

McMaster University
Department of Economics

ECON 1B03 NIGHT SECTION
Midterm Test #2
Wednesday November 7, 2007
VERSION 1

Instructor: Professor H Holmes
Duration: 2 hours; 2:00 – 4:00pm
Total Number of Pages: 15

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, VERSION NUMBER AND SECTION NUMBER ON THE SCAN SHEET OR YOUR GRADE WILL NOT BE RECORDED.

You may use the Casio FX calculator.

Hand in the scan sheet, your rough work paper and this test copy.

TOTAL MARKS AVAILABLE: 60

NAME: _____

STUDENT #: _____

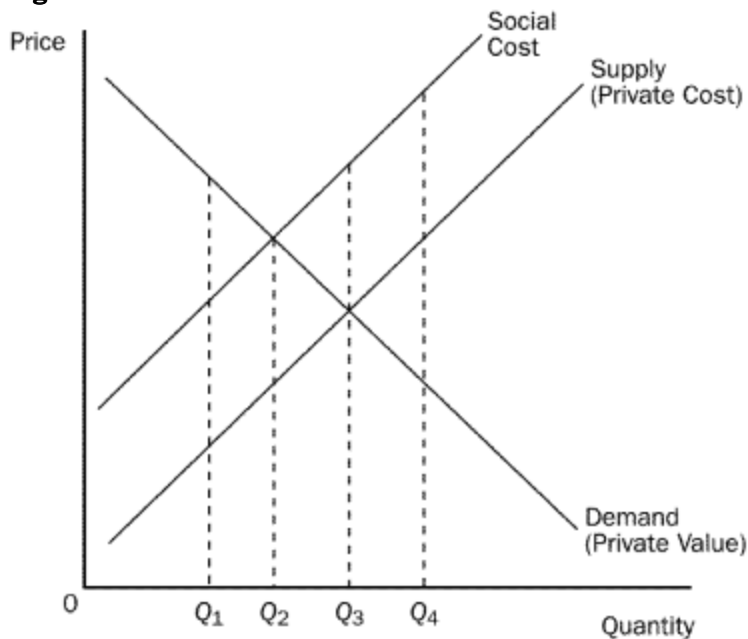
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SECTION: Circle One: C01 (9:30-10:20) C02 (12:30-1:20) EC01 (Wednesday night)

Multiple Choice

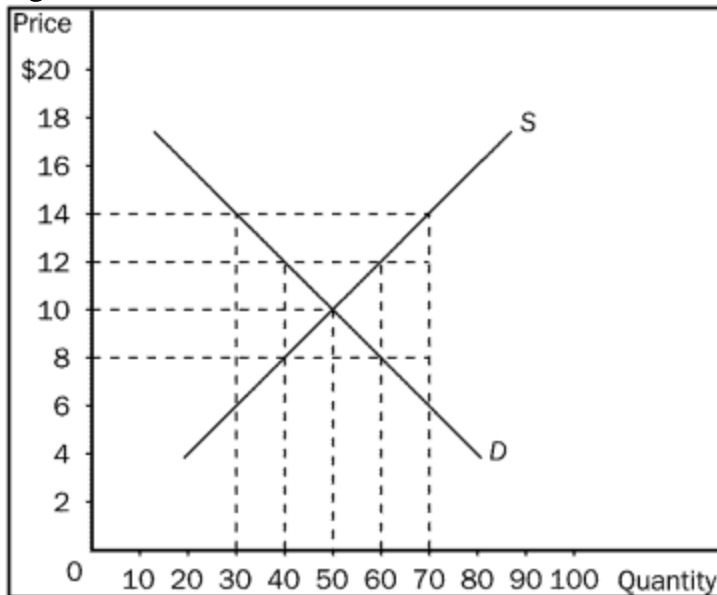
Identify the choice that best completes the statement or answers the question.

- ____ 1. When negative externalities are present in a market
- private costs will be greater than social costs.
 - social costs will be greater than private costs.
 - government regulation to resolve the problem is always necessary.
 - the market will not be able to reach any equilibrium situation.

