

**McMaster University
Department of Economics**

**ECON 1B03
Midterm Test #2
Saturday March 15, 2008
VERSION 2**

Instructor: Professor H Holmes
Duration: 2 hours; 2:00 – 4:00pm
Total Number of Pages: 17

INSTRUCTIONS:

Answer all questions on the scan sheets. USE AN HB PENCIL ONLY. Make sure you carefully fill in the bubbles. YOU MUST FILL IN YOUR STUDENT NUMBER AND VERSION NUMBER ON THE SCAN SHEET OR YOUR TEST WILL NOT BE GRADED.

You may use the Casio FX calculator.

Hand in the scan sheet and this test copy.

TOTAL MARKS AVAILABLE: 60

NAME: _____

STUDENT #: _____

MUGSI ID: _____

SECTION: Circle One: 9:30-10:20 12:30-1:20

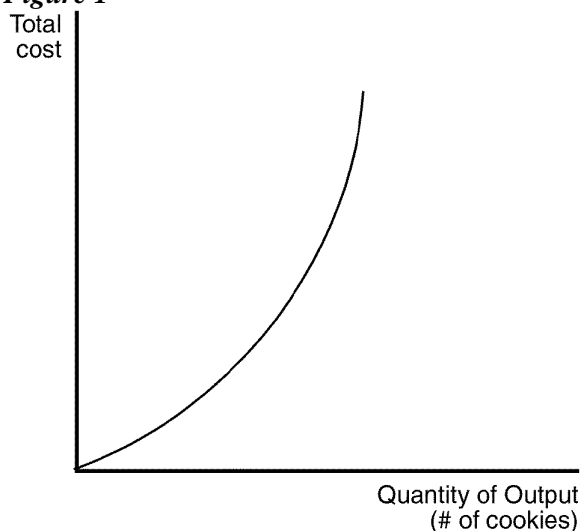
Multiple Choice

Identify the choice that **best** completes the statement or answers the question.

- _____ 1. Economic profit is equal to
- total revenue minus the explicit cost of producing goods and services.
 - total revenue minus the opportunity cost of producing goods and services.
 - total revenue minus the accounting cost of producing goods and services.
 - average revenue minus the average cost of producing the last unit of a good or service.
- _____ 2. The marginal product of labour is equal to the
- incremental cost associated with a one unit increase in labour.
 - incremental profit associated with a one unit increase in labour.
 - increase in labour necessary to generate a one unit increase in output.
 - increase in output obtained from a one unit increase in labour.

The figure below depicts a total cost function for a firm that produces cookies. Use the figure to answer the following questions.

Figure 1



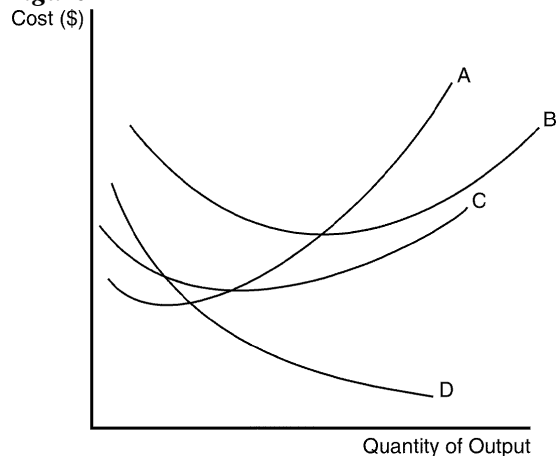
- _____ 3. **Refer to Figure 1.** Which of the following is true of the production function (not pictured) that underlies this total cost function?
- Total output increases as the quantity of inputs increases, but at a decreasing rate.
 - Marginal product is diminishing for all levels of input usage.
 - The slope of the production function decreases as the quantity of inputs increases.
- (i) only
 - (ii) and (iii)
 - (i) and (iii)
 - All of the above are correct.

