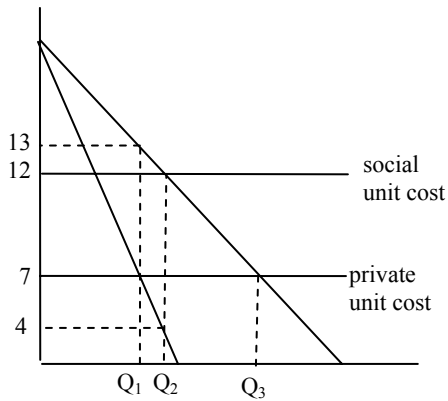


Principles of Microeconomics
Final Exam
Spring 2005

Please answer all questions. It should be understood that you also need to write a few sentences to explain your answers.

1. The production of good X creates an externality. The following questions are based on the graph, which shows the marginal revenue, demand, unit private cost and unit social cost associated with production of good X .



- (a) Is the externality positive or negative? Explain.

- (b) Suppose the good is produced by a monopolist, Should output be taxed or subsidized? What is the per-unit dollar value of this tax or subsidy?

- (c) Suppose the good is produced by a perfectly competitive firms, Should output be taxed or subsidized? What is the per-unit dollar value of this tax or subsidy?

2. There are two paintings up for sale at an English auction. There are three bidders. Bidder A values each painting at \$1.2 million, bidder B values each one at \$1.5 million, and bidder C at \$1.7 million. Each bidder only has enough money to buy one painting. If both paintings are sold, one after the other, in a Vickrey auction, what price will the first painting be sold for? What price will the second painting be sold for?

3. Two goods, x , and y , have the following pricing schedules. Good x has a price of \$2.00 per pound for the first 10 pounds that are bought, and a price of \$1.00 per pound for each additional pound. Good y has a price of \$1.00 per pound for the first 10 pounds you buy, and then \$2.00 per pound for each additional pound. You have a budget of \$30. Draw the budget line for this problem.

4. The market for beef is perfectly competitive. Show, by means of a graph and a brief explanation, the effect on the equilibrium price and quantity of the following:

(a) A tax on chicken.

(b) A reduction in mortgage interest rates.

(c) An increase in the price of cattle feed.

(d) An increase in the fraction of the population that finds the smell of cattle dung unpleasant.

5. Consider a market with demand curve $q_d=80-2p$. The supply curve is either (a) $q_s=-20+2p$ OR (b) $q_s=-45+3p$. In both cases the price is the same. But for which supply curve, (a) or (b), is consumer surplus larger?

6. A government is planning production of a public good that costs \$100 per unit to produce. It has four citizens, with individual demand curves given by:

$$q_A = 100 - 4p, \quad q_B = 100 - 2p, \quad q_C = 100 - p, \quad \text{and} \quad q_D = 100 - 4p$$

(a) What is the optimal quantity of the public good?

(b) Each individual is required to pay for $\frac{1}{4}$ of the total cost. Which of these individuals has an incentive to understate or overstate their true willingness to pay?

7. Let the demand and supply for a good be given by

$$q_d = 1600 - 40p$$

$$q_s = 2p + 400.$$

(a) What is the equilibrium quantity and price?

(b) Suppose a tax of \$10 is imposed on each unit bought. How much of the tax is borne by producers?

8. A monopolist has a unit production cost of \$10. The firm has identified two distinct groups of customers. Group A has a demand curve of $q_A = 100 - 4p_A$, while group B has a demand curve of $q_B = 60 - 3p_B$.

(a) Which group pays the higher price if the monopolist price discriminates?

(b) If the monopolist is not able to price discriminate, what common price does it charge?