

ECON 310
Nazarov
Homework 5

You must turn in your answers before the due date in order to receive credit for this assignment. The due date is April 25th, 6:00pm.

1. *Questions 1-7*

The market demand and supply functions for alcohol at Major League Baseball games are:

$$Q_D = 10 - 0.04P$$

$$Q_S = 3.8P - 2$$

- 1. Calculate the equilibrium quantity in equilibrium
- 2. Calculate the price in equilibrium
- 3. Calculate the point elasticity of supply in equilibrium.
- 4. Calculate producer surplus.

Suppose that alcohol is taxed at \$0.75 per unit at the games.

- 5. Calculate the revenues generated by the tax.
- 6. Calculate the loss in producer surplus
- 7. What percentage of the burden of the tax falls on producers?

2. *Questions 8-13*

Assume that the market for widgets is perfectly competitive in the United States. The market supply and demand curves are defined by:

$$Q_d = 80 - 0.5P$$

$$Q_s = 20 + P$$

- 8. Calculate the equilibrium price in this competitive market.

Now assume that the United States gains in trade with the rest of the world. No barriers to trade are imposed. The world price of widgets is \$20.

- 9. Calculate the gain(+) or loss(-) in consumer surplus.
- 10. Calculate the gain(+) or loss(-) in total surplus.

Assume that United States has imposed \$10 per unit import tariff on widgets.

- 11. Calculate the tariff revenue that the government receives.
- 12. Calculate the change in consumer surplus as compared with the free trade equilibrium.
- 13. Calculate the change in total surplus as compared with the free trade equilibrium.

3. *Questions 14-17*

Tad's bait shop has a monopoly on the bait market at Sanderson's Lake. The demand curve for bait is

$$Q_D = 56 - 8P$$

This implies the marginal revenue function is

$$MR(Q) = 7 - 0.25Q$$

Tad has two employees he can use to search for bait. The marginal cost of using Amanda to search for bait is

$$MC_M(Q_M) = \frac{1}{4}Q_M$$

The marginal cost of using Andrew to search for bait is

$$MC_N(Q_N) = \frac{1}{4}Q_N$$

- 14. Determine how many units of bait Amanda should gather?
- 15. Determine how many units of bait Andrew should gather?
- 16. What is the price Tad receives for selling the bait?
- 17. Calculate deadweight loss of the monopoly market.

4. *Questions 18-23*

A monopolist faces the following demand curve, marginal revenue curve, total cost curve and marginal cost curve for its product:

$$Q = 200 - 2P$$

$$MR = 100 - Q$$

$$TC = 5Q$$

$$MC = 5$$

- 18. What level of output maximizes total revenue?
- 19. What is the profit maximizing level of output?
- 20. What is the profit maximizing price?

Suppose that a tax of \$5 for each unit produced is imposed by state government.

- 21. What is the profit maximizing level of output?
- 22. What is the profit maximizing price?
- 23. How much profit does the monopolist earn?

5. *Questions 24-26*

Suppose that the market demand for mountain spring water is given as follows:

$$P = 1200 - Q$$

Mountain spring water can be produced at cost 200 per unit.

- 24. What is the profit maximizing level of output for a monopolist?
- 25. Assume that there are two monopolists in the market. What level of output would be produced by each firm in a Cournot duopoly in the long run?
- 26. What will be the level of output in the long run if this industry were perfectly competitive?