

EXAMINATION #1 VERSION B
"Introduction to Economics"
September 18, 2012

INSTRUCTIONS: This exam is closed-book, closed-notes. Simple calculators are permitted, but graphing calculators or calculators with alphabetical keyboards are NOT permitted. Cell phones or other wireless devices are NOT permitted. Point values for each question are noted in brackets. Points will be subtracted for illegible writing or incorrect rounding. Maximum total points are 100.

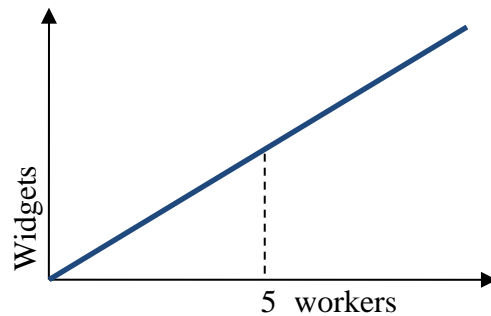
I. Multiple choice: Circle the one best answer to each question. Please use the margins for scratch work.
[1 pt each, 20 pts total]

- (1) In economics, *rational behavior* means
- a. maximizing one's income.
 - b. using math to make decisions.
 - c. ignoring "soft" concerns like friendships and charity.
 - d. doing the best one can with what one has.
 - e. making sacrifices today for a better future.

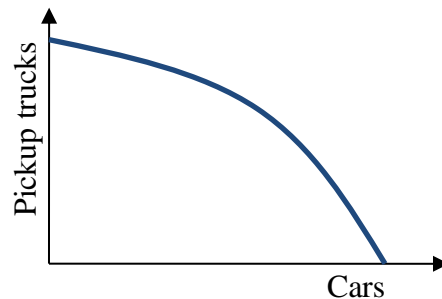
- (2) "The government should decrease the interest rate" is an example of
- a. a positive statement.
 - b. a normative statement.
 - c. both of the above.
 - d. none of the above.

- (3) "A decrease in the interest rate would encourage companies to invest in buildings, machinery and equipment" is an example of
- a. a positive statement.
 - b. a normative statement.
 - c. both of the above.
 - d. none of the above.

- (4) Is the production function below characterized by diminishing returns to labor input?
- a. Yes, for all levels of labor input.
 - b. No, not for any levels of labor input.
 - c. Yes, but only after 5 workers.
 - d. Yes, but only before 5 workers.

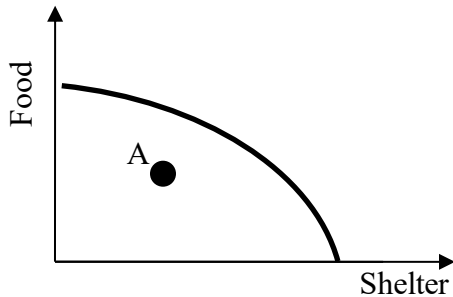


- (5) Consider Factory X's production possibility curve shown below. As more cars are produced, the opportunity cost of the last car
- a. decreases.
 - b. increases.
 - c. first increases, then decreases.
 - d. remains constant.



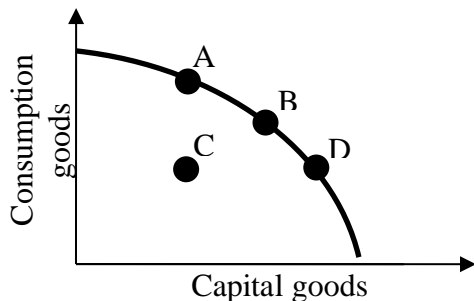
(6) The graph below shows the production possibility curve for Country X. The combination of outputs represented by point A

- is feasible and efficient.
- is feasible but not efficient.
- is infeasible.
- cannot be determined from information given.



(7) The graph below shows the production possibility curve for Country Y. Which combination of outputs, chosen today, will cause the country's productive capacity to grow fastest in the future?

- Combination A.
- Combination B.
- Combination C.
- Combination D.



(8) Farm A can produce 100 units of corn per acre or 100 units of soybeans per acre. Farm B can produce 200 units of corn per acre or 400 units of soybeans per acre. Which farm has a comparative advantage in corn?

- Farm A.
- Farm B.
- Both farms.
- Neither farm.