Scenario 1

For the following questions, assume that a given firm experiences decreasing marginal product of labour with the addition of each worker regardless of the current output level.

- _____ 4. **Refer to Scenario 1.** Average total cost will be
- always rising.
 - always falling.
 - constant.
 - U-shaped.
- _____ 5. **Refer to Scenario 1.** Average fixed cost will be
- always rising.
 - always falling.
 - U-shaped.
 - constant.
- _____ 6. When marginal cost is less than average total cost,
- marginal cost must be falling.
 - average variable cost must be falling.
 - average total cost is falling.
 - average total cost is rising.
- _____ 7. Johnny is a third year student in college and has a 2.5 cumulative grade point average (GPA). Johnny's cumulative GPA will be better next semester if he
- performs better than he did in first year.
 - performs better than his cumulative GPA.
 - gives an average performance.
- (ii) only
 - (iii) only
 - (i) and (iii)
 - All of the above are correct.

The curves on the following page reflect information about the cost structure of a firm. Use the figure to answer the following questions.

Figure 2

8. Refer to Figure 2. This particular firm is necessarily experiencing diminishing marginal product when curve
- A is rising.
 - B is rising.
 - C is rising.
- (i) only
 - (iii) only
 - (i) and (ii)
 - All of the above are correct.

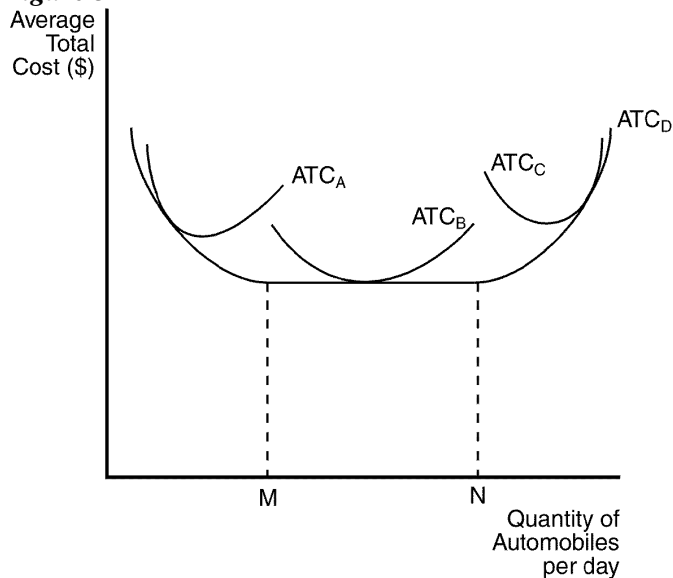
Table 1

Measures of Cost for ABC Inc. Widget Factory			
Quantity of Widgets	Variable Costs	Total Costs	Fixed Costs
0			\$10
1	\$ 1		
2	\$ 3	\$13	
3	\$ 6	\$16	
4	\$10		
5		\$25	
6	\$21		\$10

9. Refer to Table 1. The average variable cost of producing four widgets is
- \$2.00
 - \$2.50
 - \$3.33
 - \$5.00
10. Refer to Table 1. The marginal cost of producing the sixth widget is
- \$1.00.
 - \$3.50.
 - \$5.00.
 - \$6.00.

The figure below depicts average total cost functions for a firm that produces automobiles. Use the figure to answer the following questions.

Figure 3



- ___ 11. **Refer to Figure 3.** This firm experiences diseconomies of scale at what output levels?
- output levels above N
 - output levels between M and N
 - output levels below M
 - All of the above are correct, if the firm is operating in the long run.
- ___ 12. When a firm in a competitive market produces 10 units of output, it has a marginal revenue of \$8.00. What would be the firm's total revenue when it produces 6 units of output?
- \$4.80
 - \$6.00
 - \$48.00
 - \$60.00
- ___ 13. When a profit-maximizing firm in a competitive market has zero economic profit, accounting profit
- is negative (accounting losses).
 - is positive.
 - is also zero.
 - could be positive, negative or zero.
- ___ 14. For a competitive firm,
- average revenue equals the price of the good, but marginal revenue is different.
 - marginal revenue equals the price of the good, but average revenue is different.
 - average revenue equals marginal revenue, but the price of the good is different.
 - average revenue, marginal revenue, and the price of the good are all equal to one another.

