Econ 301: Intermediate Microeconomics Spring 2014

Discussion Section #10 Handout April 18

Problem 1 (Basic Monopoly)

Consider a monopolist with total cost $TC = \frac{1}{2}y^2$ facing a demand $p(y) = 300 - y$.

a) What is the profit maximizing level of output and the resulting price?

b) What is the producer surplus (PS) at this level of output?

c) What is the consumer surplus (CS) at this level of output?

d) Is the outcome Pareto efficient? If not, what is the deadweight loss (DWL)?

Problem 2 (Monopoly and Price Discrimination)

Airline BestFly is a monopolist in the market of Island Zee. It has to decide how many tickets, y, are to be sold for the next holiday season. The fixed cost of running the airline is $F = \$40{,}000$ and the variable cost is given by $C(y) = 100y$. BestFly faces an inverse demand curve $p(y) = 600 - y$.

a) Suppose BestFly can perfectly discriminate (first degree price discriminate). Calculate BestFly profits.

There are two types of travelers on the Island of Zee: business travelers with demand $p^B = 1200 - 4y^B$ and tourist travelers with demand $p^T = 400 - \frac{4}{3}y^T$.

b) Show that if BestFly does not discriminate, the aggregate inverse demand is the same as in part a).

c) Find the level of sales, prices, profits, and demand elasticities' of each of the market segments (business and tourist travelers) under third degree price discrimination.

d) Compare the PS and CS in the following three case: (1) uniform price (nondiscriminating monopolist), (2) perfect (first degree) price discrimination, and (3) third degree price discrimination.

Problem 3 (Demand Elasticity)

Suppose a monopolistic firm is facing the following demand: $y(p) = 2 - p$.

a) Calculate the value of the demand elasticity ϵ for $y = 0$, $y = 1$, and $y = 2$.

b) Write down the marginal revenue (MR) in terms of elasticity ϵ and price p. What is the value of ϵ when $MR = 0$? What about when $MR > 0$?

c) Find the markup over the marginal cost (MC).