Economics 160 Micro Principles Hanes Name _____

Final exam. Look over the whole test before you begin. There are 69 multiple-choice questions at 5 points each, and 4 written questions for 60 points total.

1. The market for cotton is perfectly competitive. Demand for cotton can be described by $Q_D = 500 - P$. Supply of cotton can be described by $Q_S = 200 + 2P$. The equilibrium price and quantity are:

a. P* = 100, Q* = 500 b. P* = 400, Q* = 100 c. P* = 200, Q* = 300 d. P* = 300, Q* = 200 e. none of the above

For 2. and 3. The market for apples is perfectly competitive. Demand for apples can be described by $Q_D = 2800 - 6P$ Supply of apples can be described by $Q_S = 1000$.

2. The equilibrium price and quantity are:

a. P* = 300, Q* = 1000 b. P* = 400, Q* = 1000 c. P* = 400, Q* = 1100 d. P* = 500, Q* = 1100 e. none of the above

3. The supply of apples is:

a. elastic, but not perfectly elastic b. perfectly elastic c. inelastic, but not perfectly inelastic
d. perfectly inelastic e. none of the above.

For 4. and 5. The market for mangel-wurzel is perfectly competitive. Demand for mangel-wurzel can be described by $Q_D = 2345 - 4.5P$ . Supply of mangel-wurzel can be described by $P = 7$.

4. The supply of mangel-wurzel is:

a. elastic, but not perfectly elastic b. perfectly elastic c. inelastic, but not perfectly inelastic
d. perfectly inelastic e. none of the above.

5. Suppose that only two factors are used to produce mangel-wurzel: land and farm labor. Suppose also that the supply spoken of above is, specifically, *long-run* supply. Then we know that:

a. the mangel-wurzel industry is a very small part of total demand for land, and a very small part of total demand for farm labor.
b. the mangel-wurzel industry is a large part of total demand for land, and a large part of total demand for farm labor.
c. the mangel-wurzel industry is a large part of total demand for at least one factor, land and/or farm labor, but we don't know which one.
d. the mangel-wurzel industry has constant returns to scale
e. the mangel-wurzel industry has increasing returns to scale.

6. Consider two goods, A and B. For good A, $Q_D = 12 - 2P_A + 3P_B$

From this equation, you know that goods A and B are:

a. normal goods b. inferior goods c. complements d. substitutes e.neither complements nor substitutes

7. Calvin wants to start a candle-making business. He can purchase a candle factory for $400,000. He has $500,000 in the bank earning 3 percent interest per year. If Calvin purchases the factory with his own money, what is the annual opportunity cost of purchasing the factory?

a. $0 b. $3,000 c. $12,000 d. $15,000 e. none of the above

8. A monopolistically competitive industry is characterized by

a. many firms, differentiated products, and barriers to entry.
b. many firms, differentiated products, and free entry.
c. a few firms, identical products, and free entry.
d. a few firms, differentiated products, and barriers to entry.
e. one firm, government regulation

9. Which of the following best describes the fact of "excess capacity" in monopolistic competition?

a. Firms produce more output than is socially desirable.
b. The output produced by a typical firm is less than what would occur at the minimum point on its ATC curve.
c. Due to product differentiation, firms choose output levels where price exceeds average total cost.
d. Firms keep some surplus output on hand in case there is a shift in the demand for their product.
e. Firms produce a quantity at which marginal social cost exceeds marginal social benefit

For 10.-15. Consider two countries: Dacia and Moesia. Each country can produce only two goods: coal and wheat. The table below gives the productivity of labor in each country for each good. Fill out the remaining columns of the table.

| | Output per worker | | Workers needed to produce one unit | | Opportunity cost | |
|---|---|---|---|---|---|---|
| | Coal | Wheat | Coal | Wheat | Coal | Wheat |
| Dacia | 2 | 3 | 1/2 | 1/3 | | |
| Moesia | 2 | 5 | 1/2 | 1/5 | | |

10. Consider the opportunity cost of producing *coal* in each country. It is:
a. 1/2 of a coal unit in Dacia, 1/2 in Moesia b. 1/3 in Dacia, 1/5 in Moesia c. 2/3 in Dacia, 2/5 in Moesia
d. 1/6 in Dacia, 1/8 in Moesia e. None of the above.

11. Consider Dacia's comparitive advantage (CA) and absolute advantage (AA).
a. Dacia has a CA in wheat and an AA in neither good b. Dacia has a CA in coal, AA in neither good
c. Dacia has a CA in wheat, AA in wheat d. Dacia has a CA coal, AA in coal e. None of the above is correct.

In the spaces below, draw PPFs for Dacia and Moesia. To do so, assume each country has 100 workers. Note that *wheat* is on the vertical axis.

12. The slopes of the PPFs are: a. Dacia -1/2, Moesia -1/2 b. Dacia -2/3, Moesia -2/5 c. Dacia -1/4, Moesia -1/3
d. Dacia -1/3, Moesia -1/4 e. None of the above is correct.