Use the information for a competitive firm in the table below to answer the following questions.

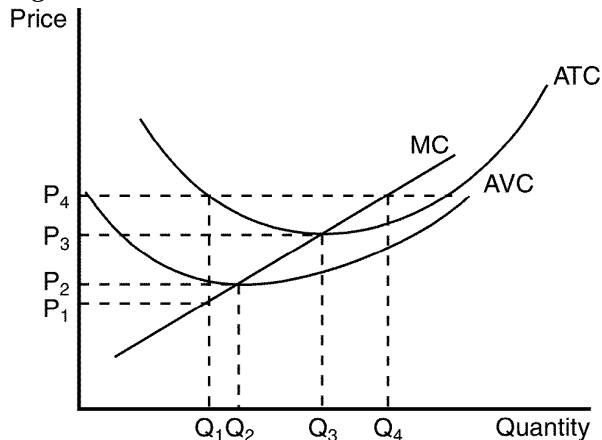
Table 2

Quantity	Total Revenue	Total Cost
0	\$0	\$10
1	9	14
2	18	19
3	27	25
4	36	32
5	45	40
6	54	49
7	63	59
8	72	70
9	81	82

- ___ 15. **Refer to Table 2.** At a production level of 4 units which of the following is true?
- Marginal cost is \$6.
 - Total revenue is greater than variable cost.
 - Marginal revenue is less than marginal cost.
 - All of the above are correct.
- ___ 16. **Refer to Table 2.** If this firm chooses to maximize profit it will choose a level of output where marginal cost is equal to
- 6.
 - 7.
 - 8.
 - 9.
- ___ 17. **Refer to Table 2.** If the firm finds that its marginal cost is \$5, it should
- reduce fixed costs by lowering production.
 - increase production to maximize profit.
 - decrease production to maximize profit.
 - maintain its current level of production to maximize profit.

The graph on the following page depicts the cost structure for a firm in a competitive market. Use the graph to answer the following questions.

