

Group problems

Micro

1. The income elasticity coefficient of good A is positive and the cross-price elasticity between good A and good B is negative. Good A is a(n)
 - a. normal good and a substitute for good B
 - b. inferior good and a substitute for good B
 - c. normal good and a complement for good B
 - d. inferior good and a complement for good B

2. The price of a Frisbee rises from \$5 to \$6. Total revenue falls from \$400 to \$360. We can conclude that price elasticity of demand coefficient is (roughly) _____ which means that demand is _____
 - a. -.579, elastic
 - b. -1.579, elastic
 - c. -.579, inelastic
 - d. -1.579, inelastic

3. Good C has a negative income elasticity. Which of the following goods is most likely to be good C
 - a. Alfa Romeo sports car
 - b. A vacation in Europe
 - c. A steak dinner
 - d. A can of generic beer

4. The cross-price elasticity coefficient between Wendy's biggie fries and Wendy's frosty is _____. The cross-price elasticity coefficient between burger king's whopper and McDonald's big Mac is _____
 - a. positive, positive
 - b. positive, negative
 - c. negative, positive
 - d. negative, negative

5. When the price of a good was lowered by 10%, the quantity demanded rose by 20%. The price elasticity of demand in absolute value is
 - a. $\frac{1}{2}$
 - b. 1
 - c. 2
 - d. 2.5

6. The definition of the price elasticity of demand is
 - a. the change in quantity over change in price
 - b. percentage change in quantity over percentage change in price
 - c. percentage change in price over percentage change in quantity
 - d. change in price over change in quantity

1. Sally derives utility from pizza slices and hot dogs according to the following schedule

Pizza slices

Hot dogs

TU	MU	MU/\$	# consumed	TU	MU	MU/\$
20			1	12		
36			2	22		
50			3	31		
62			4	39		
72			5	45		
80			6	49		
86			7	52		
90			8	54		
91			9	55		

A slice of pizza costs \$1.00 and a hot dog costs \$.50. Sally's income is \$8.00

- Complete the marginal utility and marginal utility per dollar columns
- Assuming no half units may be bought, how many slices of pizza and how many hot dogs should Sally consume
- What would be Sally's total utility
- Give three examples of ways in which Sally's utility could improve

Centuries ago economists puzzled over

the price of diamonds relative to the price of water. Diamonds are mere baubles—certainly not a necessity of life in any sense. Water is essential to life and has a huge number of uses. Yet diamonds are expensive, while water is cheap. For example, the \$10,000 spent on a one-carat diamond could instead buy about ten million gallons of municipally-supplied water (which typically sells for about 10 cents per hundred gallons). However measured, diamonds are extremely expensive relative to water. For the price of a one-carat diamond, you could buy enough water to last four lifetimes.

How can the price of something as useful as water be so much lower than something of such limited use as diamonds? Adam Smith discussed in 1776 what has come to be called the diamonds-water paradox. What explains this paradox? Because water is so essential to life, the total utility derived from water greatly exceeds the total utility derived from diamonds. But the market value of a good is based, not on its total utility, but on what consumers are willing and able to pay for an additional unit of the good—that is, on its marginal utility. Since water is so abundant in nature, the marginal utility of the last gallon purchased is relatively low. Since diamonds are so scarce in nature, the marginal utility of the last diamond purchased is relatively high. Thus water is cheap and diamonds expensive.

Speaking of water, let's examine the recent surge in the demand for bottled water. In the past decade, sales of bottled water gushed 144 percent-faster than any other beverage segment—creating a \$4 billion industry in the United States. Annual consumption of bottled water increased from 5 gallons to 11 gallons per capita. The United States offers the world's largest market for bottled water—some of it imported from places such as Italy, France, Sweden, Wales, even Fiji. And there are even "water bars" in Boston, New York and Los Angeles, where the primary attraction is bottled water.