13. Consider a proposed trade deal: Moesia produces coal only; Dacia produces wheat only. Dacia gives Moesia wheat for coal at a rate of one-to-one: Dacia gets one coal for one wheat; Moesia gets one wheat for one coal. This deal is:
a. acceptable to both countries (both countries will take the deal)
b. unacceptable to either country (neither country will take the deal)
c. acceptable to Dacia, unacceptable to Moesia
d. acceptable to Moesia, unacceptable to Dacia

14. Consider a proposed trade deal: Dacia produces coal only; Moesia produces wheat only. Moesia gives Dacia wheat for coal at a rate of two-to-one: Dacia gets two wheat for one coal; Moesia gets 1/2 coal for a wheat. This deal is:
a. acceptable to both countries (both countries will take the deal)
b. unacceptable to either country (neither country will take the deal)
c. acceptable to Dacia, unacceptable to Moesia
d. acceptable to Moesia, unacceptable to Dacia

15. Consider another proposed trade deal: Dacia produces coal only; Moesia produces wheat only. Moesia gives Dacia wheat in exchange for coal at a rate of one-to-one: Dacia gets one wheat for one coal; Moesia gets one coal for one wheat. This deal is:
a. acceptable to both countries (both countries will take the deal)
b. unacceptable to either country (neither country will take the deal)
c. acceptable to Dacia, unacceptable to Moesia
d. acceptable to Moesia, unacceptable to Dacia

16. Suppose buyers of computers and printers regard the two goods as complements. How will an increase in the price of computers affect the printer market, assuming the printer market is perfectly competitive?

a. decrease in the demand for printers and a decrease in the quantity supplied of printers.
b. decrease in the supply of printers and a decrease in the quantity demanded of printers.
c. decrease in the equilibrium price of printers and an increase in the equilibrium quantity of printers.
d. increase in the equilibrium price of printers and a decrease in the equilibrium quantity of printers.
e. none of the above

17. Suppose the number of buyers in a perfectly competitive market increases and a technological advancement occurs also. What would we expect to happen in the market?

a. Equilibrium price would decrease, but the impact on equilibrium quantity would be ambiguous.
b. Equilibrium price would increase, but the impact on equilibrium quantity would be ambiguous.
c. Equilibrium quantity would decrease, but the impact on equilibrium price would be ambiguous.
d. Equilibrium quantity would increase, but the impact on equilibrium price would be ambiguous.
e. none of the above

18. If the price elasticity of demand for a good is 6, then a 3 percent decrease in price results in

a. a 20 percent increase in the quantity demanded.
b. an 18 percent increase in the quantity demanded.
c. a 2 percent increase in the quantity demanded.
d. a 1.8 percent increase in the quantity demanded.
e. a 1/2 percent incerase in the quantity demanded

19. Suppose the price of potato chips decreases from $1.90 to $2.10 and, as a result, the quantity of potato chips demanded decreases from 2,200 to 1,800. Using the midpoint method, the price elasticity of demand for potato chips is:

a. 2. b.1. c. 1/2. d. 0.64. e. none of the above

20. If demand for a good is perfectly elastic, which of the following is true?

a. the quantity demanded will not change even if there is a change in price.
b. any rise in price above that represented by the demand curve will result in a quantity demanded of zero.
c. quantity demanded and price change by the same percent as we move along the demand curve.
d. price will rise by an infinite amount when there is a change in quantity demanded.
e. none of those things is true

21. When demand is inelastic, a decrease in price will cause

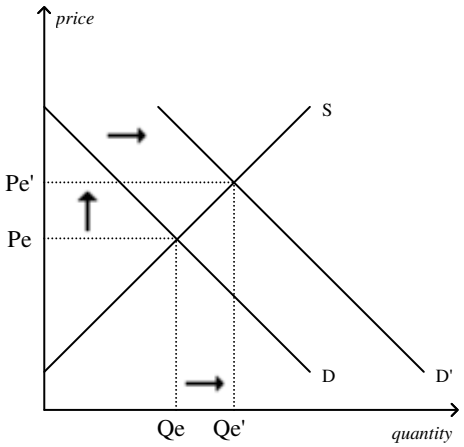
a. an increase in total revenue.
b. a decrease in total revenue.
c. no change in total revenue but an increase in quantity demanded.
d. no change in total revenue but a decrease in quantity demanded.
e. none of the above

22. Suppose the market for lemons is perfectly competitive, and an early freeze in California reduces the size of the lemon crop. Given the effect of this event on the equilibrium price and quantity, what happens to consumer surplus in the market for lemons?

