

EXAMINATION #1 VERSION B
"Introduction to Economics"
September 17, 2014

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, 16 pts total]

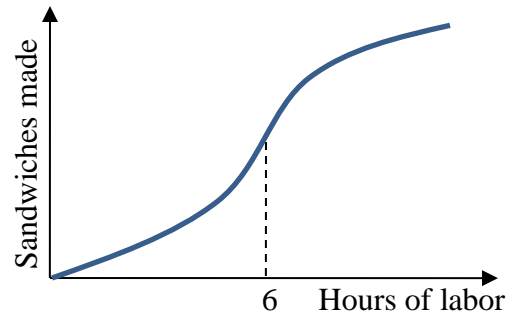
- (1) The assumption in economics that people are rational means that people
- a. maximize their income.
 - b. use math to make decisions.
 - c. ignore "soft" concerns like friendships and charity.
 - d. do the best one can with what they have.
 - e. make sacrifices today for a better future.

- (2) Rational choice implies pursuing an activity until the marginal cost of the last unit
- a. is much greater than its marginal benefit.
 - b. begins to exceed its marginal benefit.
 - c. begins to fall below its marginal benefit.
 - d. is much less than its marginal benefit.

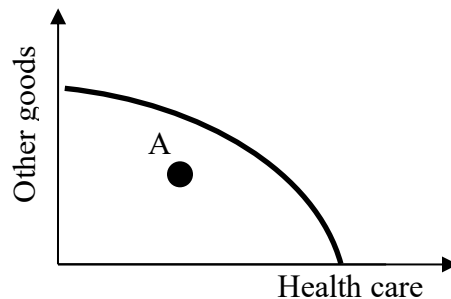
- (3) In economics, an *equilibrium* is a situation where
- a. inflation equals zero percent.
 - b. economic growth is zero.
 - c. costs equal benefits.
 - d. no one wants to change their behavior.

- (4) "An increase in interest rates might cause a recession" is an example of
- a. a positive statement.
 - b. a normative statement.
 - c. both of the above.
 - d. none of the above.

- (5) 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 6 hours of labor input.
 - d. Yes, but only before 6 hours of labor input.

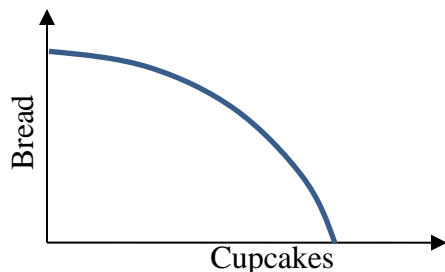


- (6) The graph below shows the production possibility curve for some country. The combination of outputs represented by point A
- a. is feasible and efficient.
 - b. is feasible but not efficient.
 - c. is infeasible.
 - d. cannot be determined from information given.



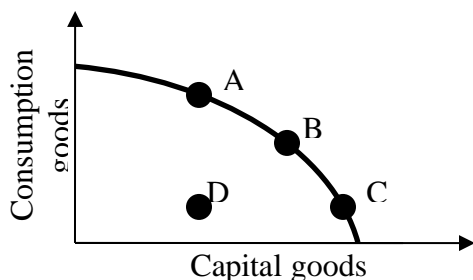
(7) Tasty Bakery makes bread and cupcakes, with the production possibility curve shown below. As more cupcakes are produced, the opportunity cost of the last cupcake produced

- decreases.
- increases.
- first increases, then decreases.
- remains constant.



(8) The graph below shows the production possibility curve for Country X. 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.



(9) Farm A can produce 400 units of corn or 400 units of soybeans. Farm B can produce 300 units of corn or 150 units of soybeans. Which farm has a comparative advantage in corn?

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

(10) 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."

(11) The *law of one price* means that

- all buyers will pay roughly the same price.
- each buyer will pay her or his own price.
- each buyer will pay only once for a good.
- the prices of different goods—like cell phones and bicycles—will gradually converge to each other.

(12) A demand curve for tablet computers shows how the quantity of tablet computers people want to buy is affected by

- the price of substitutes, like desktop computers.
- the tablet computer's features.
- the income of consumers.
- the price of the tablet computer itself.

(13) As consumers' incomes rise, they typically go to more music concerts, because concerts are

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

(14) Spaghetti sauce is made from tomatoes, so if the price of tomatoes rises, then the

- demand for spaghetti sauce will shift right.
- supply of spaghetti sauce will shift right.
- demand for spaghetti sauce will shift left.
- supply of spaghetti sauce will shift left.

