Econ 101: Principles of Microeconomics Fall 2012

Homework #8 November 9, 2012

Problem 1: State whether each statement is true or false and explain why.

(1) Monopolists can charge whatever price they want and maximize profit since they are price makers.
(2) A firm that has a monopoly on a certain good must worry about the actions of other firms who sell close substitutes.
(3) Average Total Cost is the change in output over the change in quantity produced.
(4) Perfectly competitive firms will receive normal economic profit in the long run regardless of the decisions they make.
(5) Rent-seeking is taken into account when calculating the deadweight loss from a monopolist market structure.
(6) The market for wheat is an example of a perfectly competitive market.
(7) A firm has a marginal revenue function: MR(q) = 4q + 5. This firm is in a perfectly competitve market.

Problem 2: The marginal revenue and marginal cost functions for a monopolist firm that mines diamonds are given by:

$$MC(q) = 2 + 2q$$
$$MR(q) = 10 - 2q$$

(1) What is the inverse demand for diamonds?
(2) What is the profit-maximizing level of output?
(3) Which price does the monopolist charge at this level of output?
(4) If $TC(q) = 2 + 2q + q^2$, what equation defines TFC, TVC, ATC?
(5) Does the monopolist make economic profit? How much profit/loss does the firm earn?
(6) What is the economic profit if instead fixed costs were 8? What if they were 10?
(7) What does this tells us about a monopolist's profit and the costs of obtaining a monopoly?
(8) Draw a graph that displays the three scenarios implies by the different fixed costs in this problem, and label the consumer surplus, producer surplus, and deadweight loss.

Problem 3: The market for apples is perfectly competitive. Say a typical firm has a marginal cost function of MC(q) = 2q.

(1) The optimal quantity of apples to produce is 10 for the typical firm. How much revenue does the firm earn?
(2) In the short run, what condition causes a perfectly competitive firm to shut down? Will a firm remain in the apple business if they are incurring a loss?
(3) Graph the progression of a typical firm in the apple business from positive to normal economic profits.

Problem 4: (Fun Question) Imagine there is a market for buying monopolies which is perfectly competitive and at its long run equilibrium. Assume all firms in this market have only two options: run the monopoly themselves or sell it. What is the profit the monopolies will make after they are purchased?