Figure 4

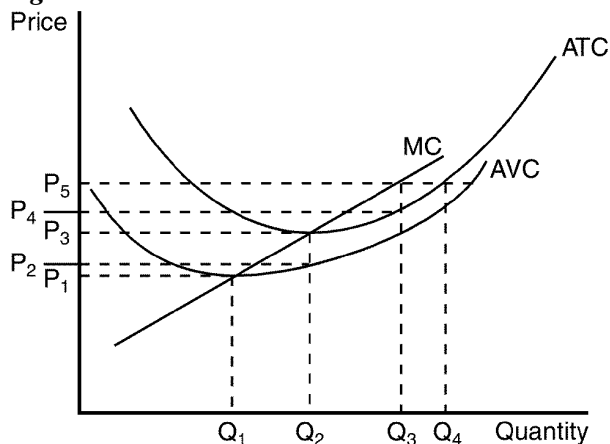


- ___ 18. Refer to Figure 4. When price rises from P_2 to P_3 , the firm finds that
- marginal cost exceeds marginal revenue at a production level of Q_2 .
 - if it produces at output level Q_3 it will earn a positive profit.
 - expanding output to Q_4 would leave the firm with losses.
 - All of the above are correct.
- ___ 19. Refer to Figure 4. Which of the following statements best reflects the situation faced by the firm when price falls from P_4 to P_2 ?
- Average total cost is lower than at the previous level of output so it increases production.
 - The firm will earn profit equal to $(P_4 - P_2) \times Q_2$.
 - Marginal revenue is lower than marginal cost at the previous level of output, so it decreases production.
 - Marginal revenue is higher than marginal cost at the previous level of output, so it increases production.
- ___ 20. A profit-maximizing firm in a competitive market will always make marginal adjustments to production as long as
- average revenue is greater than average total cost.
 - average revenue is equal to marginal cost.
 - marginal cost is greater than average total cost.
 - price is above or below marginal cost.
- ___ 21. When total revenue is less than variable costs, a firm in a competitive market will
- continue to operate as long as average revenue exceeds marginal cost.
 - continue to operate as long as average revenue exceeds average fixed cost.
 - shut down.
 - always exit the industry.
- ___ 22. In the long run all of a firm's costs are variable. In this case the exit criterion for a profit-maximizing firm is
- price < average total cost.
 - price > average total cost.
 - average revenue > average fixed cost.
 - average revenue > marginal cost.

23. Profit-maximizing firms enter a competitive market when, for existing firms in that market,
- total revenue exceeds fixed costs.
 - total revenue exceeds total variable costs.
 - average total cost exceeds average revenue.
 - price exceeds average total cost.

The figure below depicts the cost structure of a firm in a competitive market. Use the figure to answer the following questions.

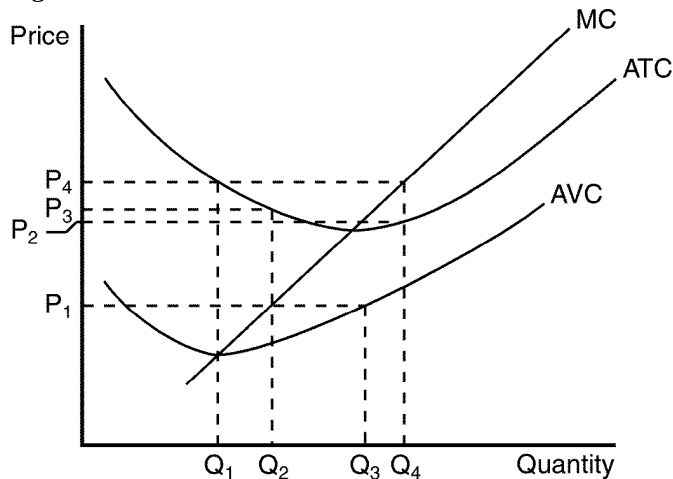
Figure 5



24. Refer to Figure 5. When market price is P_5 , a profit-maximizing firm's profits can be represented by the area
- $P_5 \times Q_3$.
 - $(P_5 - P_3) \times Q_2$.
 - $(P_5 - P_4) \times Q_3$.
 - When market price is P_5 there are no profits.
25. Refer to Figure 5. Firms would be encouraged to enter this market for all prices that exceed
- P_1 .
 - P_2 .
 - P_3 .
 - None of the above are correct.

The figure on the following page depicts the cost structure of a firm in a competitive market. Use the figure to answer the following questions.

Figure 6



26. Refer to Figure 6. When market price is P_1 , a profit-maximizing firm's total profit or loss can be represented by which area?
- $P_1 \times Q_3$; profit
 - $(P_3 - P_1) \times Q_2$; loss
 - $(P_2 - P_1) \times Q_1$; loss
 - We can't tell because we don't know fixed costs.
27. Refer to Figure 6. When a profit-maximizing firm is earning profits, those profits can be identified by
- $P \times Q$.
 - $(MC - AVC) \times Q$.
 - $(P - ATC) \times Q$.
 - $(P - AVC) \times Q$.
28. A profit-maximizing firm in a competitive market is currently producing 100 units of output. It has average revenue of \$10, and its average total cost is \$8. It follows that the firm's
- average total cost curve intersects the marginal cost curve at an output level of less than 100 units.
 - average variable cost curve intersects the marginal cost curve at an output level of less than 100 units.
 - profit is \$200.
 - All of the above are correct.
29. For a certain firm, the 100th unit of output that the firm produces has a marginal revenue of \$10 and a marginal cost of \$7. It follows that
- the production of the 100th unit of output increases the firm's profit by \$3.
 - the production of the 100th unit of output increases the firm's average total cost by \$7.
 - the firm's profit-maximizing level of output is less than 100 units.
 - All of the above are correct.