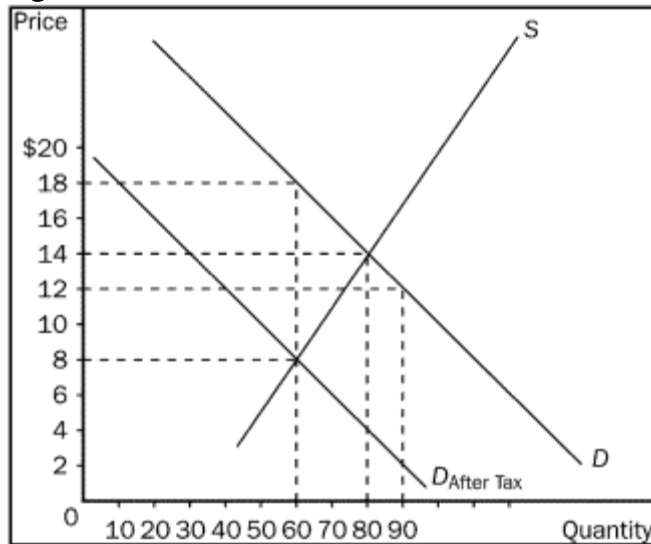
Figure 1

- ____ 2. **Refer to Figure 1.** The optimum amount of this product from society's standpoint would be
- Q_1 .
 - Q_2 .
 - Q_3 .
 - Q_4 .
- ____ 3. **Refer to Figure 1.** If this market currently produces Q_3 , total economic well-being would be increased if
- production decreased to Q_2 .
 - production increased to Q_4 .
 - this product were no longer produced.
 - Since well-being is maximized at Q_3 it cannot be increased.
- ____ 4. **Refer to Figure 1.** If this market currently produces Q_2 , total economic well-being would be maximized if
- production decreased to Q_1 .
 - production increased to Q_3 .
 - this product were no longer produced.
 - output stayed at Q_2 .

5. Internalizing a negative externality will cause the supply curve of an industry to
- shift to the right.
 - shift to the left.
 - expand.
 - remain unchanged.
6. A price floor
- is a legal minimum on the price at which a good can be sold.
 - is a legal maximum on the price at which a good can be sold.
 - will generally result in a market shortage.
 - will benefit the consumer, but hurt the supplier.

Figure 2

7. **Refer to Figure 2.** A binding price floor would exist at
- a price of \$10.00.
 - a price of \$8.00.
 - any price above \$10.00.
 - any price below \$10.00.
8. A price floor is binding if it is
- higher than the equilibrium market price.
 - lower than the equilibrium market price.
 - equal to the equilibrium market price.
 - set by the government.

Figure 3

9. **Refer to Figure 3.** The price sellers receive after the tax is imposed is
- \$18.00.
 - \$14.00.
 - \$12.00.
 - \$8.00.**
10. **Refer to Figure 3.** The amount of the tax imposed in this market is
- \$10.00.**
 - \$6.00.
 - \$4.00.
 - \$2.00.
11. The tax incidence is equivalent
- if the tax is levied on only the seller.
 - if the tax is levied only on the buyer.
 - if the tax is levied on both the buyer and the seller.
 - regardless of whether the tax is levied on buyers or sellers.**
12. A tax has a deadweight loss because
- it induces the government to spend more.
 - it induces buyers to consume less and sellers to produce less.**
 - it causes a disequilibrium in the market.
 - the loss to buyers is greater than the loss to sellers.

QUESTIONS #13 – 18 ARE ALL BASED ON THE INFORMATION GIVEN IN QUESTION #13.