Why would consumers pay a premium for bottled water when they can draw water from the tap for virtually nothing? First, many people do not view the two options as good substitutes. About half of respondents in a recent Gallup Poll said they won't drink water straight from the tap. They have concerns about the safety of tap water, such as possible contamination by e-coli bacteria, and they view bottled water as a healthy alternative. Second, even those who have no problem with tap water consider bottled water a convenient alternative when away from home.

According to the theory of utility maximization, people who buy bottled water apparently feel the additional benefit offsets the additional cost. Bottled-water sales are expected to continue growing. Pepsi's Aquafina brand is sold around the country, and Coke is launching its own brand.

Sources: Corby Kummer, "What's In the Water?" New York Times Magazine, 30 (August 1998), pp. 38, 42, 59, 61; Christopher Williams "US Filter, Water Stocks Up; New Report on Drinking Water Cited," Dow

Jones Newswire, 21 (October 1998); "Lax Oversight Raises Tap Water Risks," USA Today, 21 (October 1998); and Nikhil Deogun, "The Really Real Thing: Coke to Peddle Brand of Purified Bottled Water in U.S." Wall Street Journal, 3 (November 1998). The Web site for the International Bottled Water Association is www.bottledwater.org.

Case Study Question

What is the diamonds-water paradox, and how is it explained? Use the same reasoning to explain why bottled water costs so much more than tap water?

The cost of fur

Mar 1st 2001

From The Economist print edition

animals
animal
behind

FUR coats have fallen from grace in many parts of the world, but chilly northern nations continue to farm millions of mink for their pelts. The

are housed in barren cages that provoke controversy and protest from lovers, but fur farmers insist that mink are completely adapted to life bars. What do the animals themselves feel about their surroundings?

have

To answer this, Georgia Mason of Oxford University and her colleagues

applied a little economic theory. Animals, like human consumers, have to make the most of limited resources. Instead of money, they trade physical exertion and time. The things they want depend on the environment they evolved in. Wild mink swim, roam, delve into tunnels and hunt, so their commodities presumably include water, space, tunnels and prey. Caged mink, claim animal advocates, are frustrated without these resources, and suffer as a result. Fur supporters contend that such "wild" urges have been bred out.

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To settle the debate, Dr Mason and her colleagues treated their animals to life with a water bath, tunnel, chewable toys and an extra straw-lined bed

doors

in addition to their normal cage. They regarded the mink as consumers, recording how often they visited the extra cages containing each of the "treats". The mink had to pay for their treats by pushing against heavy

reservation

doors to gain access. By varying the weights of the doors, the researchers could measure microeconomic variables such as consumer surplus and

price, which reveal how much consumers value a commodity. Their results are published in this week's Nature.

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Water, it turned out, matters the most to mink—and not merely to drink. They refused to be thwarted by increasingly heavy weights, and continued

a

force doors open in order to swim. In human terms, the mink deemed the water bath to be a staple such as bread, for which consumers continue to pay the asking price even when the cost goes up. By contrast, the tunnel was more readily forsaken by the mink when the going got tough, much as

were

a person might forgo restaurant meals when prices rise. The other treats

intermediate in the value placed on them.

Dr Mason believes that knowing an animal's willingness to pay costs is as close as science is likely to come to an accurate estimate of an animal's own view of the situation. It provides a direct insight into what gives it pleasure, she says, since pleasure has probably evolved to motivate cost-benefit decisions in the way that fear evolved to motivate animals to flee,

and hunger to keep them fed. Indeed, depriving the mink of their swims caused as much physiological stress as denying them food. When the door to the water bath was locked for a day, the mink's urine was collected and analysed for cortisol, a hormone associated with stress. Cortisol rocketed to the same level as when food was withheld for 24 hours.

Fur farmers with a conscience have one idea still to cling to. Meaningful economic decisions are possible only when consumers are familiar with the available commodities. Exposure to the treats may have activated desires in the experimental mink that would otherwise have lain dormant. Farmed

mink,

be

on the other hand, never know any alternative. For them, swimming may

“out of sight, out of mind”.