Scenario 2

Assume a certain firm is producing 1,000 units of output (so $Q = 1,000$). At $Q = 1,000$, the firm's marginal cost equals \$15 and its average total cost equals \$11. The firm sells its output for \$12 per unit.

- _____ 30. **Refer to Scenario 2.** At $Q = 999$, the firm's total cost amounts to
- \$10,985.
 - \$10,990.
 - \$10,995.
 - \$10,999.

- _____ 31. A firm in a competitive market has the following cost structure:

Output	Total Cost
0	\$5
1	\$10
2	\$12
3	\$15
4	\$24

This firm will shut down

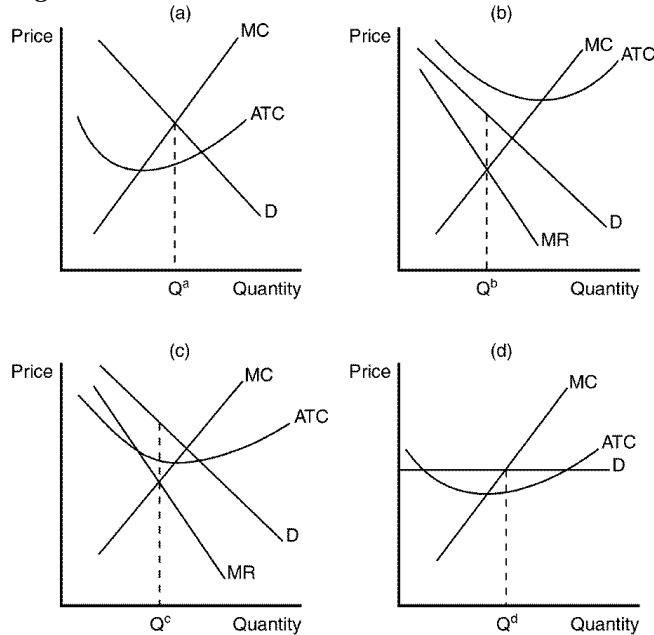
- if price falls below \$3.33 and exit if it falls below \$5.
 - if price falls below \$5 and exit if it falls below \$3.33.
 - if price falls below \$7 and exit if it falls below \$10.
 - and exit if price falls below \$5.
- _____ 32. Because monopoly firms do not have to compete with other firms, the outcome in a market with a monopoly is often
- not in the best interest of society.
 - one that fails to maximize total economic well-being.
 - inefficient.
 - All of the above are correct.
- _____ 33. A natural monopoly occurs when
- the product is sold in its natural state (such as water or diamonds).
 - there are economies of scale over the relevant range of output.
 - the firm is characterized by a rising marginal cost curve.
 - production requires the use of free natural resources, such as water or air.
- _____ 34. The market demand curve for a monopolist is typically
- unitary elastic at the point of profit maximization.
 - downward sloping.
 - horizontal.
 - vertical.
- _____ 35. For a profit-maximizing monopolist, its
- average revenue is less than the price of the product.
 - average revenue is less than marginal revenue.
 - marginal revenue is less than the price of the product.
 - marginal revenue is greater than the price of the product.