13. Market demand and market supply are given by $Q_d = 128 - 9P$ and $Q_s = 7P - 32$. The government now decides to impose a tax on consumers. This leads to a new demand equation of $Q_d(\text{tax}) = 112 - 9P$. With the tax, the price consumers now pay is

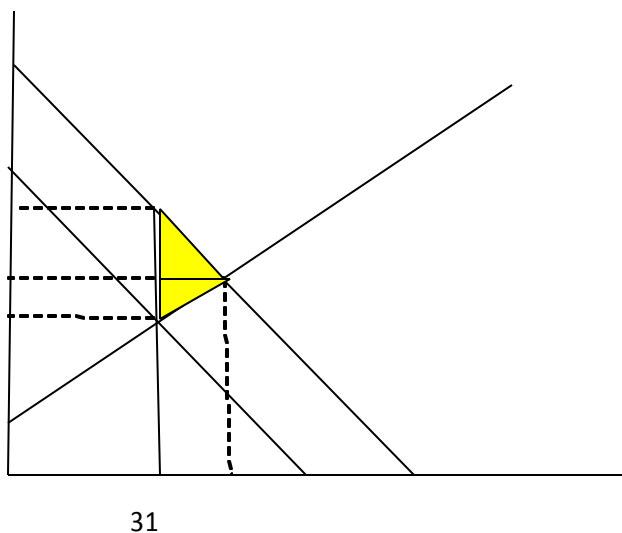
- a. \$9
b. \$10.78
c. \$11.42
d. \$10.

SET NEW DEMAND = SUPPLY TO GET $Q=31$. WHEN $Q=31$, FROM OLD DEMAND, GET $P = 97/9 = 10.78$

SUB $Q=31$ INTO SUPPLY TO GET P FIRM RECEIVES WHICH IS \$9.00.

THE TAX IS $10.78 - 9.00 = 1.78$.

REVENUE = $31 * 1.78 = 55.18$



14 The government collects tax revenue equal to

- a. \$334.18
b. \$178.00
c. \$55.18
d. \$97.02

SEE ABOVE

15 The deadweight loss due to the tax is

- a. \$6.23
b. \$12.46
c. \$33.82
d. \$67.64

$DWL = .5 * 1.78 * 7 = 6.23$

16 The tax has reduced producer surplus by

- a. \$68.67
b. \$12.46
c. \$34.50
d. the tax increases producer surplus.

PS GOES DOWN BY $1.00 * 31 + .5 * 1.00 * 7 = 34.50$

17 Which is more elastic - demand or supply?

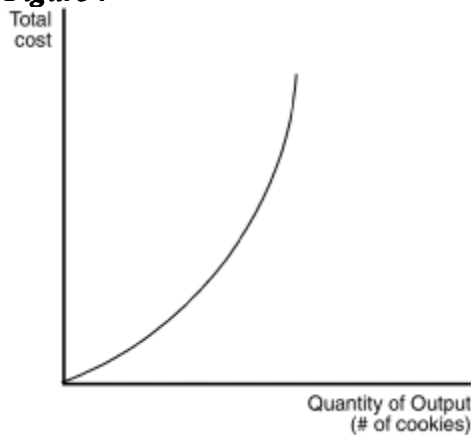
- a. Demand **CONSUMER BURDEN IS LESS**
b. supply
c. both have the same elasticity
d. insufficient information to calculate.

18 Which statement is true?

- a. Total surplus was maximized before the tax was imposed.
- b. Consumers bear the larger burden of the tax.
- c. A tax on producers would mean a lower after-tax price for consumers.
- d. Both a and c are true.