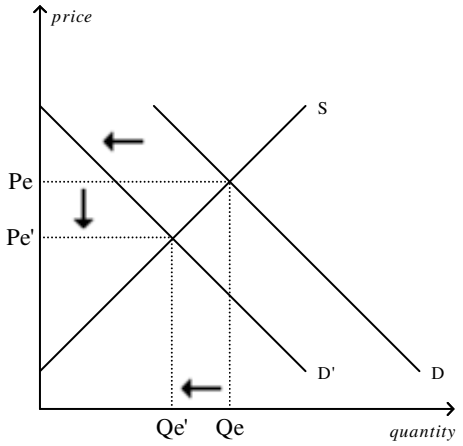
a. Consumer surplus increases.
b. Consumer surplus decreases.
c. Consumer surplus is not affected.
d. We would have to know whether the demand for lemons is elastic or inelastic to make this determination.
e. We would have to know whether lemons are a normal good or an inferior good to make this determination.

The following figures are for questions 23.-25.

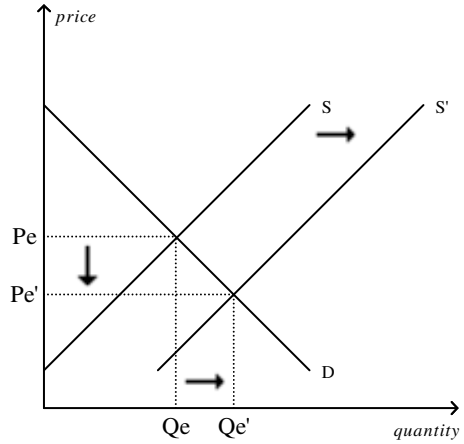
**Panel (a)**



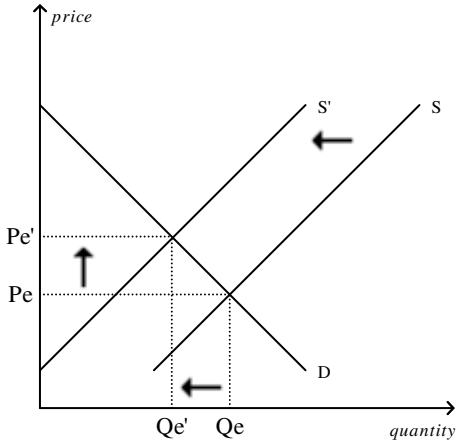

**Panel (b)**




**Panel (c)**




**Panel (d)**




23. Which graph or graphs illustrate(s) an increase in supply?
a. Panel (a) b. Panel (b) c. Panel (c) d. Panel (d) e. Panel (a) and panel (c).

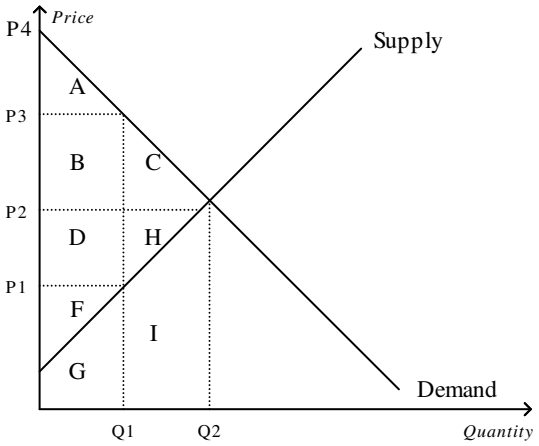
24. Which graph or graphs illustrate(s) an increase in quantity demanded, *without* an increase in demand?
a. Panel (a) b. Panel (b) c. Panel (c) d. Panel (d) e. Panel (c) and panel (d).

25. Which graph or graphs illustrate(s) a change in quantity supplied, *without* a change in supply?
a. Panel (a) b. Panel (b) c. Panel (c) d. Panel (d) e. Panel (a) and panel (b).

26. When a tax is imposed on a good for which supply is relatively elastic and demand is relatively inelastic,
a. buyers bear most of the burden of the tax. b. sellers bear most of the burden.
c. buyers and sellers each bear 50 percent of the burden. d. equilibrium price and quantity increase.
e. none of the above is true.

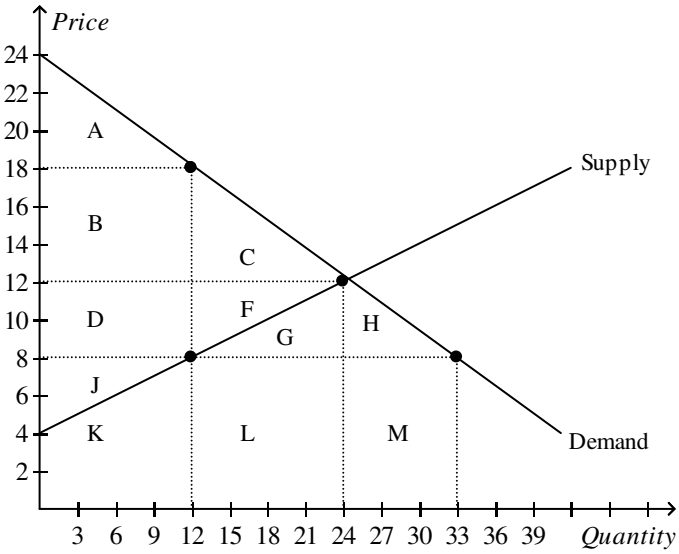
27. A farmer can produce 3,000 bushels of wheat when he hires 2 workers. He produces 4,000 bushels of wheat when he hires 3 workers. Which of the following possibilities is consistent with the property of diminishing marginal product?
a. The farmer is able to produce 5,000 bushels of wheat when he hires 4 workers.
b. The farmer is able to produce 5,500 bushels of wheat when he hires 4 workers.
c. The farmer is able to produce 4,500 bushels of wheat when he hires 4 workers.
d. Any of the above could be correct.
e. None of the above is correct