(9) Monetary exchange is more common today than bartering because

- bartering is often illegal whereas anything can be legally bought and sold with money.
- bartering is a lost art.
- monetary exchanges are subject to less tax.
- bartering requires a "double coincidence of wants."

(10) Efficient well-functioning markets

- converge to a price such that consumer surplus equals producer surplus.
- ensure that every potential buyer and seller makes a trade.
- obey the "law of one price."
- generate a variety of prices from which buyers and sellers may choose.
- all of the above.

(11) The *law of demand* means that

- if buyers want something, they will pay whatever price is demanded by sellers.
- the quantity that buyers want to buy is negatively related to the price.
- demand curves must be straight lines.
- anything consumers want will be produced.

(12) The "substitution effect" causes consumers to buy less when the price of a good rises because consumers

- want to substitute money for goods.
- want to punish sellers for raising the price by decreasing sellers' incomes.
- shift their purchases to alternative goods whose prices have not risen.
- must cut back on everything due to the rise in price of this good.

(13) If the price of milk falls, and nothing else affecting the demand for milk changes, then this will cause

- the demand curve for milk to shift right.
- the demand curve for milk will rotate clockwise until it becomes upward-sloping.
- a movement along the demand curve for milk.
- the demand curve for milk to shift left.

(14) As consumers' incomes rise, they typically buy fewer second-hand clothes, because second-hand clothes are

- a substitute good.
- a complementary good.
- an inferior good.
- a normal good.

(15) As the price of gasoline rises, consumers are buying more fuel-efficient hybrid cars, because gasoline and hybrid cars are

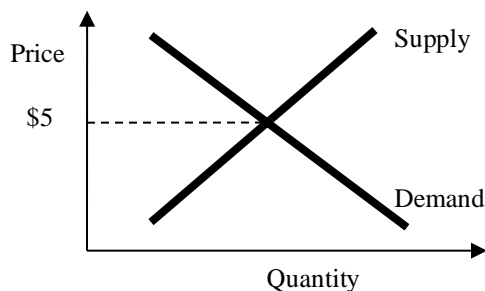
- a. substitute goods.
- b. complementary goods.
- c. inferior goods.
- d. normal goods.

(16) Peanut butter is made from peanuts, so if the price of peanuts rises, then the

- a. supply of peanut butter will shift left.
- b. demand for peanut butter will shift left.
- c. supply of peanut butter will shift right.
- d. demand for peanut butter will shift right.

(17) Consider the market shown in the diagram below. If for some reason the price were \$2, then

- a. the price would fall.
- b. the price would rise.
- c. the demand curve would shift right.
- d. the supply curve would shift left.
- e. None of the above.



(18) In spring, the price of winter coats decreases and the quantity sold also decreases. This could be caused by a

- a. rightward shift in the demand for winter coats.
- b. rightward shift in the supply for winter coats.
- c. leftward shift in the demand of winter coats.
- d. leftward shift in the supply of winter coats.

(19) In summer, the price of tomatoes falls and the quantity sold increases. This could be caused by a

- a. rightward shift in the demand for tomatoes.
- b. rightward shift in the supply of tomatoes.
- c. leftward shift in the demand for tomatoes.
- d. leftward shift in the supply of tomatoes.

(20) A price ceiling, or legal maximum price

- a. causes excess demand.
- b. causes the demand curve to shift right.
- c. causes excess supply.
- d. causes the supply curve to shift left.

II. Problems: Insert your answer to each question in the box provided. Please use the margins and graphs for scratch work. Only the answers in the boxes will be graded. Work carefully—partial credit is not normally given for questions in this section.

(1) [Using slopes: 2 pts] Suppose that the slope of the relationship between X and Y, with X on the horizontal axis and Y on the vertical axis, is 4. Now suppose that X increases by 2 units.

a. Does Y increase or decrease?

	units

b. By how much?

(2) [Percent changes: 2 pts] Consumer spending on gasoline equals the number of gallons purchased times the price. Suppose the number of gallons decreases by 5 percent and the price increases by 3 percent.

a. Does spending on gasoline *increase* or *decrease*?

	%

b. By approximately how much?

(3) [Economic capital: 6 pts] Which of the following are examples of *economic capital*? Answer YES or NO.

- a. Shares of stock in corporations.
- b. Combine machines (on farms).
- c. Government bonds.

