

ECON 201
2008 SC
MICROECONOMICS

Assignment 2
(Due 4pm Friday 17 October)

1. Consider a perfectly competitive, constant-cost industry with market demand curve $Q = 540 - 30P$. In the short-run, there are 100 firms operating in the market. Each firm has $TVC(q) = q^2$ and fixed costs of \$20. For 50 of the firms, \$4 of these fixed costs are sunk, and for the other 50, all \$20 are sunk. What is the short-run equilibrium price P^* and quantity Q^* ? How much does each firm of each type produce in equilibrium?

[20 marks]

2. Consider a monopolist with production function

$$Q = L + K,$$

where L is labour and K is capital. Demand for the monopolist's product is represented by the inverse demand curve

$$P = 100 - Q.$$

Suppose the monopolist is a price-taker on both input markets, paying \$10 per unit of labour and \$10 per unit of capital. What is the monopolist's (long-run) profit maximising price and output?

[10 marks]

3. In New Zealand, the Commerce Commission is charged with enforcing the Commerce Act 1986.

- (a) Section 27(2) of the Commerce Act forbids activities which have the effect of "substantially lessening competition" in a market. BRIEFLY explain why social welfare is enhanced by having more firms serving a market rather than fewer.

[7 marks]

- (b) The Commerce Commission may nevertheless approve anti-competitive behaviour if there is sufficient “public benefit” from doing so. Identify ONE situation in which the social benefits of restricting competition may outweigh the social costs.

[3 marks]

4. Consider a homogeneous product duopoly with inverse demand curve $p = 20 - Q$. There are two technologies for producing the good. Technology A gives total cost function $TC_A(q) = 2q$ while Technology B gives total cost function

$$TC_B(q) = \frac{1}{2}q^2.$$

Each firm simultaneously chooses which technology to use. After observing its rival’s technology choice, each firm then simultaneously chooses its output.

- (a) For each possible combination of technology choices, use the Nash equilibrium concept to find the output levels that would be chosen by the firms and their associated profit levels.¹

[NOTE: There are FOUR possible combinations to be considered here.]

[16 marks]

- (b) Using your answer to part (a), determine the technology chosen by each firm.

[4 marks]

¹Some of the profit levels will not be nice round figures, so don’t worry if the numbers do not come out “neatly”.