28. Suppose a perfectly competitive market is illustrated by:




At the equilibrium of this competitive market, total surplus is represented by the area
a. A+B+C.
b. D+H+F
c. A+B+D+F.
d. A+B+C+D+H+F.
e. A+B+C+D+H+F+G+I.

This figure is for 29.-31. Suppose the government imposes a $10 per unit tax on a good, collected from sellers, on the competitive market illustrated below.

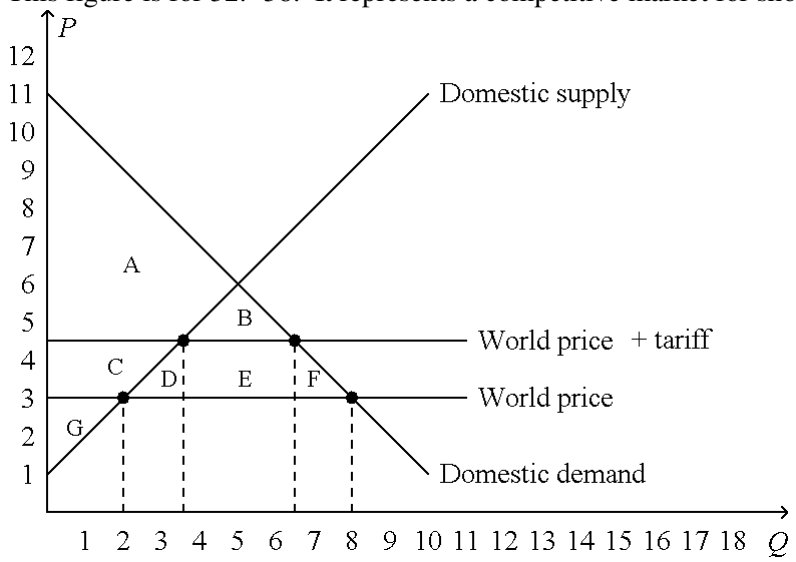



29.The resulting decrease in consumer surplus is the area
a. A. b. B+C+D+F+G+H . c. A+B+C. d. A+B+C+D+F. e.None of the above

30. After the tax goes into effect, producer surplus is the area
a. D+F+G+H+J. b. D+F+G+H. c. D+F+J. d.J. e. None of the above

31. The deadweight loss of the tax is the area
a. B+D. b. C+F. c. A+C+F+J. d. B+C+D+F. e. None of the above

This figure is for 32.- 38. It represents a competitive market for shoelaces in the small country of Grand Fenwick.




First, suppose Grand Fenwick had been under autarky, but then allows free international trade in shoelaces *without a tariff.*

32. What happens to the price of shoelaces in Grand Fenwick?
a. falls from 6 to 4.50 b. falls from 6 to 3 c. falls from 4.50 to 3 d. rises from 3 to 6 e. does not change

33. Which of the following occurs? Grand Fenwick will:
a. begin to import shoelaces, consumer surplus will increase, producer surplus will increase
b. begin to import shoelaces, consumer surplus will increase, producer surplus will decrease
c. begin to export shoelaces, consumer surplus will increase, producer surplus will increase
d. begin to export shoelaces, consumer surplus will increase, producer surplus will decrease
e. none of the above is correct

Now suppose Grand Fenwick had been allowing free international trade without a tariff, but now it imposes the tariff illustrated in the figure.

34. How much is the tariff?
a. $1 b. $3 c. $4.50 d. $6 e. $1.50

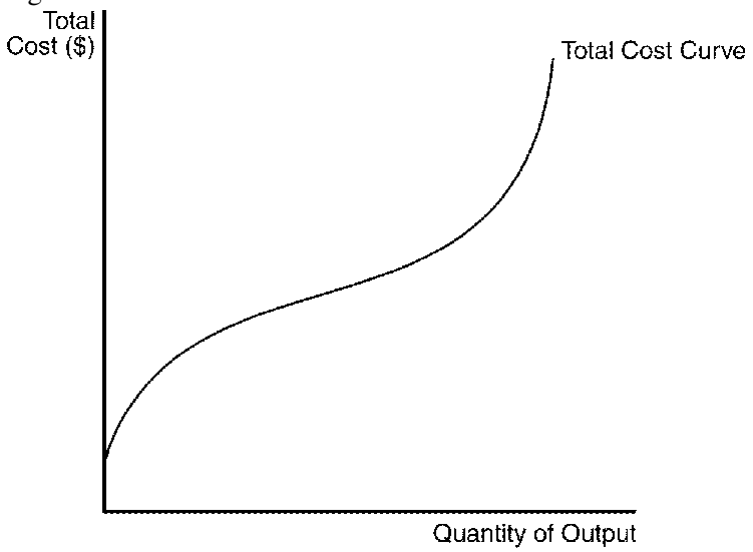
35. Tariff revenue is equal to area:
a. C b. C+D+E+F c. D+E+F d. D+F e. E