1. Use consumer choice theory to explain the choice minks made with their treats.

6

1. Find TC, AFC, AVC, ATC and MC for the following table.

<u>Units</u>	<u>FC</u>	<u>VC</u>	<u>TC</u>	<u>MC</u>	<u>AFC</u>	<u>AVC</u>	<u>ATC</u>
0	50	0					
1	50	90					
2	50	120					
3	50	165					
4	50	220					
5	50	290					

2. You are presented with the following table on average productivity.

<u>Labor</u>	<u>TP</u>	<u>MP</u>	<u>AP</u>
1	2		
2	6		
3	15		
4	20		
5	23		
6	24		

a. Complete the table

3. In a short-run decision

- A firm has more options than in the long run
- A firm has fewer options than in the long run
- A firm has the same number of options as in the long run
- There is no relation between the number of options a firm has and whether it is a short-run decision or a long run decision

4. Five workers are producing a total of 28 units of output. The workers' marginal product is

- 5
- 28
- $28/5$
- Cannot be determined with the information given

5. Five workers are producing a total of 28 units of output. The workers' average product is

- 5
- 28
- $28/5$
- Cannot be determined with the information given

6. The firm's total fixed costs are 100; total variable costs are 200; and average fixed costs are 20. The firm's total costs are
- 100
 - 200
 - 300
 - 320
7. The firm is producing an output of 24 and has total costs of 260. Its marginal cost equals
- 10.83
 - 8.75
 - 260
 - cannot be determined with the information provided
8. The firm is producing an output of 24 and has total costs of 260. Its average total cost equals
- 10.83
 - 8.75
 - 260
 - cannot be determined with the information provided
9. When marginal costs are at the minimum point in the short run
- the marginal product of workers is at a maximum
 - the marginal product of workers is increasing
 - the marginal product of workers is decreasing
 - the average product of workers is at a maximum
10. If marginal cost is greater than average total cost, then
- the average total cost curve is upward sloping
 - the average total cost curve is at a low point
 - the average total cost curve is downward sloping
 - there is no necessary relation between marginal cost and average total costs
11. If marginal cost is falling, the average total cost curve is
- upward sloping
 - at its low point
 - is downward sloping
 - there is no necessary relation between marginal cost and average total costs

Problems and Exercises

1. A box of Wheaties cereal with a wholesale price of \$1.60 has the following costs:

Labor	0.15
Materials	0.30
Advertising	0.25
R & D	0.25
Rent on building	0.25
Owner's profit	0.40

a. Which are likely variable costs?

b. Which are likely fixed costs?

2. Consider the following information about Sarina who has a clothing manufacturing company that sews psychedelic clothing such as Astro turf mini-skirts. Her alternative is working for the designer house for 160,000 per year. Her revenue is \$400,000 per year. Her costs are:

\$60,000 for cloth, thread, and other materials

\$10,000 for utilities

\$70,000 for labor

\$80,000 for rental equipment

She has an offer to buy the company for \$500,000, which she can otherwise invest with an annual return of 5%.

a. What are her accounting profits? Economic profits?

b. What should she do with her company?