(15) Some people believe there is excess supply in the housing market. If they are right, then the price of houses can be expected to

- remain constant.
- rise.
- fall.
- Price movements are not related to excess supply.

(16) In autumn, the price of swimsuits falls and the quantity sold decreases. This could be caused by a

- leftward shift in the demand for swimsuits.
- leftward shift in the supply of swimsuits.
- rightward shift in the demand for swimsuits.
- rightward shift in the supply of swimsuits.

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 -2. That is $\Delta Y/\Delta X = -2$. Now suppose that X increases by 4 units.

a. Does Y increase or decrease?

units

b. By how much?

(2) [Percent changes: 2 pts] Income per capita in a country equals total income divided by the population. Suppose total income increases by 4 percent and population increases by 3 percent.

a. Does income per capita *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. Forklift trucks.

b. Shopping-mall buildings.

c. Corporate bonds.

d. Cash in bank vaults.

e. Gas pipelines.

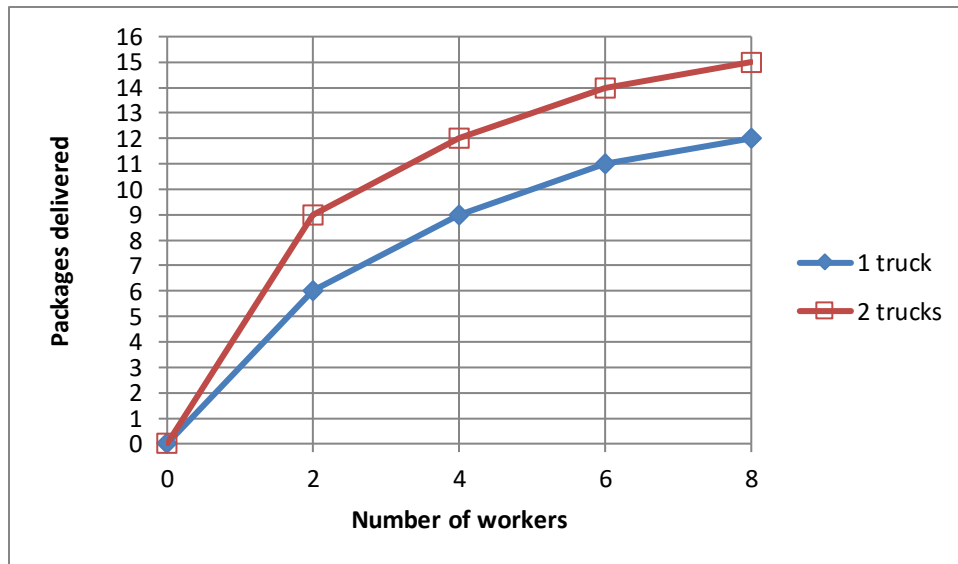
f. Checking accounts.

(4) [Production functions: 7 pts] A work crew fixes potholes. 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>Number of potholes fixed</i>	<i>Average Product</i>	<i>Marginal Product</i>
0 workers	0 potholes		
			potholes per worker
3 workers	6 potholes	potholes per worker	
			potholes per worker
6 workers	18 potholes	potholes per worker	
			potholes per worker
9 workers	36 potholes	potholes per worker	

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

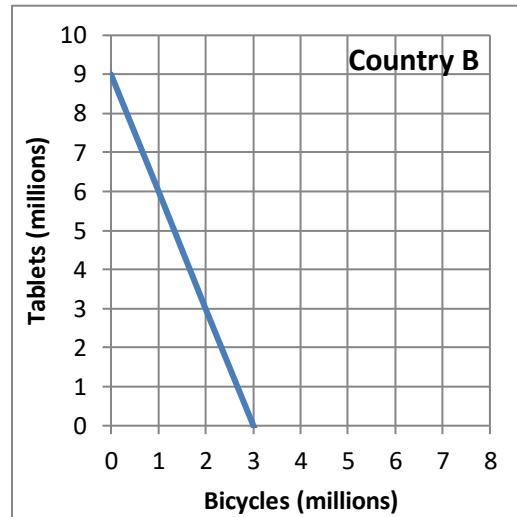
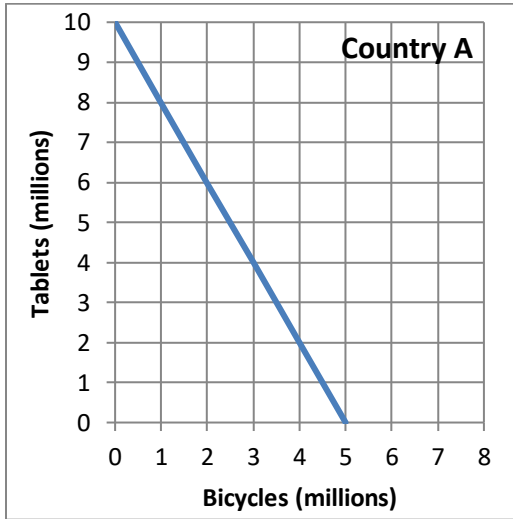
(5) [Production functions: 6 pts] Acme Package Delivery uses workers and trucks to deliver packages. Its production function is illustrated by the following graphs. Suppose the company employs **one truck and two workers**.