36. Deadweight loss is equal to area:
a. C b. C+D+E+F c. D+E+F d. D+F e. E

37. How much would consumers be willing to pay to get rid of the tariff?
a. C b. C+D+E+F c. D+E+F d. D+F e. E

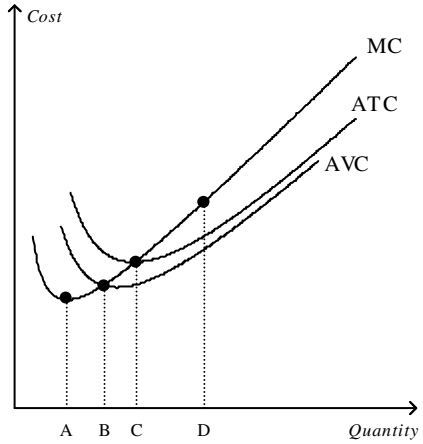
38. How much would one have to pay domestic producers to make them willing to give up the tariff?
a. C b. C+D+E+F c. D+E+F d. D+F e. E

39. This figure shows total cost for a firm.




Based on this figure, what is the relationship between marginal cost (MC) and output?
a. MC is increasing at all levels of output.
b. MC is decreasing at all levels of output
c. MC is decreasing at low levels of output, but increasing at high levels of output
d. MC is increasing at low levels of output, but decreasing at high levels of output
e. The figure shows Total Cost not MC, so we don't know the relationship between MC and output

40. This figure shows costs for a firm.

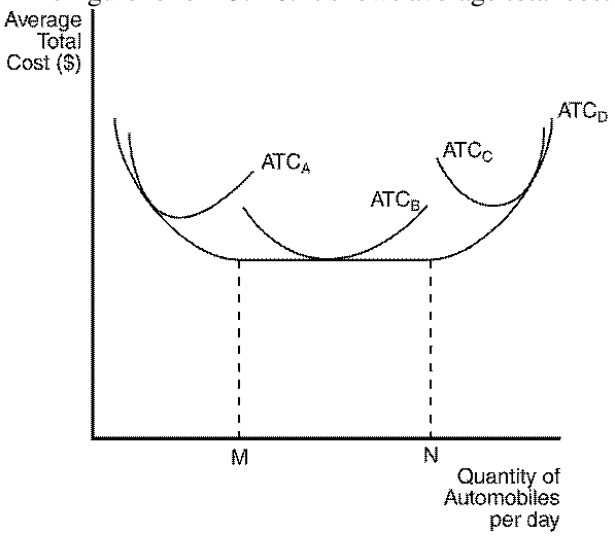



The efficient scale of production occurs at which quantity?
a. A b. B c. C d. D e. The efficient scale of produciton is not apparent on that graph.

41. 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.
e. entry and exit of firms does not affect production costs

42. A firm that shuts down temporarily has to pay
a. variable costs but not fixed costs. b. fixed costs but not variable costs. c. variable costs and fixed costs.
d. neither variable costs nor fixed costs. e. just about $3.50 to the Loch Ness monster

This figure is for 43.-46. It shows average total cost curves for a typical firm in the automobile industry.



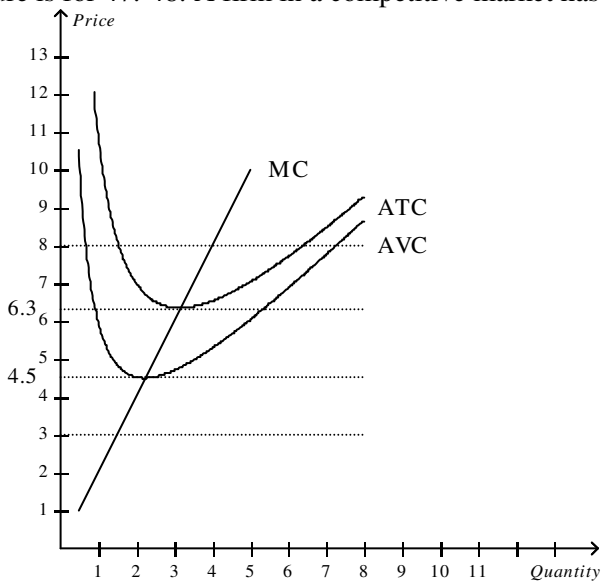

43. Which of the curves is most likely to characterize the short-run average total cost curve of a very small automobile firm?
a. ATCA b. ATCB c. ATCC d.ATCD e. None of the above