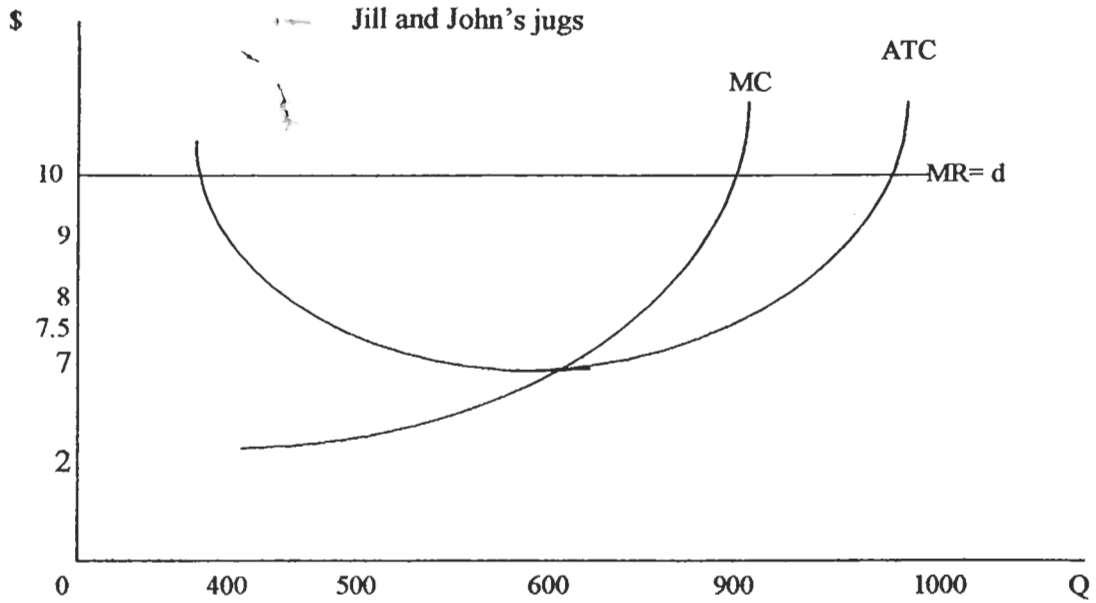
3. The following table represents long run total costs:

<u>Q</u>	<u>TC</u>	<u>ATC</u>
1	60	
2	66	
3	69	
4	72	
5	75	
6	90	
7	126	
8	184	
9	297	
10	600	

- Calculate the average total cost in the space provided
- Label the outputs where economies of scale and diseconomies of scale start

Multiple Choice

- Explanations for diseconomies of scale include all of the following except
 - as firm size increases, monitoring costs generally increase
 - as size of the firm increases, team spirit or moral generally decreases
 - as size of the firm increases, monitoring costs generally decrease, thereby increasing other cost
 - All of the above are explanations
- Total revenue is \$1000; explicit measurable costs are \$500
 - accounting profit is \$1000
 - accounting profit is \$500
 - accounting profit is \$200
 - accounting profit cannot be determined



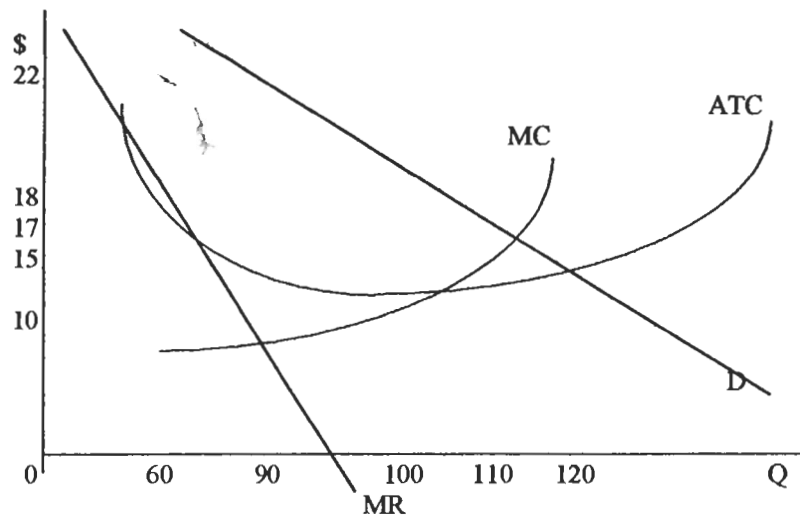
1. In the diagram above the profit maximizing output level is _____