- What is the average product of workers?
- What is the marginal product per worker, if the number of workers were increased from two to four?
- What is the marginal product per truck, if the number of trucks were increased from one to two?

	packages per worker
	packages per worker
	packages per truck

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



- [2 pts] What is Country A's opportunity cost of producing a bicycle?
- [2 pts] What is Country B's opportunity cost of producing a bicycle?
- [2 pts] What is Country A's opportunity cost of producing a tablet?
- [2 pts] What is Country B's opportunity cost of producing a tablet?
- [2 pts] Which country has a comparative advantage in producing bicycles?
- [2 pts] Which country has a comparative advantage in producing tablets?

	tablets
	tablets
	bicycles
	bicycles

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

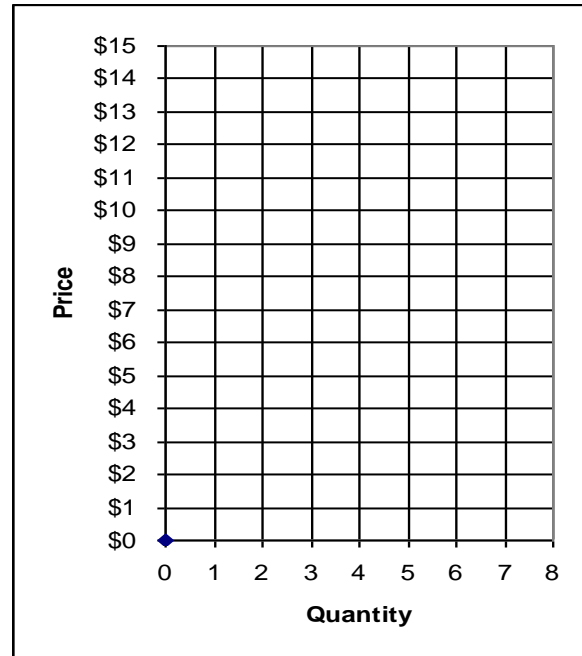
(7) [Market equilibrium: 12 pts] Suppose seven buyers and seven sellers engage in a market similar to the activity

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 surplus (or “gains from trade”). Surplus for each buyer equals the buyer's value of the good minus the price paid. Surplus for each seller equals the price received minus the seller's cost of the good. Surplus of persons who do not trade is 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>	\$ 1
<i>Barb</i>	\$ 13	<i>Steve</i>	\$ 1
<i>Ben</i>	\$ 12	<i>Sam</i>	\$ 2
<i>Bailey</i>	\$ 11	<i>Sven</i>	\$ 2
<i>Brian</i>	\$ 10	<i>Sarina</i>	\$ 3
<i>Betty</i>	\$ 3	<i>Sean</i>	\$ 5
<i>Bert</i>	\$ 2	<i>Sally</i>	\$ 12

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 \$12. 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 surplus (or gains from trade) of all buyers and sellers. (Check your answer carefully! No partial credit for being "close"!)
- Who enjoys higher surplus in this particular market, the *buyers* or the *sellers*? Or is buyers’ total surplus *equal* to sellers’ total surplus?

\$
units
\$
\$

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

a. Consider the market for **new houses**. The price of lumber rises.