44. Which curve represents *long-run* average total cost?
a. ATCA b. ATCB c. ATCC d.ATCD e. None of the above

45. Over what range of output does a firm in the automobile industry experience economies of scale?
a. output levels less than M b. between M and N c. greater than N d. at all levels e. at no levels

46. Over what range of output does a firm in the automobile industry experience constant return to scale?
a. output levels less than M b. between M and N c. greater than N d. at all levels e. at no levels

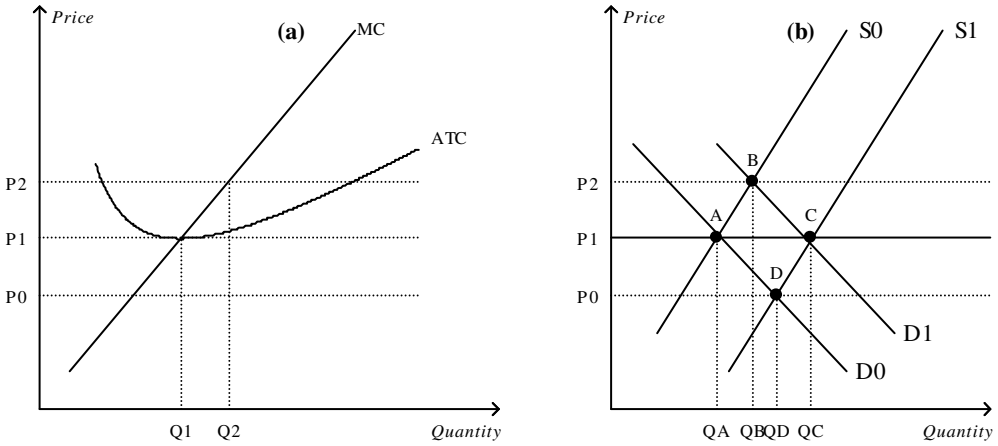
This firgure is for 47.-48. A firm in a competitive market has the following cost curves:




47. In the short run, the firm will shut down if the price is below:
a. $8 b. $6.30 c. $4.50 d. $3 e. the firm can shut down only in the long run

48. In the long run, the number of firms in the industry will decrease if the current price is below:
a. $8 b. $6.30 c. $4.50 d. $3 e. $1

The figures below are for 49.-51. They illustrate developments in a perfectly competitive market for tomatoes.

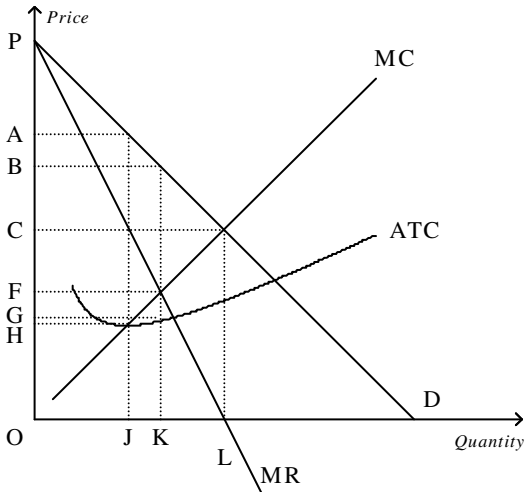



49. Suppose the tomato market is initially in a long-run equilibrium with demand DO. Then demand increases to D1. What happens to the market price in the short run?
a. may rise from P1 to P2, or from P0 to P1, depending on further conditions
b. rises from P0 to P1 c. rises from P0 to P1 d. remains at P1 e. rises from P1 to P2

50. In the long run, the supply curve shifts from S0 to S1. This is because:
a. new firms enter the industry b. existing firms acquire more capital and produce at larger scale
c. new firms enter the industry *and* existing firms acquire more capital and produce at large scale
d. the cost of industry inputs falls e. technology improves

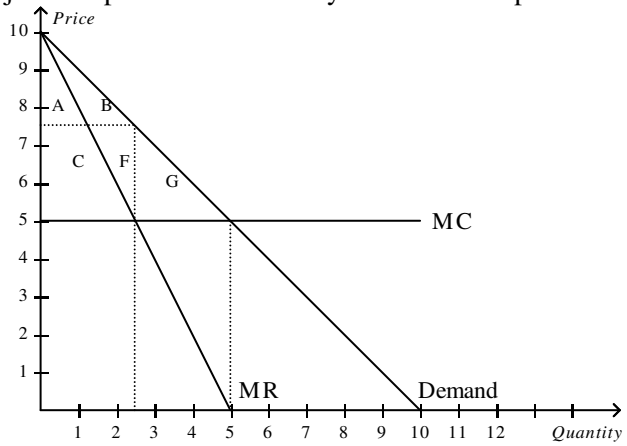
51. If points A and C are both long-run equilibria, then we know that:
a. this industry is characterized by constant returns to scale
b. this industry is characterized by increasing returns to scale
c. this industry is characterized by decreasing returns to scale
d. this industry represents a large part of total demand for the factors it uses
e. this industry represents a small part of total demand for the factors it uses

52. This figure illustrates the situation facing a monopolist.




What price will the monopolist charge?
a. A b. B c. C d. E e. F

This figure is for 53-55. It illustrates an industry that is currently a monopoly, with a firm that controls many plants. For the monopolist, the AC curve is the same as the MC curve. It would be possible to break up the monopoly into many firms, each controlling just one plant. If the industry were broken up in this way, the LRSC would be the same as the monopolist's MC.