2. In the diagram above, if the firm produces 600 jugs, its profit will be _____

3. In the diagram above, if the firm produces 400 jugs, its total cost will be _____

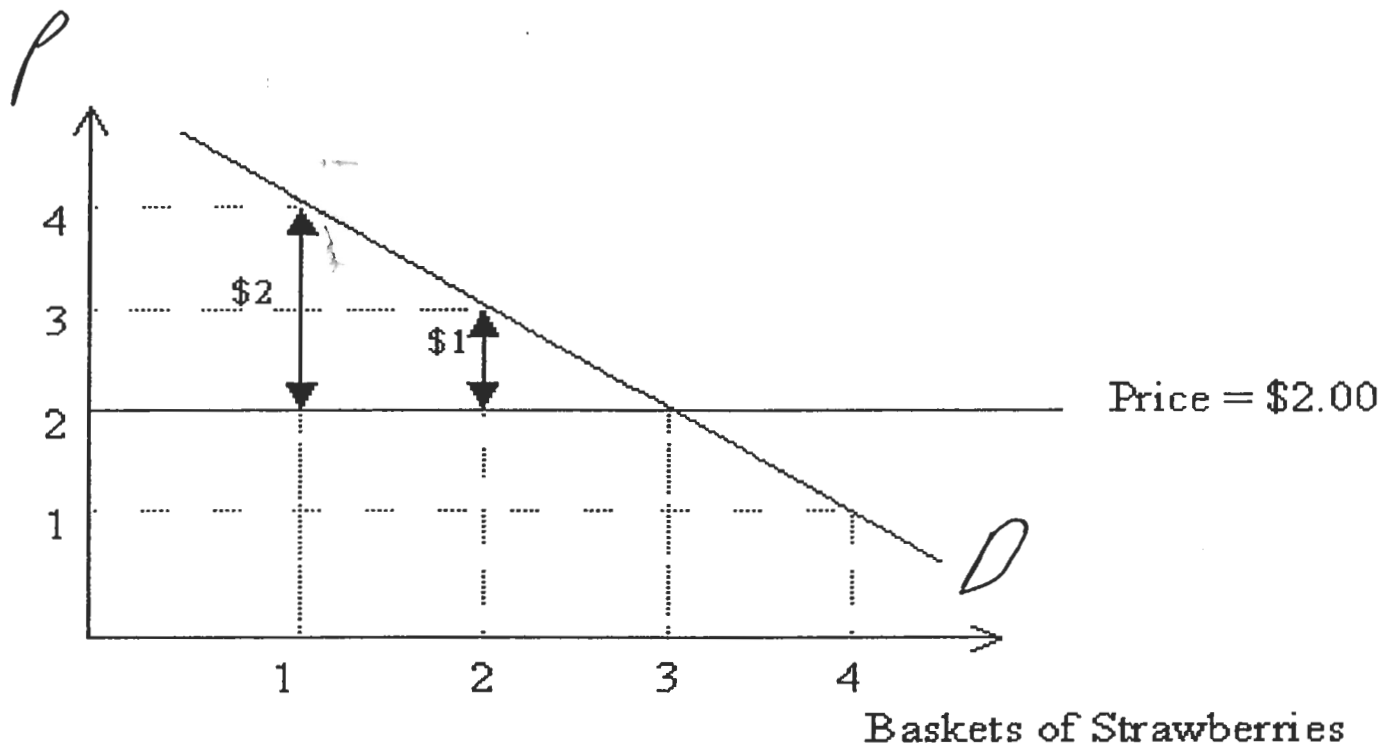
4. In the diagram above, if the firm produces 900 jugs, total revenue is _____

5. In the diagram above, if the firm expands production from 600 jugs to 900 jugs, profit will increase from _____ to _____



Multiple Choice Questions:

1. What is the profit maximizing level of output?
2. What is total revenue at the profit maximizing level of output?
3. What is total cost at the profit maximizing level of output?
4. What is profit at the profit maximizing level of output?