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

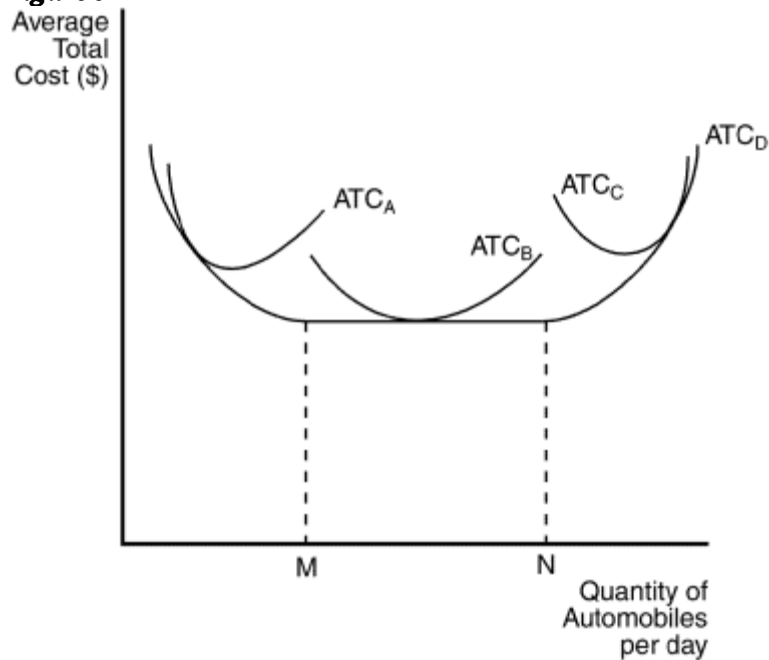
Figure 4



19. **Refer to Figure 4.** Which of the following statements best captures the nature of the underlying production function?
- a. Output increases at a decreasing rate with additional units of input. **DIMINISHING MP**
 - b. Output increases at an increasing rate with additional units of input.
 - c. Output decreases at a decreasing rate with additional units of input.
 - d. Output decreases at an increasing rate with additional units of input.
20. Let L represent the number of workers hired by a firm and let Q represent that firm's quantity of output. Assume two points on the firm's production function are $(L = 12, Q = 122)$ and $(L = 13, Q = 130)$. Then the marginal product of the 13th worker is
- a. 8 units of output.
 - b. 10 units of output.
 - c. 122 units of output.
 - d. 130 units of output.
21. Which of the following costs do not vary with the amount of output a firm produces?
- a. average fixed costs
 - b. fixed costs and average fixed costs
 - c. marginal costs and average fixed costs
 - d. fixed costs

- _____ 22. Average total cost equals
- a. change in total costs divided by quantity produced.
 - b. change in total costs divided by change in quantity produced.
 - c. (fixed costs + variable costs) divided by quantity produced.
 - d. (fixed costs + variable costs) divided by change in quantity produced.
- _____ 23. Diminishing marginal product suggests that
- a. additional units of output become less costly as more output is produced.
 - b. marginal cost is upward sloping.
 - c. the firm is at full capacity.
 - d. All of the above are correct.
- _____ 24. The efficient scale of the firm is the quantity of output that
- a. maximizes marginal product.
 - b. maximizes profit.
 - c. minimizes average total cost.
 - d. minimizes average variable cost.
- _____ 25. Which of the following must always be true as the quantity of output increases?
- a. Marginal cost must rise.
 - b. Average total cost must rise.
 - c. Average variable cost must rise.
 - d. Average fixed cost must fall.

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

Figure 5

- ____ 26. **Refer to Figure 5.** In the long run, the firm can operate on which of the following average total cost curves?
- ATC_A
 - ATC_B
 - ATC_C
 - All of the above are correct.
- ____ 27. **Refer to Figure 5.** At levels of output below M the firm experiences
- economies of scale.
 - diseconomies of scale.
 - economic profit.
 - accounting profit.
- ____ 28. In the long run, a firm that produces and sells computers gets to choose
- how many workers to hire.
 - the size of its factories.
 - which short-run average-total-cost curve to use.
 - All of the above are correct.

29. Tom owns a factory in which he has produced TVs for five years. He has kept track of his average total cost as his level of production varies. This information is summarized below:

Output	Average Total Cost
10	\$500
20	\$400
30	\$300
40	\$400
50	\$500

From this information, we can conclude that

- a. Tom's factory exhibits both economies and diseconomies of scale.
- b. Tom's factory exhibits only diseconomies of scale.
- c. Tom's factory exhibits constant returns to scale.
- d. None of the above are correct. **NEED LRAC CURVE**

30. Which of the following is NOT a characteristic of a perfectly competitive market?

- a. Firms are price takers.
- b. Firms have difficulty entering the market.
- c. There are many sellers in the market.
- d. Goods offered for sale are largely the same.