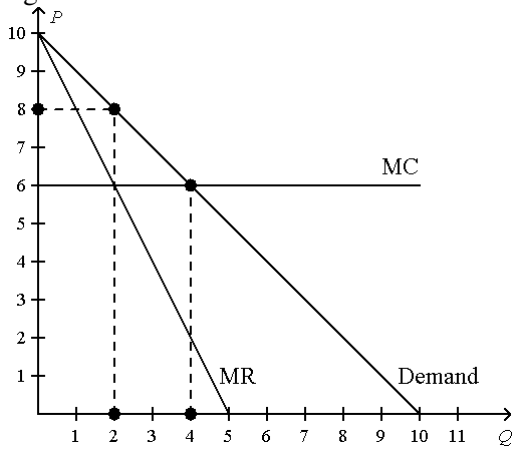



53. What would consumers be willing to pay to have the monopoly broken up?
a. A+B b. A+B+C+F+G c. C+F d. F+G e. None of the above

54. What would the owners of the monopoly firm be willing to pay to *keep* their monopoly?
a. A+B b. A+B+C+F+G c. C+F d. F+G e. None of the above

55. The deadweight loss from monopoly is:
a. A+B b. A+B+C+F+G c. C+F d. F+G e. None of the above

The following figure is for 56.- 58. It illustrates an oligopoly market. There are two firms producing the good. They have the same marginal cost.




Consider the following possible situations:
i) The two firms collude and act as a cartel
ii) Each firm chooses a price, taking the other firm's price as given
iii) Each firm chooses a quantity, taking the other firm's quantity as given
iv) Antitrust authorities break up the two firms and the industry becomes perfectly competitive

56. In what situation or situations will the market price be 8?
a. i only b. ii only c. iii only d. iv only e. in more than one of those situations

57. In what situation or situations will the market price be 6?
a. i only b. ii only c. iii only d. iv only e. in more than one of those situations

58. In what situation or situations will the market price be more than 6, but less than 8?
a. i only b. ii only c. iii only d. iv only e. in more than one of those situations

59. Suppose that two cigarette manufacturers, Firm A and Firm B, have been sued by states to recover healthcare costs due to cigarette smoking. Both cigarette firms have documents that give evidence cigarette smoke causes cancer. To fully win the case, state prosecutors need at least one cigarette firm to give them the documents and concede that cigarette smoke causes cancer. Each cigarette firm has been presented with an opportunity to lower its losses in the suit if it cooperates with state prosecutors. Under what circumstances will firm A concede that cigarette smoke causes cancer?

| | | **Firm B** | |
|---|---|---|---|
| | | *Concede that cigarette smoke causes lung cancer* | *Argue that there is no evidence that smoke causes cancer* |
| **Firm A** | *Concede that cigarette smoke causes lung cancer* | Firm A loss = $–20<br>Firm B loss = $–15 | Firm A loss = $–50<br>Firm B loss = $–5 |
| | *Argue that there is no evidence that smoke causes cancer* | Firm A loss = $–5<br>Firm B loss = $–50 | Firm A loss = $–10<br>Firm B loss = $–10 |

a. only if it thinks Firm B will concede that cigarette smoke causes cancer.
b. only if it thinks that Firm B will not concede that cigarette smoke causes cancer.
c. whether or not it thinks Firm B concedes that cigarette smoke causes cancer.
d. under no circumstances.
e. if it cannot guess what Firm B will do

60. Two firms, A and B, sell similar goods. Each can choose to advertise or not to advertise. Advertising boosts sales but is expensive. The payoffs are:

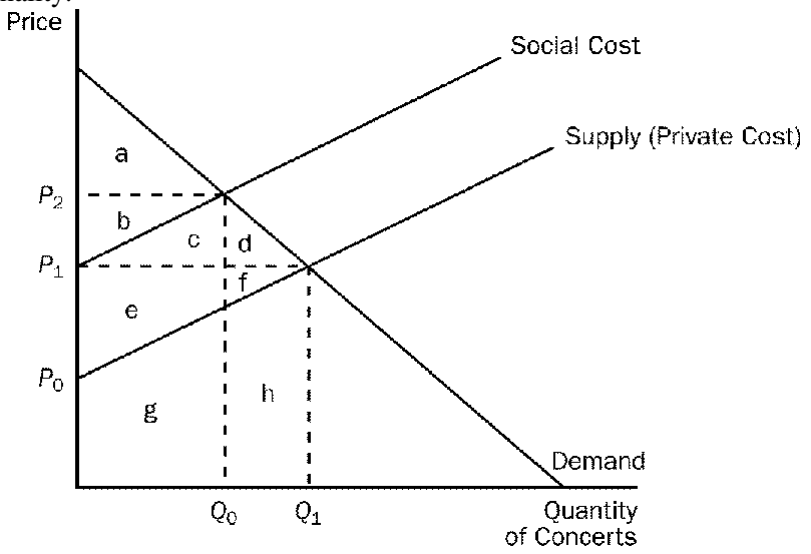
Which outcome or outcomes (are) a Nash equilibrium?
a. 1 b. 2 and 3 c. 4 d. 1 and 4 e. There is no Nash equilbrium of this game.

61. Private solutions to problems caused by externalities may not be possible due to the costs of negotiating and enforcing these solutions. Such costs are called
a. transaction costs. b. corrective costs. c. input costs. d. private costs. e. subsidy costs

62. Assume that your roommate is very messy. You would be willing to pay $50 to avoid the mess she creates. She does not like to clean up after herself. She would be willing to pay $25 *not* to clean up after herself. The Coase theorem would suggest that an efficient solution would be for you to
a. pay your roommate at least $25 but no more than $50 to clean up after herself.
b. pay your roommate at least $51 to clean up after herself.
c. charge your roommate at least $25 to have you clean up after her.
d. charge your roommate at least $50 but no more than $100 to keep you from complaining about the mess.
e. be less anal; just put up with the mess

63. Assume that your roommate is very messy. You would be willing to pay $25 to avoid the mess she creates. She does not like to clean up after herself. She would be willing to pay $50 *not* to clean up after herself. The Coase theorem would suggest that an efficient solution would be for you to
a. pay your roommate at least $25 but no more than $50 to clean up after herself.
b. pay your roommate at least $51 to clean up after herself.
c. charge your roommate at least $25 to have you clean up after her.
d. charge your roommate at least $50 but no more than $100 to keep you from complaining about the mess.
e. be less anal; just put up with the mess.

The following figure is for 64.-66. It depicts a perfectly competitive market for a service - outdoor concerts in parks - that creates an externality.




64. Which of the following stories is consistent with the graph?
a. People who live in neighborhoods close to the location of an outdoor concert enjoy the free music
b. Hobos who live in parks can go to the concert location after it is over and pick up money that fell out of concertgoers' pockets
c. Outdoor concerts gives more experience to musicians, which improves their performance in other concerts
d. Concerts of all types, including outdoor concerts, sooth a savage breast and reduce crime rates
e. None of the above

65. How much would bystanders be willing to pay to prevent all outdoor concerts?
a. h b. d+f c. b+c+d d. b+c+e e. c+d+e+f+g+h

66. A policy is proposed that would ensure the socially efficient (maximizing total surplus) number of concerts takes place. How much would concertgoers be willing to pay to stop this policy?
a. h b. d+f c. b+c+d d. b+c+e e. c+d+e+f+g+h

67. How much revenue would be generated by an efficient Pigovian tax on concerts?
a. h b. d+f c. b+c+d d. b+c+e e. c+d+e+f+g+h

68. What is the change in total surplus if the quantity of concerts is reduced from $Q_1$ to $Q_0$?
a. -h b. -(d+f) c. +h d. +d+f e. none of the above

69. Suppose the government issues a fixed number of concert permits, equal to $Q_0$ , and allows concert promoters to buy and sell these permits. What will be the market price of a concert permit?
a. $P_0$ b. $P_1$ c. $P_2$ d. $P_2$-$P_1$ e. $P_2$ - $P_0$

Written questions. Four questions, 15 points each.

1) Plot the PPF for the following situation. There are two goods: A and B. There are three groups of workers: groups I, II and III. The productivities of workers in each group are:

| | A worker in group | | |
|---|---|---|---|
| | I | II | III |
| Producing good A | 2 | 1 | 1 |
| Producing good B | 1 | 1 | 2 |

That is, each worker in group I can produce two units of good A, or one unit of good B. Each worker in group II can produce one unit of good A, or one unit of good B. Each worker in group III can produce one unit of good A, or two units of good B. There are 10 workers in each group.

2) In the space below, draw a graph that depicts a *binding price ceiling* in a perfectly competitive market. Shade in the area that represents the deadweight loss.

3) In the space below, draw a graph that depicts a monopolistically competitive firm in long-run equilibrium. Clearly mark each of the following: MC; ATC; demand for the firm's product; MR; the product price; the quantity produced.

4) In the space below, draw a graph that depicts a natural monopoly that is regulated and subject to *marginal cost pricing*. Clearly mark each of the following: MC; ATC; demand for the firm's product; MR; the product price; the quantity produced. *Shade in* the area that represents the government's payment to the firm.