- d. Oil-drilling platforms.
- e. Fiber-optic cable networks.
- f. Office buildings.

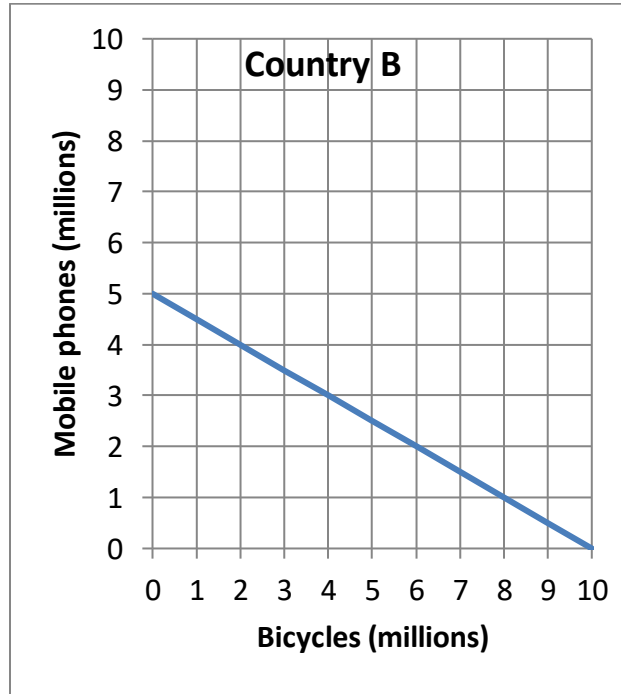
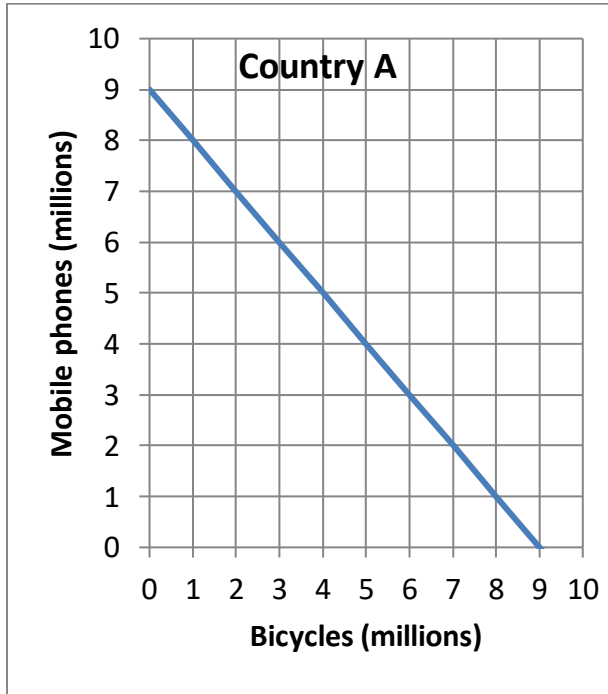
(4) [Production functions: 14 pts] A work crew marks parking spaces using spray paint. Complete the table by computing the work crew's average product and marginal product and placing your answers in the unshaded cells of the third and fourth columns below. Then answer the question below.

<i>Number of workers</i>	<i>Parking spaces marked</i>	<i>Average Product</i>	<i>Marginal Product</i>
0 workers	0 spaces		
			spaces per worker
2 workers	12 spaces	spaces per worker	
			spaces per worker
4 workers	28 spaces	spaces per worker	
			spaces per worker
6 workers	48 spaces	spaces per worker	

Is the work crew's production function characterized by *diminishing returns* to their labor input? Answer YES or NO.

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(5) [Comparative advantage, gains from trade: 17 pts] Country A and Country B each produce mobile phones and bicycles. They each face a tradeoff between these two products because their workforces are limited. Their production possibility curves are shown below.



- a. [2 pts] What is Country A's opportunity cost of producing a mobile phone?
- b. [2 pts] What is Country B's opportunity cost of producing a mobile phone?
- c. [2 pts] What is Country A's opportunity cost of producing a bicycle?
- d. [2 pts] What is Country B's opportunity cost of producing a bicycle?
- e. [2 pts] Which country has a comparative advantage in producing mobile phones?
- f. [2 pts] Which country has a comparative advantage in producing bicycles?

	bicycles
	bicycles
	mobile phones
	mobile phones

g. [3 pts] Fill in the blanks: *Both* countries can consume combinations of mobile phones and bicycles *outside* their individual production possibility curves if _____ produces and exports **three million** bicycles to _____, which produces and exports _____ million mobile phones in return.

h. [2 pts] **Plot** the trade that you propose in part (g) on the graph above. For each country, plot and label the starting point representing **production before trade**, and the ending point representing **consumption after trade**.