31. When a profit-maximizing firm in a competitive market has zero economic profit, accounting profit

- a. is negative (accounting losses).
- b. is positive.
- c. is also zero.
- d. could be positive, negative or zero.

32. For a competitive firm,

- a. average revenue equals the price of the good, but marginal revenue is different.
- b. marginal revenue equals the price of the good, but average revenue is different.
- c. average revenue equals marginal revenue, but the price of the good is different.
- d. 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.

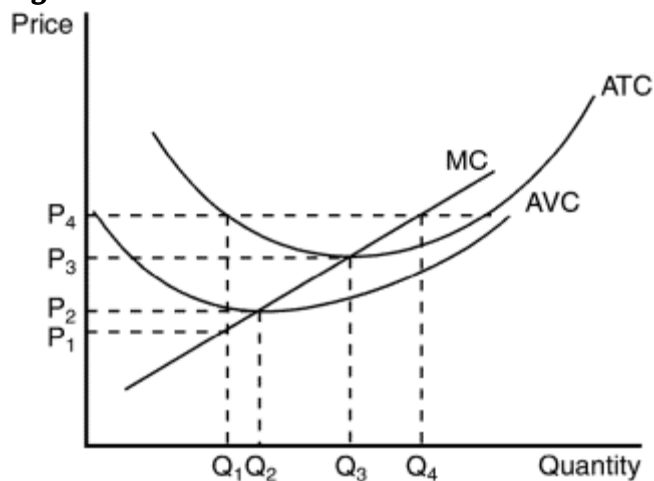
Table 1

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

33. **Refer to Table 1.** At which quantity of output is marginal revenue equal to marginal cost?
- 3
 - 6
 - 8
 - All of the above are correct.
34. **Refer to Table 1.** If this firm chooses to maximize profit it will choose a level of output where marginal cost is equal to
- 6.
 - 7.
 - 8.
 - 9.
35. **Refer to Table 1.** 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.
36. When marginal revenue equals marginal cost, the firm
- should increase the level of production to maximize its profit.
 - may be minimizing its losses, rather than maximizing its profit.
 - must be generating economic profits.
 - must be generating economic losses.

The graph below depicts the cost structure for a firm in a competitive market. Use the graph to answer the following question.

Figure 6

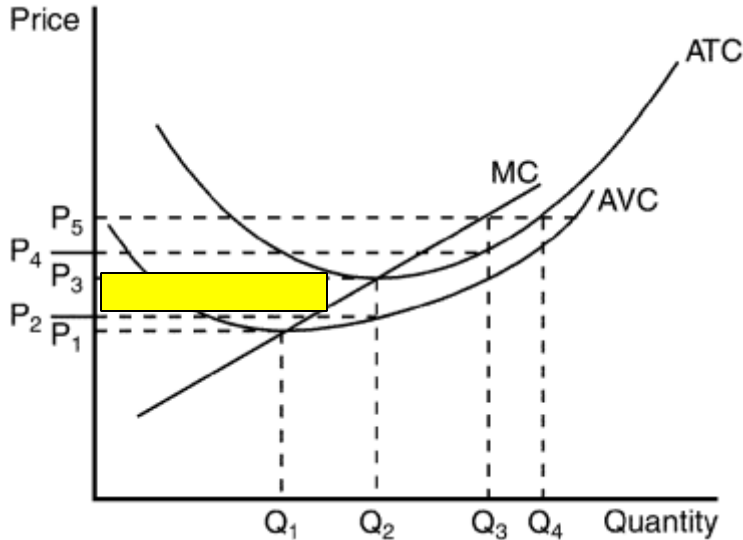


37. **Refer to Figure 14-2.** When price falls from P_3 to P_1 , the firm finds that
- fixed cost is higher at a production level of Q_1 than it is at Q_3 .
 - it should produce Q_1 units of output.
 - it should produce Q_3 units of output.
 - it is unwilling to produce any output.

38. The short-run supply curve for a firm in a perfectly competitive market is
- likely to be horizontal.
 - likely to slope downward.
 - determined by forces external to the firm.
 - its marginal cost curve (above average variable cost).
39. 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.