Table 3

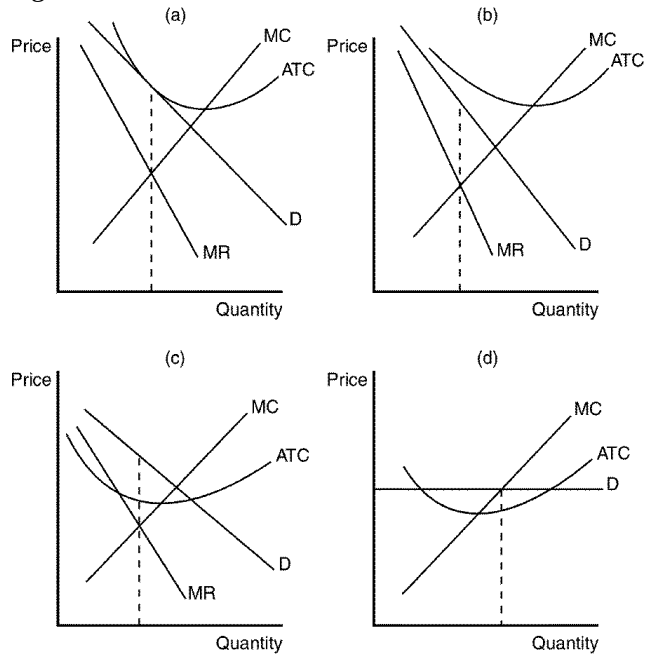
Quantity	Price	Total Revenue	Average Revenue	Marginal Revenue
1	35	35		
2		64	32	29
3	29			
4				17
5	23			11
6		120		
7	17			-1
8				-7
9		99	11	-13
10		8	80	

- _____ 36. **Refer to Table 3.** If the monopolist sells 8 units of its product, how much total revenue will it receive from the sale?
- 40
 - 112
 - 164
 - It cannot be determined from the information provided.
- _____ 37. **Refer to Table 3.** Assume this monopolist's marginal cost is constant at \$11. What quantity of output (Q) will it produce and what price (P) will it charge?
- Q = 4, P = \$27
 - Q = 4, P = \$25
 - Q = 5, P = \$23
 - Q = 7, P = \$17
- _____ 38. Which of the following statements is true?
- When a competitive firm sells an additional unit of output, its revenue increases by an amount less than the price.
 - When a monopoly firm sells an additional unit of output, its revenue increases by an amount less than the price.
 - Average revenue is the same as price for both competitive and monopoly firms.
- (i) only
 - (iii) only
 - (i) and (ii)
 - (ii) and (iii)