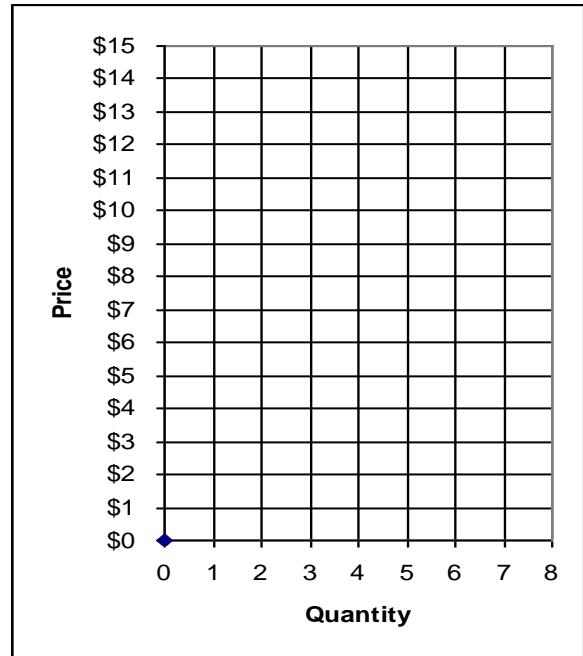
(6) [Market equilibrium: 12 pts] Suppose seven buyers and seven sellers engage in a market similar to the activity

we did in class. Each buyer may buy at most one unit and each seller may sell at most one unit, but no one is forced to trade. Assume that buyers and sellers are each trying to maximize their personal earnings (or “gains from trade”). Earnings for each buyer equal the buyer's value of the good minus the price paid. Earnings for each seller equal the price received minus the seller's cost of the good. Earnings of persons who do not trade are zero. Buyers’ values and sellers’ costs are given in the following table.

<i>Buyer</i>	<i>Value</i>	<i>Seller</i>	<i>Cost</i>
<i>Bob</i>	\$14	<i>Sue</i>	\$ 2
<i>Barb</i>	\$14	<i>Steve</i>	\$ 3
<i>Ben</i>	\$13	<i>Sam</i>	\$ 4
<i>Bailey</i>	\$13	<i>Sven</i>	\$ 5
<i>Brian</i>	\$12	<i>Sarina</i>	\$ 6
<i>Betty</i>	\$ 5	<i>Sean</i>	\$ 8
<i>Bert</i>	\$ 4	<i>Sally</i>	\$10

Suppose with some experience, the market settles on a single price. All trades are made at that price.

Use this graph for scratch work.



- Suppose the price were \$4. Would there be *excess demand*, or *excess supply*, or *neither*?
- What is the *equilibrium* price likely to be, in whole dollars?
- How many units of the good will be sold in this market?
- Compute the total revenue received by sellers (which equals the total spending by buyers).
- Compute the combined total earnings (or gains from trade) of all buyers and sellers. (Check your answer carefully! No partial credit for being "close"!)
- Who enjoys higher earnings in this particular market, the *buyers* or the *sellers*? Or are buyers’ total earnings *equal* to sellers’ total earnings?

\$
units
\$
\$

(7) [Shifts in demand and supply: 15 pts] Analyze each of the following markets according to the accompanying imaginary scenario.

a. Consider the market for **chicken**. Suppose the price of beef rises.

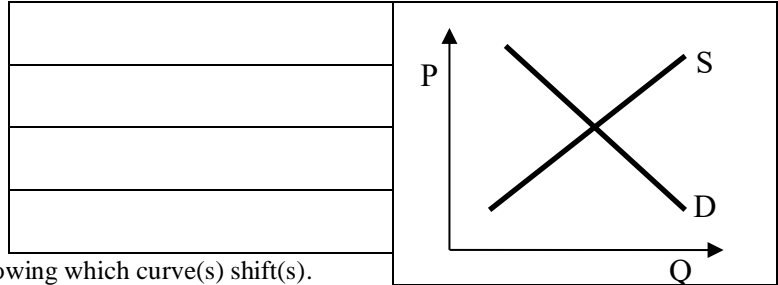
Does demand shift *left*, *shift right*, or remain *unchanged* ?