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Questions

1. What is the consumer surplus of the second basket?

2. What is the consumer surplus of the first basket?

Multiple Choice Questions

1. In a market there are many firms selling differentiated products. This market is
 - a. a competitive market
 - b. a monopolistically competitive market
 - c. an oligopoly
 - d. a monopoly

2. A few firms are operating in a market where they take the other firms' response into account. The market is
 - a. a competitive market
 - b. a monopolistically competitive market
 - c. an oligopolistic market
 - d. a monopoly

3. The top four firms in the industry have 10%, 8%, 8%, and 6% of the market. The four firm concentration ratio of this market is?
 - a. 8
 - b. 32
 - c. 66
 - d. 264

4. The top four firms in the industry have 10%, 8%, 8%, and 6% of the market. The Herfindahl index of this market is most likely which of the following?
 - a. 8
 - b. 32
 - c. 66
 - d. 264

5. In long run equilibrium, a monopolistically competitive firm
- makes a loss
 - makes only a normal profit
 - makes a monopolistic profit
 - may make a loss or a profit
6. A market has the following characteristics: Marginal cost equals marginal revenue; it has the most output restrictions; there is only one firm in the market; and there is a possibility of long run economic profit. The market structure is
- monopolistic
 - oligopolistic
 - monopolistically competitive
 - perfectly competitive
7. The market has the following characteristics: Marginal cost equals marginal revenue; output is restricted somewhat by product differentiation; each firm acts independently, and there is no long run economic profit. The market is
- monopolistic
 - oligopolistic
 - monopolistically competitive
 - perfectly competitive
8. The market has the following characteristics: There is strategic pricing, output is somewhat restricted, there is interdependent decision making, and some long run economic profits are possible. This market is
- monopolistic
 - oligopolistic
 - monopolistically competitive
 - perfectly competitive
9. At the long run equilibrium output for a monopolistic competitor
- price equals marginal costs equals marginal revenue
 - price equals average total cost equals marginal revenue
 - marginal cost equals marginal revenue equals average total costs
 - price equals average total cost and marginal costs equals marginal revenue

Problems and exercises:

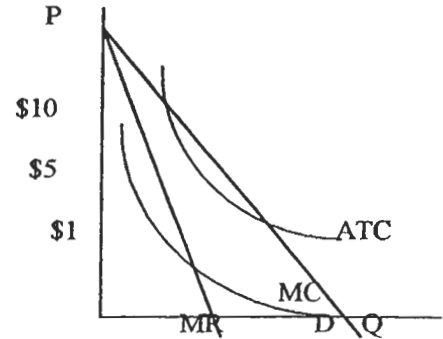
		A's strategy	
		Don't advertise	Advertise
B's strategy	Don't advertise	A's profit = \$1,000,000 B's profit = \$1,000,000	A's profit = \$ 100,000 B's profit = -\$50,000
	Advertise	A's profit = - \$50,000 B's profit = \$100,000	A's profit = \$50,000 B's profit = \$50,000

1. What is A's dominant strategy?
2. What is B's dominant strategy?
3. What is the profit for each firm in nash equilibrium?
4. Is nash equilibrium the best situation for both firms?

1. Consider the graph on the right representing a firm for a particular industry and answer the following questions.

a. What sort of monopoly would you characterize this as? Why?

b. What price would the firm charge if it were unregulated?



c. What price would you advise the government the firm should be allowed to charge? Explain your answer.

Multiple Choice Questions:

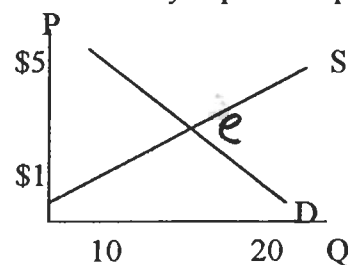
1. If there is X-inefficiency, what can we conclude?
 - a. the firm is operating economically efficiently
 - b. the firm is operating technically efficiently
 - c. the firm is operating less efficiently than possible
 - d. we can say nothing about the efficiency of the firm