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

Figure 7

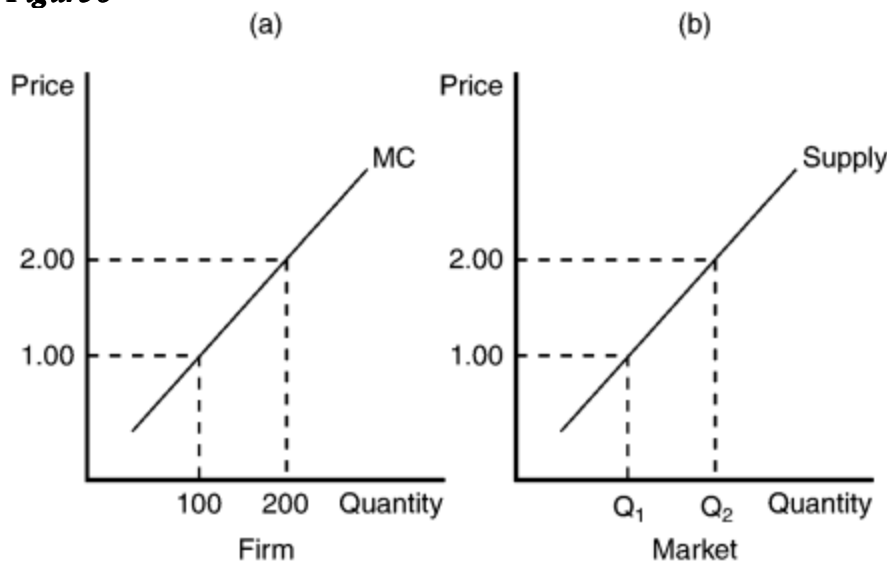


40. **Refer to Figure 7.** When market price is P_2 , a profit-maximizing firm's losses can be represented by the area
- $(P_3 - P_2) \times Q_2$.
 - $(P_2 - P_1) \times Q_2$.
 - At a market price of P_2 , the firm does not have losses.
 - At a market price of P_2 the firm has losses, but the reference points in the figure don't identify the losses.
41. 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.

42. A certain competitive firm sells its output for \$20 per unit. The 50th unit of output that the firm produces has a marginal cost of \$22. It follows that the production of the 50th unit of output
- increases the firm's total revenue by \$20.
 - increases the firm's total cost by \$22.
 - decreases the firm's profit by \$2.
 - All of the above are correct.
43. Which of the following expressions is correct?
- $\text{Profit} = (\text{Price of output} - \text{Average total cost}) \times \text{Quantity of output}.$
 - $\text{Profit} = (\text{Price of output} \times \text{Quantity of output}) - \text{Average total cost}.$
 - $\text{Profit} = \text{Total revenue} - (\text{Average total cost}/\text{Quantity of output}).$
 - $\text{Profit} = \text{Total revenue} - (\text{Average variable cost} \times \text{Quantity of output}).$

In the figure below, panel (a) depicts the linear marginal cost of a firm in a competitive market and panel (b) depicts the linear market supply curve for a market with a fixed number of identical firms. Use the figure to answer the following questions.