Does supply shift *left*, *shift right*, or remain *unchanged* ?

Does the equilibrium price *increase*, *decrease*, or *cannot be determined* ?

Does the equilibrium quantity *increase*, *decrease*, or *cannot be determined* ?

Sketch a graph of this scenario at right, showing which curve(s) shift(s).



b. Consider the market for **pizza**. Suppose the price of mozzarella cheese (an important ingredient in pizza) rises.

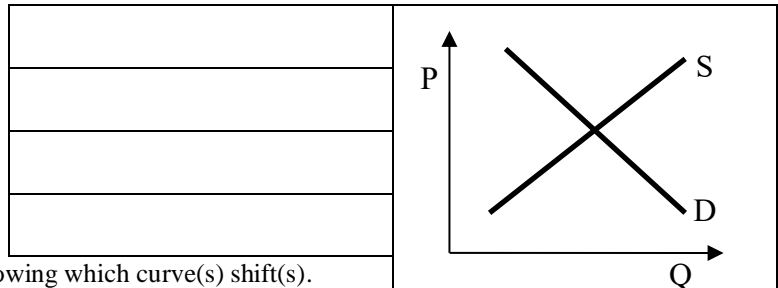
Does demand shift *left*, *shift right*, or remain *unchanged* ?

Does supply shift *left*, *shift right*, or remain *unchanged* ?

Does the equilibrium price *increase*, *decrease*, or *cannot be determined* ?

Does the equilibrium quantity *increase*, *decrease*, or *cannot be determined* ?

Sketch a graph of this scenario at right, showing which curve(s) shift(s).



c. Consider the market for **natural gas**: Suppose new technologies lower the cost of producing natural gas. Simultaneously, the price of coal rises.

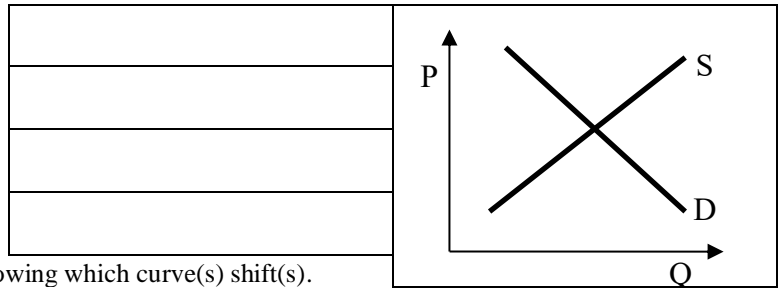
Does demand shift *left*, *shift right*, or remain *unchanged* ?

Does supply shift *left*, *shift right*, or remain *unchanged* ?

Does the equilibrium price *increase*, *decrease*, or *cannot be determined* ?

Does the equilibrium quantity *increase*, *decrease*, or *cannot be determined* ?

Sketch a graph of this scenario at right, showing which curve(s) shift(s).



(8) [Market equilibrium, price controls: 8 pts] The following table shows the market for loans. Note that the interest rate is the price in this market.

Interest rate	Supply of loans	Demand for workers
2 %	\$150 billion	\$900 billion
3 %	\$200 billion	\$800 billion
4 %	\$250 billion	\$700 billion
5 %	\$300 billion	\$600 billion
6 %	\$350 billion	\$500 billion
7 %	\$400 billion	\$400 billion
8 %	\$450 billion	\$300 billion

First, find the unregulated market equilibrium.

a. Find the equilibrium price.

%
\$ billion

b. Find the equilibrium quantity.

Second, suppose the government imposes a maximum interest rate (a type of price ceiling) of 5%. No loan may be made for any higher interest rate.

c. Will there be *excess supply* or *excess demand* with this price ceiling?