Figure 7

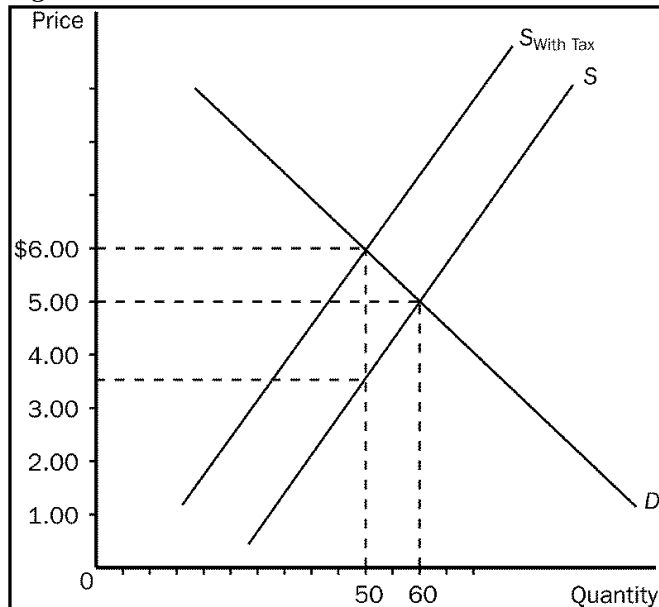


- ___ 39. Refer to Figure 7. Which of the graphs shown would be consistent with a firm in a monopolistically competitive market that is earning a positive profit?
- panel a
 - panel b
 - panel c
 - panel d
- ___ 40. As new firms enter a monopolistically competitive market, profits of existing firms
- rise and product diversity in the market increases.
 - rise and product diversity in the market decreases.
 - decline and product diversity in the market increases.
 - decline and product diversity in the market decreases.
- ___ 41. When a firm operates at efficient scale,
- its average revenue must exceed the minimum of average total cost.
 - its average revenue must be equal to the minimum of average total cost.
 - the average-total-cost curve must be falling.
 - the average-total-cost curve must be rising.
- ___ 42. The point of tangency which characterizes long-run equilibrium for a monopolistically competitive firm always occurs at a certain level of output; call that level of output Q_1 . Then Q_1
- exceeds the level of output at which marginal revenue equals marginal cost.
 - exceeds the level of output at which marginal cost equals average total cost.
 - falls short of the level of output at which marginal revenue equals zero.
 - All of the above are correct.

Figure 8

- _____ 43. **Refer to Figure 8.** Panel (a) shows a profit-maximizing monopolistically competitive firm that is
- earning a zero profit.
 - in long-run equilibrium.
 - charging a price that is equal to average total cost.
 - All of the above are correct.
- _____ 44. The product-variety externality is associated with
- the producer surplus that accrues to incumbent firms in a monopolistically competitive industry.
 - loss of consumer surplus from exposure to additional advertising.
 - the consumer surplus that is generated from the introduction of a new product.
 - the opportunity cost of firms exiting a monopolistically competitive industry.

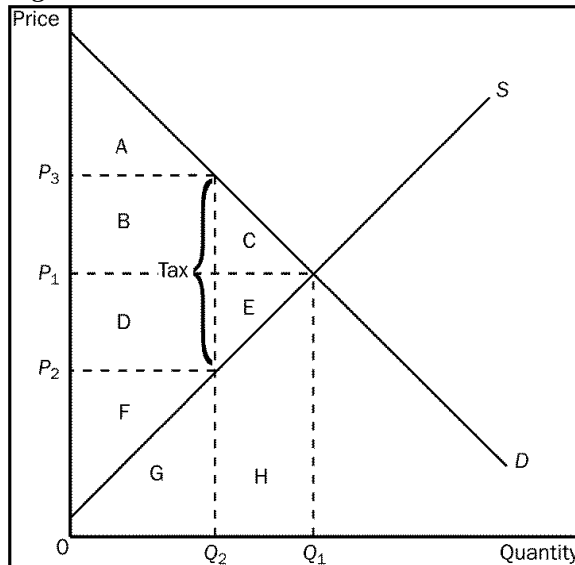
Figure 9



- ___ 45. Refer to Figure 9. The equilibrium price in the market after the tax is imposed is
- \$1.00.
 - \$3.50.
 - \$5.00.
 - \$6.00.
- ___ 46. Refer to Figure 9. The amount of the tax that buyers would pay would be
- \$1.00.
 - \$1.50.
 - \$2.50.
 - \$3.00.
- ___ 47. Which of the following is the most correct statement about tax burdens?
- A tax burden falls most heavily on the side of the market that is elastic.
 - A tax burden falls most heavily on the side of the market that is inelastic.
 - A tax burden falls most heavily on the side of the market that is closer to unit elastic.
 - A tax burden is distributed independently of relative elasticities of supply and demand.
- ___ 48. When the government places a tax on a product
- the cost of the tax to buyers and sellers will be less than the revenue raised from the tax by the government.
 - the cost of the tax to buyers and sellers will equal the revenue raised from the tax by the government.
 - the cost of the tax to buyers and sellers exceeds the revenue raised from the tax by the government.
 - without additional information, such as the elasticity of demand for this product, it is impossible to compare tax cost with tax revenue.