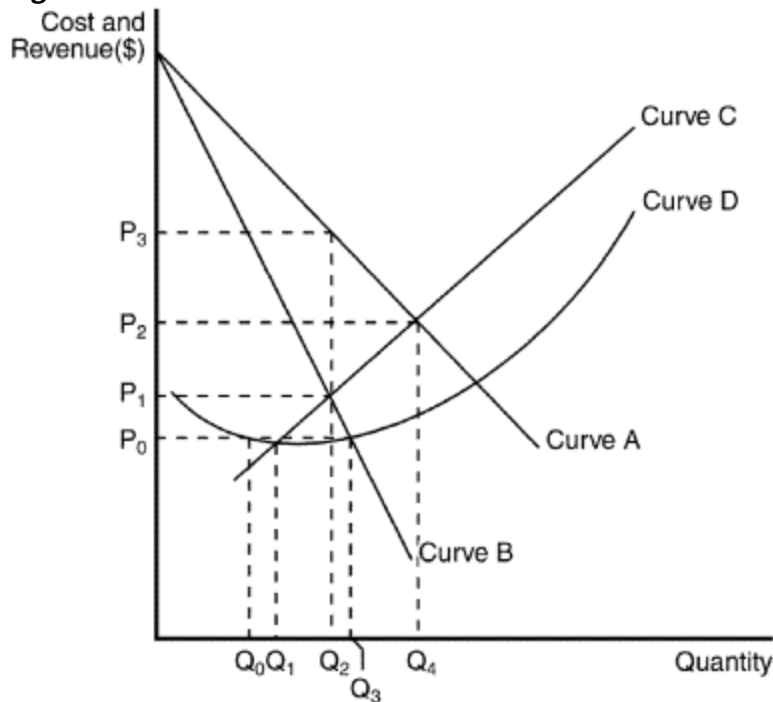
Figure 8



44. **Refer to Figure 8.** If there are 200 identical firms in this market, what level of output will be supplied to the market when price is \$1.00?
- 2,000
 - 5,000
 - 10,000
 - 20,000 **100 PER FIRM TIMES 200 FIRMS**
45. **Refer to Figure 8.** If at a market price of \$1.75, 52,500 units of output are supplied to this market, how many identical firms are participating in this market?
- 75
 - 100
 - 250
 - 300

- _____ 46. When firms have an incentive to exit a competitive market, their exit will
- a. lower market price.
 - b. necessarily raise the costs of firms that remain in the market.
 - c.** raise profits for firms that remain in the market.
 - d. All of the above are correct.
- _____ 47. A natural monopoly occurs when
- a. the product is sold in its natural state (such as water or diamonds).
 - b.** there are economies of scale over the relevant range of output.
 - c. the firm is characterized by a rising marginal cost curve.
 - d. production requires the use of free natural resources, such as water or air.
- _____ 48. For a profit-maximizing monopolist,
- a.** $P > MR = MC$.
 - b. $P = MR = MC$.
 - c. $P > MR > MC$.
 - d. $MR < MC < P$.
- _____ 49. Which of the following statements is true?
- (i) When a competitive firm sells an additional unit of output, its revenue increases by an amount less than the price.
 - (ii) When a monopoly firm sells an additional unit of output, its revenue increases by an amount less than the price.
 - (iii) Average revenue is the same as price for both competitive and monopoly firms.
- a. (i) only
 - b. (iii) only
 - c. (i) and (ii)
 - d.** (ii) and (iii)

The figure on the next page reflects the cost and revenue structure for a monopoly firm. Use it to answer the following questions.

Figure 9

50. **Refer to Figure 9.** If the monopoly firm wants to maximize its profit, it should operate at a level of output equal to
- Q_1 .
 - Q_2 . **MR=MC**
 - Q_3 .
 - Q_4 .
51. **Refer to Figure 9.** Profit will be maximized by charging a price equal to
- P_0 .
 - P_1 .
 - P_2 .
 - P_3 .
52. Competitive firms differ from monopolies in which of the following ways?
- Competitive firms face a perfectly elastic demand curve.
 - Marginal revenue for a competitive firm equals price, while marginal revenue for a monopoly is less than the price it is able to charge.
 - Monopolies must lower their price in order to sell more of their product, while competitive firms do not.
- (i) and (ii)
 - (ii) and (iii)
 - (i) and (iii)
 - All of the above are correct.

