

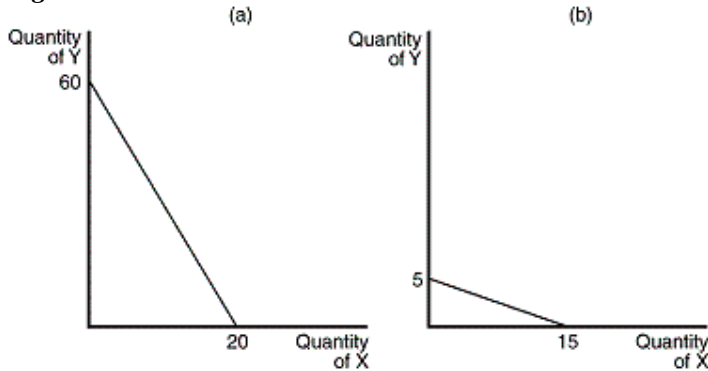
Econ103_Midterm

Total 50 Points.

Multiple Choice

Identify the choice that best completes the statement or answers the question. 1 point for each question. Total 20 pts.

Figure 21-3



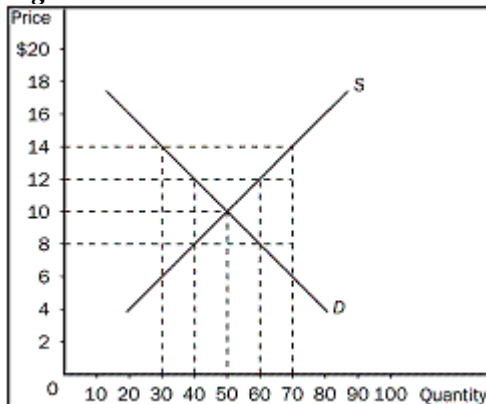
- _____ 1. **Refer to Figure 21-3.** In graph (a), what is the price of good Y relative to good X (i.e., P_Y/P_X)?
- $1/4$
 - $1/3$
 - $3/4$
 - $3/1$
- _____ 2. **Refer to Figure 21-3.** In graph (b), what is the price of good X relative to good Y (i.e., P_X/P_Y)?
- $1/4$
 - $1/3$
 - $3/4$
 - $3/1$
- _____ 3. What happens in the case of perfectly inelastic demand?
- The change in quantity demanded will be twice the change in price.
 - Huge changes in quantity demanded result from very small changes in the price.
 - The change in quantity demanded exactly equals the change in price.
 - Quantity demanded does not change for any change in price.

Table 3-5

	Hours needed to make one unit of:		Amount produced in 2400 hours:	
	Cars	Airplanes	Cars	Airplanes
Canada	40	160	60	15
Japan	50	150	48	16

4. **Refer to Table 3-5.** What is the opportunity cost a car in Canada?
- $\frac{1}{4}$ airplanes
 - 2 airplanes
 - 4 airplanes
 - $\frac{1}{2}$ airplanes
5. An increase in the price of pure chocolate morsels from \$2.25 to \$2.45 causes Nestlé to increase production from 125 bags per minute to 145 bags per minute. What do we know about the elasticity of supply at the point (price=\$2.35, quantity=135)? (Assume the supply curve is a straight line.)
- It is 0.57 and supply is elastic.
 - It is 1.74 and supply is elastic.
 - It is 0.57 and supply is inelastic.
 - It is 1.74 and supply is inelastic.

Figure 6-2

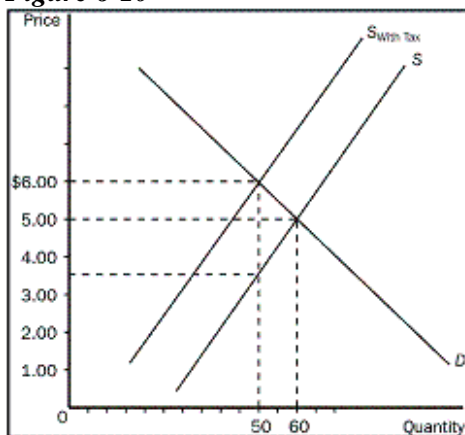


6. **Refer to Figure 6-2.** If the government imposes a binding price ceiling of \$8.00 in this market, what is the result?
- a surplus of 40 units
 - a shortage of 20 units
 - a shortage of 30 units
 - a surplus of 20 units

