

ECON 310

Assignment #3

**Homework Quiz: Wednesday, March 25**

1. Chapter 7, Numerical Exercises N1, N2

2. Widgets are provided by a competitive constant-cost industry where each firm has fixed costs of \$30. The following chart shows the industry-wide demand curve and the marginal cost curve of a typical firm.

Industry Wide Demand		Firm's Marginal Cost Curve	
Price	Quantity	q	MC
\$5	1500	1	\$5
10	1200	2	10
15	900	3	15
20	600	4	20
25	300	5	25
30	200	6	30
35	140	7	35
40	50	8	40

a. Assume the industry is at its long-run competitive equilibrium. What is the price of a widget?

b. How many firms are in the industry?

Suppose there is a SALES tax of \$15 per widget.

c. In the short run, what is the new price of widgets?

d. In the short run, how many firms leave the industry?

e. In the long-run what is the new price of widgets?

f. In the long-run, how many firms leave the industry?

3. The marginal revenue curve of a competitive firm is

- a. U-shaped.
- b. a ray from the origin.
- c. a horizontal line at the market price.
- d. downward sloping.

4. A firm will shut down in the short run if its revenues fail to cover its

- a. fixed costs.
- b. variable costs.
- c. total costs.
- d. sunk costs.

5. A competitive firm will exit an industry in the long run when the market price falls below its

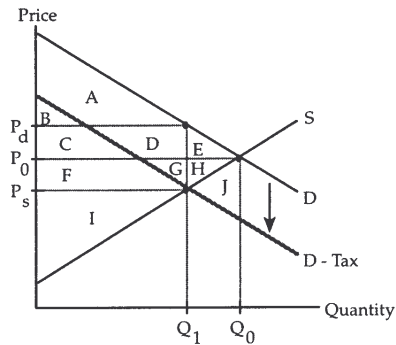
- a. marginal revenue.
- b. marginal cost.
- c. average cost.
- d. average variable cost.

6. Suppose all firms in an industry are identical. In the long run, entry and exit guarantee that all firms will have zero

- a. marginal cost.
- b. average cost.
- c. economic profit.
- d. accounting profit.

## Sales Tax

The following questions refer to the accompanying diagram which shows the effects of a sales tax imposed on consumers. The initial price and quantity are  $P_0$  and  $Q_0$ , respectively. After the tax is imposed, the equilibrium quantity is  $Q_1$ , firms receive the price  $P_s$ , and consumers pay the price  $P_d$ .



7. Refer to Sales Tax. After the tax is imposed, consumers' surplus is equal to \_\_\_\_\_.

8. Refer to Sales Tax. Area  $C + D + F + G$

- the total value that consumers receive from their purchases.
- the tax revenue collected by the government.
- the fall in producers' surplus.
- the deadweight loss due to the tax.

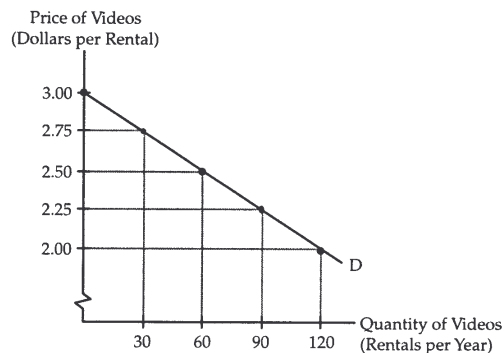
9. Refer to Sales Tax. After the tax is imposed, social gain is equal to \_\_\_\_\_.

10. Refer to Sales Tax. After the tax is imposed, the deadweight loss is equal to \_\_\_\_\_.

11. Prior to the sales tax, which of the following was false?

- Consumer surplus was  $A+B+C+D+E$ .
- Producer surplus was  $F+G+H+I+J$ .
- Government tax revenue was zero.
- Dead-weight loss was zero.

12. The diagram below shows Shontel's annual demand for videos. Shontel currently rents videos from Blockpopper's, which charges \$2.50 per rental.



- How many videos does Shontel rent each year? How much consumer's surplus does Shontel receive from renting videos?
- Blockpopper's starts a "frequent viewers" club. For a membership fee of \$35 per year, club members can rent as many videos as they wish at the discounted price of \$2 per rental. Should Shontel join the "frequent viewers" club? If yes, how much surplus value would Shontel receive as a club member? If no, what membership fee would Shontel be willing to pay to join the club?