53. What is the monopolist's profit under the following conditions? The profit-maximizing price charged for goods produced is \$12. The intersection of the marginal revenue and marginal cost curves occurs where output is 10 units, marginal cost is \$8, and average total cost is \$7.
- Not enough information is given to determine the answer.
 - \$10
 - \$40
 - \$50 $(P-ATC)Q = (12-7)10 = 50$
54. The profit-maximization problem for a monopolist differs from that of a competitive firm in which of the following ways?
- A competitive firm maximizes profit at the point where marginal revenue equals marginal cost; a monopolist maximizes profit at the point where marginal revenue exceeds marginal cost.
 - A competitive firm maximizes profit at the point where average revenue equals marginal cost; a monopolist maximizes profit at the point where average revenue exceeds marginal cost.
 - For a competitive firm, marginal revenue at the profit-maximizing level of output is equal to marginal revenue at all other levels of output; for a monopolist, marginal revenue at the profit-maximizing level of output is smaller than it is for larger levels of output.
 - For a profit-maximizing competitive firm, thinking at the margin is much more important than it is for a profit-maximizing monopolist.
- d. For a profit-maximizing competitive firm, thinking at the margin is much more important than it is for a profit-maximizing monopolist.

QUESTIONS #55 - #60 ARE ALL BASED ON THE INFORMATION GIVEN IN QUESTION #55.

55. A monopolist faces a demand of $P = 40 - 2Q$. Marginal revenue is $MR = 40 - 4Q$ and marginal cost is $MC = 4$. To maximize profits, the monopolist will produce a quantity of ____ and sell at a price of ____.

- 18; \$4
- 9; \$22
- 18; \$22
- 9; \$4

SET $MR=MC: 40 - 4Q = 4 \quad 4Q = 36 \quad Q = 9$

SUB $Q=9$ INTO DEMAND CURVE TO GET $P = 40 - 2(9) = 22$

56. If the monopolist's total costs are $TC = 90$, the monopolist's profit per unit is
- \$10
 - \$22
 - \$10.80
 - \$12.

AT $Q = 9$, $ATC=90/9=10$ PROFIT PER UNIT IS $(P-ATC) = (22-10)=12$

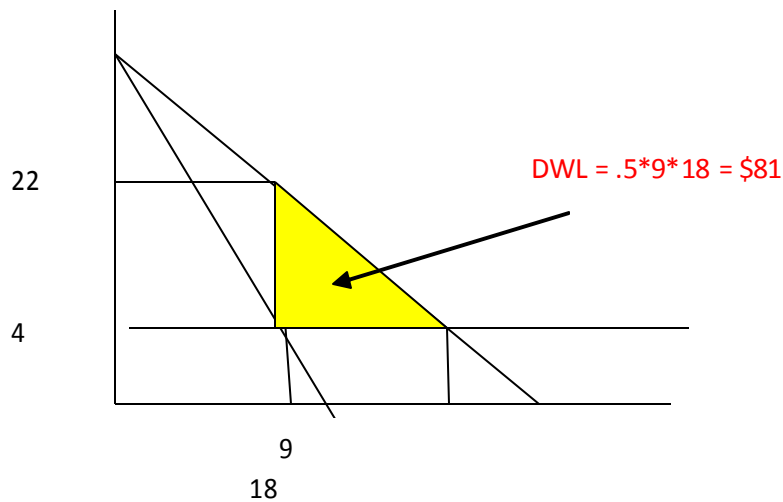
57. If this were a perfectly competitive firm, it would maximize profit at a price of
- \$22
 - \$18
 - \$9
 - \$4.

$$P=MC \quad \text{SO } P = \$4$$

58. If this were a perfectly competitive firm, it would produce a quantity of output equal to
- 9
 - 18
 - 40
 - 4.

$$\text{SET DEMAND} = MC \quad \text{SO} \quad 40 - 2Q = 4 \quad \text{AND } Q = 18$$

59. The deadweight loss due to monopoly is
- \$18
 - \$162
 - \$9
 - \$81.



60. A perfectly competitive firm and a monopolist both earn marginal revenue equal to \$4 when producing the profit maximizing quantity of output in this market.
- True
 - False - the monopolists's MR is higher.
 - False - the monopolist's MR is lower.
 - False - they both earn MR equal to \$22.

61. In Super Bowl XXXI, who did Brett Favre and the Green Bay Packers defeat?

- Dallas Cowboys
- Indianapolis Colts
- New England Patriots
- Buffalo Bills.

62. Professor Holmes' friend named the animal shown as a hint on WebCT

- Brett
- Yoko
- Hannah
- Quota-Girl.