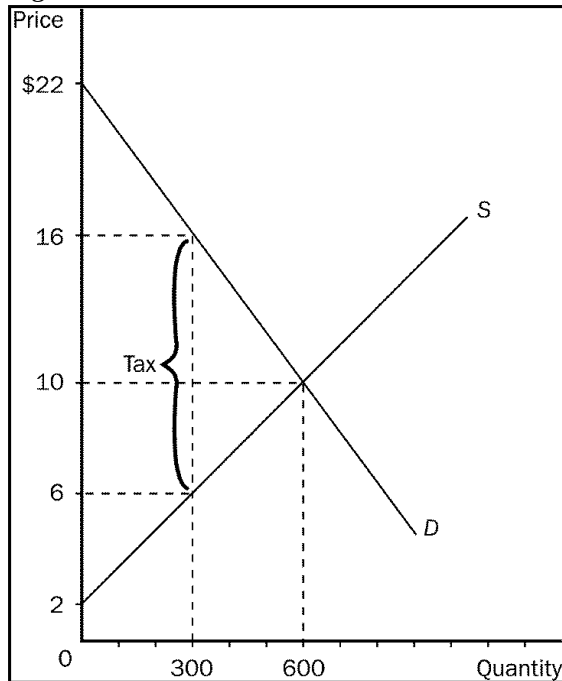
49. When evaluating the size of the deadweight loss due to a tax we know that the
- greater the elasticities of supply and demand, the greater the deadweight loss.
 - smaller the elasticities of supply and demand, the greater the deadweight loss.
 - smaller the decrease in both quantity demanded and quantity supplied, the greater the deadweight loss.
 - primary factor that determines the size of the deadweight loss in the percentage the tax is of price.

Figure 10



50. Refer to Figure 10. After the tax is levied, consumer surplus is represented by area
- A
 - A + B + C
 - D + E + F
 - F

Figure 11



- ___ 51. Refer to Figure 11. What would happen to producer surplus if a tax were imposed in this market?
- It would fall by \$600.
 - It would fall by \$900.
 - It would fall by \$1800.
 - It would fall by \$2400.
- ___ 52. Market demand and supply for a good are given by $Q_d = 128 - 9P$ and $Q_s = 7P - 32$. The government imposes a tax on consumers, resulting in a new demand equation of $Q_d = 112 - 9P$. With the tax, the price consumers pay is
- \$9
 - \$10.78
 - \$8.83
 - \$11.42
- ___ 53. Given the situation in Question 52 above, the deadweight loss due to the tax is
- \$6.23
 - \$12.46
 - \$55.18
 - \$35
- ___ 54. Given the situation in Question 52 above, the government collects tax revenue equal to
- \$334.18
 - \$55.18
 - \$97.02
 - \$70
- ___ 55. Given the situation in Question 52 above, which is more elastic - demand or supply?
- Demand
 - Supply
 - Both have the same elasticity
 - Not enough information to determine elasticities.

- _____ 56. A monopolist faces a demand $P = 40 - 2Q$. Marginal revenue is $MR = 40 - 4Q$ and marginal cost is constant at $MC = 4$. To maximize profits, the monopolist will produce a quantity of _____ and sell at a price of _____.
- a. 18; \$4
 - b. 9; \$4
 - c. 9; \$22
 - d. 18; \$22.
- _____ 57. Given the information in Question 56 above, if the monopolist's total costs are $TC = 90$, its profit per unit is
- a. \$10
 - b. \$22
 - c. \$12
 - d. \$10.80.
- _____ 58. Given the information in Question 56 above, the deadweight loss due to monopoly is
- a. \$18
 - b. \$9
 - c. \$162
 - d. \$81.
- _____ 59. Given the information in Question 56 above, if this were a perfectly competitive firm, it would sell its product at a price of
- a. \$22
 - b. \$18
 - c. \$5
 - d. \$4
- _____ 60. Given the information in Question 56 above, if this were a monopolistically competitive firm, it would sell its product at a price of
- a. \$22
 - b. \$18
 - c. \$5
 - d. \$4.
- _____ 61. Now that football is over until the fall, Professor Holmes will be following
- a. The Maple Leafs
 - b. Tiger Woods
 - c. The Summer Olympics
 - d. Denny Hamlin.