2. A patent is
 - a. a type of reverse engineering
 - b. a type of natural monopoly
 - c. a type of corporate takeover
 - d. a type of legal monopoly

3. If average total costs are decreasing throughout the relevant range of production, the industry will be
 - a. a natural monopoly
 - b. a prime target for rent seeking
 - c. an example of monitoring problems
 - d. made up of several small firms

Multiple Choice Questions(agriculture)

- The good/bad paradox is caused because there is
 - an inelastic demand for agricultural goods
 - an inelastic supply of agricultural goods
 - an elastic demand for agricultural goods
 - an elastic supply of agricultural goods
- Agriculture is a highly productive industry. This enormous productivity has
 - caused agriculture to increase the number of workers needed
 - caused agriculture to decrease the number of workers needed
 - caused farmers to be rich and prosperous
 - increased the share of the labor force working in agriculture
- Say that most apple farmers are having a bad crop, but that in your particular area the weather was great so you are having a great crop. You would
 - be unhappy because of the good/bad paradox
 - favor price controls
 - not be hurt by the good/bad paradox
 - receive a low price for your apple crop and not be able to sell much of it
- Economic theory tells us that
 - farm subsidies are bad policy
 - farm subsidies have costs and benefits
 - farm subsidies are responsible for the enormous increase in productivity in agriculture.
 - farm subsidies hurt farmers
- In the graph, if the government sets a price floor of \$5 and buys up the surplus the cost to the government is
 - 10
 - 5
 - 50
 - 200



- In the graph for question 5, the government subsidizes the sale of wheat so that farmers get \$5 but the price to consumers is brought down to \$1, the cost to the government of doing so will be
 - 10
 - 4
 - 40
 - 80

Multiple Choice Questions:

1. The Lorenz curve is
 - a. a type of supply curve
 - b. a type of demand curve
 - c. a geometric representation of the size distribution of income
 - d. a geometric representation of the socioeconomic distribution of income

2. If the government increases the amount of food stamps and housing assistance it gives out, the direct effect of U.S. poverty, as officially defined,
 - a. will be reduced
 - b. will be increased
 - c. will remain the same
 - d. cannot be determined for the information

3. In the United States in the mid-1990s the poverty income for a family of four has been approximately
 - a. \$3,000
 - b. \$10,000
 - c. \$16,000
 - d. \$20,000

4. In a Lorenz curve for the United States, household wealth would
 - a. show the same amount of inequality as does family income
 - b. show more inequality than does family income
 - c. show less inequality than does family income
 - d. would show no income inequality at all

5. If the Lorenz curve shifts inward toward the 45-degree reference line
 - a. income distribution is less equal
 - b. income distribution is more equal
 - c. income distribution is no different
 - d. income distribution cannot be determined

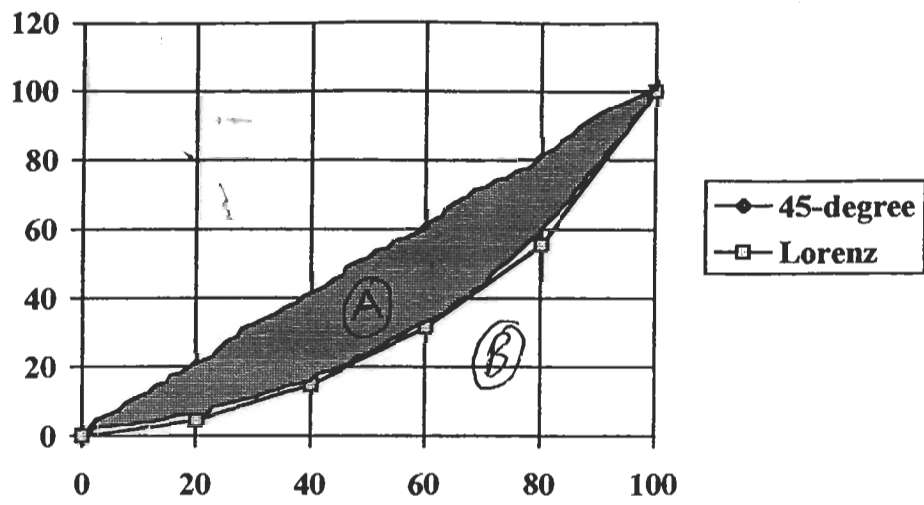
6. If we create a flat tax, the Lorenz curve will
 - a. shift inward
 - b. shift outward
 - c. not shift at all
 - d. it cannot be determined which way the Lorenz curve will shift

