/11). The inverse demand given is $p = 2 - Q$ and $MC = 1$ so $a = 2$ and $c = 1$, implying $a - c = 1$. Thus the answers are mostly just the coefficients from the relevant column in the chart

1. Oligopoly question

- (a) Cournot: $Q = 2/3, p = 4/3$
- (b) Cournot: $CS = 2/9, \Pi = 2/9, W = 4/9$
- (c) Cartel: $Q = 1/2, p = 3/2$
- (d) Cartel: $CS = 1/8, \Pi = 1/4, W = 3/8$
- (e) Competition: $p = MC = 1, Q = 1, CS = 1/2, \Pi = 0, W = 1/2$
- (f) From competition to cartel: output decreases, price increases, profits up, CS and welfare down
- (g) Subsidy effectively reduces MC to zero. $p = 2/3, Q = 4/3$. Profits and CS increase, but benefits are canceled out by cost of subsidy (govt. expenditures). Subsidy causes Q to overshoot efficient quantity of 1, it lands as far above efficient Q as it was below before. The result is symmetric and equal DWL.
- (h) On the other hand, the subsidy is exactly enough to land the monopolist to land at the efficient level of provision. $Q = 1, p = 1$. As with competition, $CS = 1/2$. The monopolists' profits are zero per unit, but it gets the subsidy of 1 per unit, making for profits of 1. However, the subsidy costs 1 to provide, so $W = 1/2 + 1 - 1 = 1/2$. Because the subsidy encourages the under-producing cartel to produce the efficient amount, the DWL disappears.
- (i) See previous two answers. Subsidy would lower welfare in competitive case. Competitive industry already produces efficient amount. Subsidy would lead to inefficient over-production.
- (j) See above answers