Table 3-2

	Labor Hours Needed to Make 1 kilogram of:		Kilograms Produced in 40 Hours:	
	Meat	Potatoes	Meat	Potatoes
Farmer	4	1	10	40
Rancher	4	5	10	8

7. **Refer to Table 3-62.** Which of the following is correct?
- The Farmer has an absolute advantage in neither good, and the Rancher has an absolute advantage in both goods.
 - The Farmer has an absolute advantage in potatoes, and the Rancher has an absolute advantage in neither good.
 - The Farmer has an absolute advantage in meat, and the Rancher has an absolute advantage in potatoes.
 - The Farmer has an absolute advantage in potatoes, and the Rancher has an absolute advantage in meat.
8. Suppose that the number of buyers in a market decreases and a technological advancement occurs. What would we expect to happen in the market?
- The equilibrium price would increase, but the impact on the amount sold in the market would be ambiguous.
 - Both equilibrium price and equilibrium quantity would increase.
 - The equilibrium price would decrease, but the impact on the amount sold in the market would be ambiguous.
 - Equilibrium quantity would increase, but the impact on equilibrium price would be ambiguous.

Figure 6-10

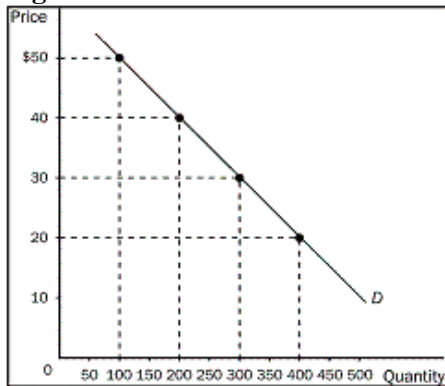
9. **Refer to Figure 6-10.** What is the share of the tax burden per unit that buyers would pay?
- \$1.00
 - \$1.50
 - \$2.50
 - \$3.00

- _____ 10. What will happen to the equilibrium price of new textbooks if more students attend university, paper becomes cheaper, textbook authors accept lower royalties, and fewer used textbooks are sold?
- price will stay exactly the same
 - price will fall
 - price change will be ambiguous
 - price will rise
- _____ 11. When small changes in price lead to infinite changes in quantity demanded, what is true of demand?
- Demand is perfectly elastic and will be vertical.
 - Demand is perfectly elastic and will be horizontal.
 - Demand is perfectly inelastic and will be vertical.
 - Demand is perfectly inelastic and will be horizontal.

The following questions support each other in the understanding of Market Demand. They should be answered in the order of which they appear.

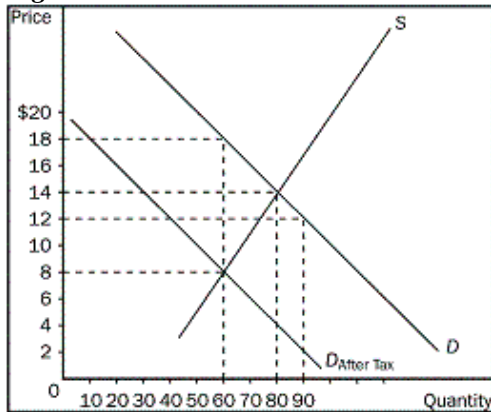
- _____ 12. **Market demand** is given as $Q_d = 200 - 3P$. Market supply is given as $Q_s = 2P + 100$. What would result if the market price were \$15?
- a shortage of 25
 - a surplus of 130
 - a surplus of 25
 - a shortage of 130
- _____ 13. What would happen to the equilibrium price and quantity of peanut butter if the price of peanuts went up, the price of jelly (a complementary good) fell, fewer firms decided to produce peanut butter, and health officials announced that eating peanut butter was good for you?
- quantity will fall and the effect on price is ambiguous
 - price will fall and the effect on quantity is ambiguous
 - effect on both price and quantity is ambiguous
 - price will rise and the effect on quantity is ambiguous