1. Use the following table to answer the questions:

<u>Income Quintile</u>	<u>Ecoland</u>	<u>Fantasyland</u>	<u>Textland</u>
Lowest 20%	5%	7%	2%
2nd quintile	8	10	6
3rd quintile	10	25	9
4th quintile	20	25	19
Highest 20%	57	33	64

a. Draw a Lorenz curve for each country (put all curves on one graph)

b. Rank the countries from most equal income distribution to least equal income distribution.



7. If area A is .35 and area B is .45, what is the gini coefficient?

8. A gini coefficient of zero means what?

9. A gini coefficient of one means what?

Labor	TP	MP	Price	TR	MR	MRP
0	0		\$2	—		
1	17	—	\$2	—	—	—
2	31	—	\$2	—	—	—
3	43	—	\$2	—	—	—
4	53	—	\$2	—	—	—
5	60	—	\$2	—	—	—
6	65	—	\$2	—	—	—

Questions:

1. Fill in the table
2. What type of output market exists? How do you know?
3. How many workers will the firm hire if the going wage rate is \$27.95? \$19.95?

Labor	TP	MP	Price	TR	MR	MRP
0	0		\$7	—		
1	17	—	\$6	—	—	—
2	31	—	\$5	—	—	—
3	43	—	\$4	—	—	—
4	53	—	\$3	—	—	—
5	60	—	\$2	—	—	—
6	65	—	\$1	—	—	—

Questions:

1. Fill in the table
2. What type of output market exists? How do you know?
3. How many workers will the firm hire if the going wage rate is \$30?

25

The present value of a future dollar converts a known future amount into a present amount.

Interest rate

<u>Year</u>	<u>3%</u>	<u>4%</u>	<u>6%</u>	<u>9%</u>	<u>12%</u>	<u>15%</u>	<u>18%</u>
1	0.97	0.96	0.94	0.92	0.89	0.87	0.85
2	0.94	0.92	0.89	0.84	0.80	0.76	0.72
3	0.92	0.89	0.84	0.77	0.71	0.66	0.61
4	0.89	0.85	0.79	0.71	0.64	0.57	0.52
5	0.86	0.82	0.75	0.65	0.57	0.50	0.44
6	0.84	0.79	0.70	0.60	0.51	0.43	0.37
7	0.81	0.76	0.67	0.55	0.45	0.38	0.31
8	0.79	0.73	0.63	0.50	0.40	0.33	0.27
9	0.77	0.70	0.59	0.46	0.36	0.28	0.23
10	0.74	0.68	0.56	0.42	0.32	0.25	0.19

1. Given an interest rate of 6%, the present value of \$10,000 to be received in 5 years is?

2.6

4. Carol Stein is considering the purchase of a new \$95,000 tractor for her farm. Ms. Stein expects to use the tractor for 5 years. She has the \$95,000 on hand now; her alternative to purchasing the tractor is to put \$95,000 in a bank account earning 7% annual interest. Ms. Stein expects that the tractor will bring in additional revenue of \$50,000 but will cost \$30,000 per year to operate, for a net revenue of \$20,000 annually. Should she buy the tractor?

5. Paulo wants to have \$25,000 in his bank account to buy a four wheel drive vehicle for his son's 21st birthday which is three years away. He can invest his money in a 3 year CD which pays an annually compounded rate of 7%. How much must he put into the CD now to achieve his goal?