\$ billion

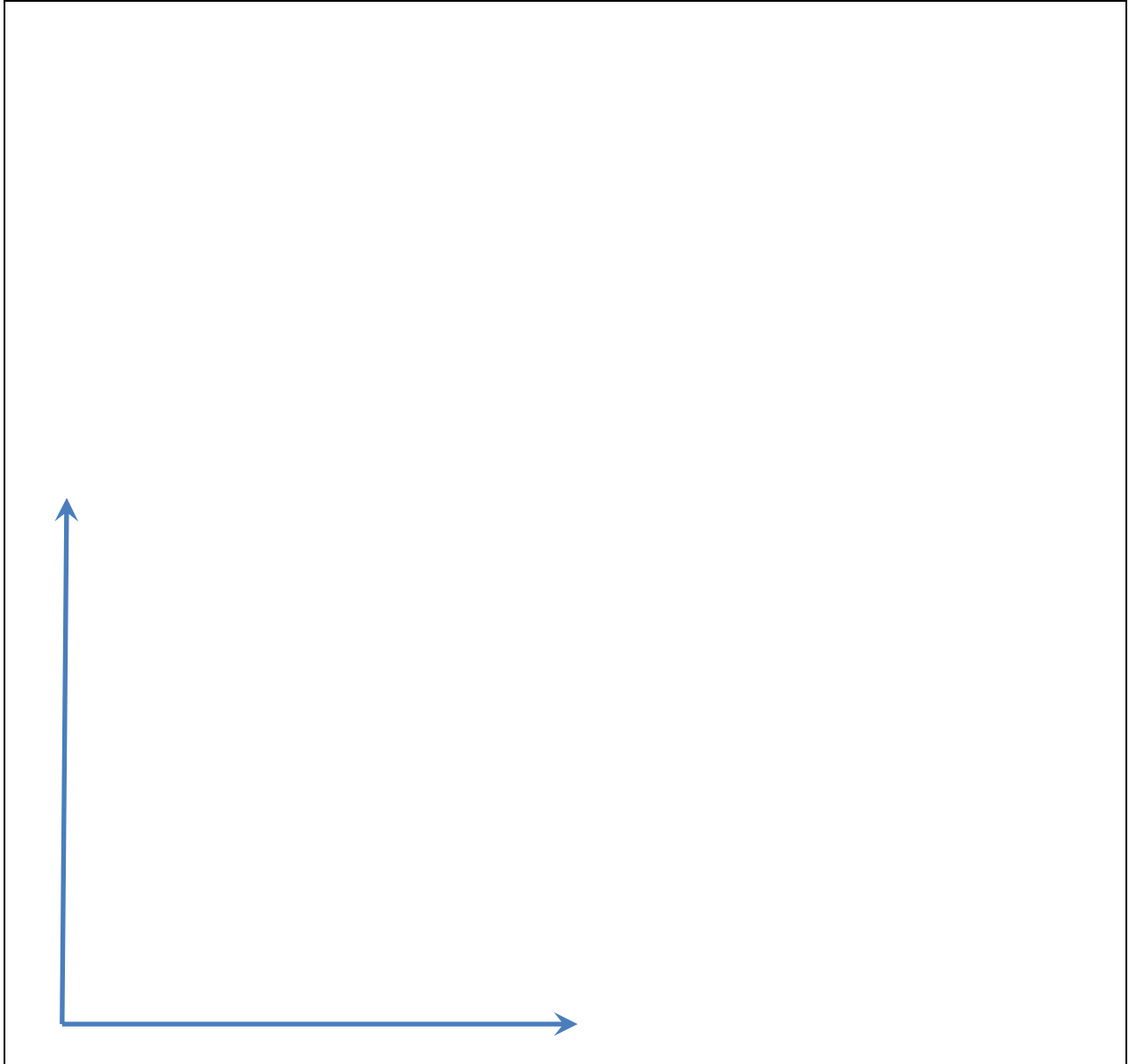
d. How much?

III. Critical thinking: Write a one-paragraph essay answering *one* question below (your choice). [4 pts]

(1) Consider the following statement. "The United States produces more cars and more corn than Mexico. Therefore, the United States cannot benefit from trade with Mexico in these goods." Assume the first sentence is correct. Do you agree or disagree with the second sentence? Justify your answer.

(2) Suppose a price ceiling were placed on vitamins. Would this help ensure that more people had access to vitamins? Justify your answer with a supply-and-demand graph.

Write your answer below. Full credit requires correct economic reasoning, legible writing, good grammar including complete sentences, and accurate spelling.



[end of exam]