Figure 5-5



14. **Refer to Figure 5-5.** When price falls from point \$40 to \$30, what do we know about demand?
- It must be unit elastic, since total revenue decreases from \$9000 to \$8000.
 - It must be inelastic, since total revenue decreases from \$9000 to \$8000.
 - It must be elastic, since total revenue increases from \$8000 to \$9000.
 - It must be inelastic, since total revenue increases from \$8000 to \$9000.
15. Suppose that health officials have argued that eating too much beef might be harmful to human health. As a result, there has been a significant decrease in the amount of beef produced. Which of the following best explains the decrease in production?
- Beef producers, concerned about the health of their customers, decided to produce relatively less beef.
 - Anti-beef protesters have made it difficult for both buyers and sellers of beef to meet in the marketplace.
 - Government officials, concerned about consumer health, ordered beef producers to produce relatively less beef.
 - Individual consumers, concerned about their own health, decreased their demand for beef, which lowered the relative price of beef, making it less attractive to produce.
16. What is the slope of a perfectly inelastic demand curve, and why?
- horizontal, because buyers increase their purchases by huge amounts with slight changes in price
 - negatively sloped, because buyers decrease their purchases when the price rises
 - vertical, because buyers purchase the same amount whether the price rises or falls
 - positively sloped, because buyers respond by increasing their purchases when price rises

Figure 6-9



- ____ 17. **Refer to Figure 6-9.** What is the price sellers receive after the tax is imposed?
- \$8.00
 - \$12.00
 - \$14.00
 - \$18.00
- ____ 18. You love peanut butter. You hear in the news that 50% of the peanut crop in North America has been wiped out, which will cause the price to double by the end of the year. What happens as a result?
- Your demand for peanut butter increases today.
 - Your demand for peanut butter will increase by the end of the year.
 - You decide to give up peanut butter completely.
 - Your demand for peanut butter falls as you look for a substitute good.
- ____ 19. A "highly bowed inward" set indifference curves represents the two goods as
- perfect substitutes.
 - perfect complements.
 - very poor substitutes.
 - very poor complements.
- ____ 20. A Giffen good can be explained as a good for which an increase in the price
- decreases the quantity supplied.
 - increases the quantity supplied.
 - decreases the quantity demanded.
 - increases the quantity demanded.

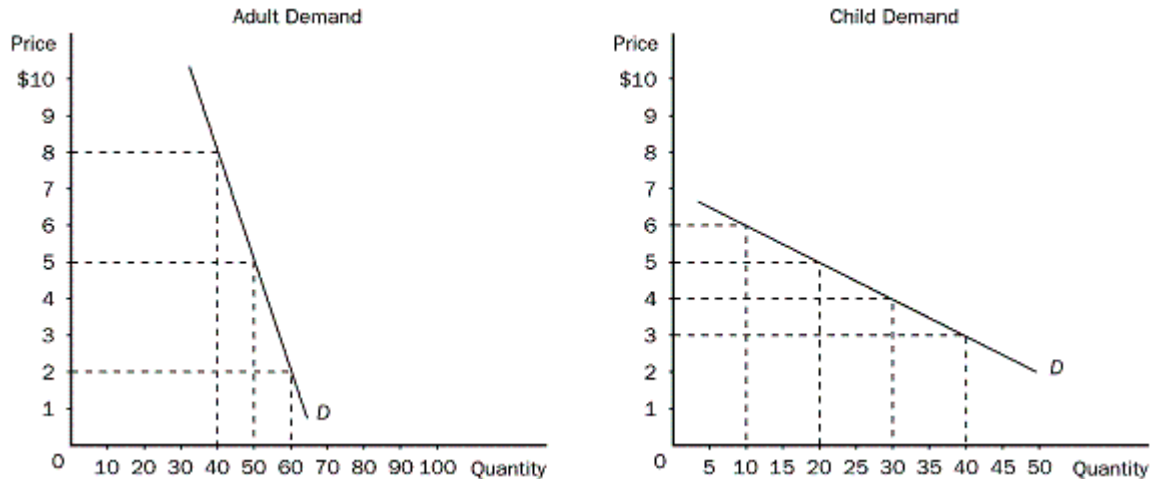
Answers:

B B D A B B B C A C (1 - 10)

B A D C D C A A B D (11 - 20)

Short Answer (Total 30 pts)

1. You own a small town movie theatre. You currently charge \$5 per ticket for everyone who comes to your movies. Your friend who took an economics course in college tells you that there may be a way to increase your total revenue. Given the demand curves shown, answer the following questions. (Total 10 pts)



- What is your current total revenue for both groups? (1 point)
- The elasticity of demand is more elastic in which market? (1 point)
- Which market has the more inelastic demand? (1 Point)
- What is the elasticity of demand at the prices of \$5 in the adult market? Is this elastic or inelastic? (2 Points)
- What is the elasticity of demand at \$5 in the children's market? Is this elastic or inelastic? (2 Points)
- Given the graphs and what your friend knows about economics, he recommends you increase the price of adult tickets to \$8 each and lower the price of a child's ticket to \$3. How much could you increase total revenue if you take his advice? (3 Points)

Answer:

- Revenue = $5 \times 50 + 5 \times 20 = 350$
- Child market
- Adult market
- When $P=5$, $Q=50$. Slope = $-(8-5)/(50-40) = -3/10$. So elasticity = $-\frac{1}{\text{slope}} \frac{P}{Q} = -\frac{1}{-3/10} \frac{5}{50} = \frac{10}{3} \times \frac{5}{50} = \frac{2}{3} < 1$. So it is inelastic.
- When $P=5$, $Q=20$. Slope = $-(6-5)/(20-10) = -1/10$. So elasticity = $-\frac{1}{\text{slope}} \frac{P}{Q} = -\frac{1}{-1/10} \frac{5}{20} = 10 \times \frac{5}{20} = \frac{5}{2} > 1$. So it is elastic.
- Revenue from Adult market = $8 \times 40 = 320$.
Revenue from Child market = $3 \times 40 = 120$
Total revenue = $320 + 120 = 440$.
Increase in total revenue = $440 - 350 = 90$

2. Show that why an indifference curve cannot be upward sloping. (Total 4 pts)

Basic idea in the answer: Suppose an indifference curve for the good 1 and good 2 is upward sloping, we can find two points A and B on this curve such that at B the consumption of one good is strictly higher and the

consumption of the other good is not lower. From the assumption “More is better”, B must be strictly preferred to A. So the two points cannot be on the same indifference curve. Contradiction. So an indifference curve cannot be upward sloping.

3. Consider public policy aimed at smoking. (Total 6 pts)

- a. Studies indicate that the price elasticity of demand for cigarettes is about 0.4. If a pack of cigarettes currently costs \$10 and the government wants to reduce smoking by 20 percent, by how much should it increase the price? (2 points)
- b. If the government permanently increases the price of cigarettes, will the policy have a greater effect on smoking one year from now or five years from now? (2 points)
- c. Studies also find that teenagers have a higher price elasticity than do adults. Why might this be true? (2 points)

Answer: Please see the solution for Assignment 2.

4. Mary doesn't like working but enjoy the leisure time. If she works, she earns a wage of \$10/hour and she can use the income to buy all the goods she need to consume. Assume the price of the goods she consumes is equal to \$1. Also assume Mary's utility function is $U(C, N) = \sqrt{CN}$, where C is her consumption (quantity of all the goods she consumes) and N is her leisure hours. Denote by L her labor hours, $L + N = 24$. Derive Mary's demand curve for Leisure and supply curve for Labor. (Hint: 1. Her marginal utilities are: $MU_C = \frac{\sqrt{N}}{2\sqrt{C}}$, $MU_N = \frac{\sqrt{C}}{2\sqrt{N}}$; 2. Try different wages and calculate the leisure hours corresponding to each of them.) (Total 10 pts)

Answer: Please see the solution for Assignment 3.