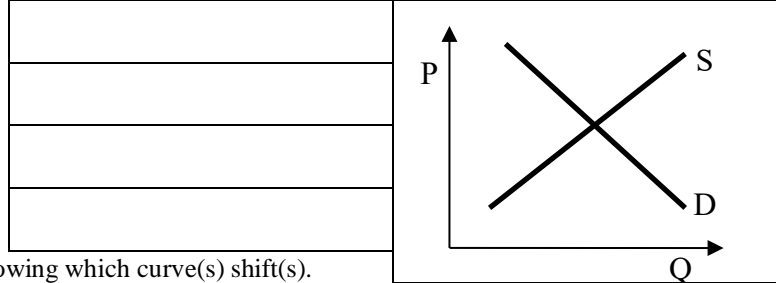
Does demand shift *left*, *shift right*, or remain *unchanged* ?

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 **chicken**. The price of beef rises.

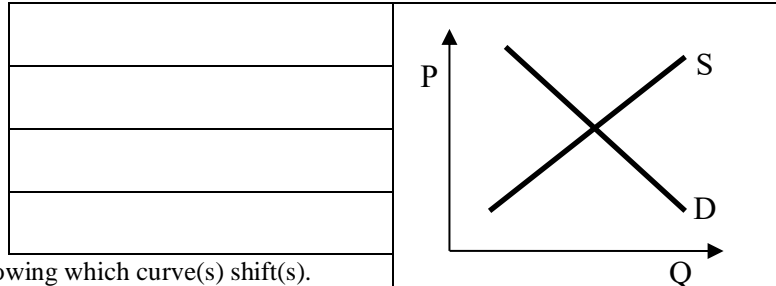
Does demand shift *left*, *shift right*, or remain *unchanged* ?

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).



c. Consider the market for **grapefruit juice**. Suppose the price of orange juice rises. Suppose that, simultaneously, bad weather kills large numbers of grapefruit trees in Texas and Florida.

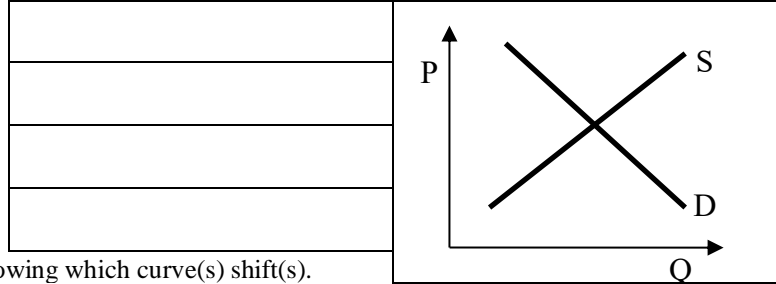
Does demand shift *left*, *shift right*, or remain *unchanged* ?

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

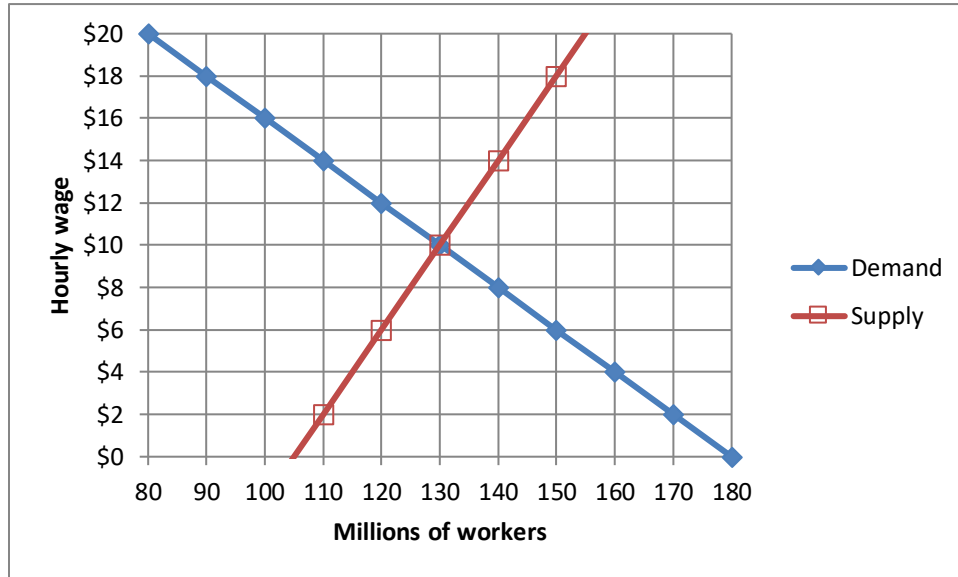
Does the equilibrium price *increase*, *decrease*, or *cannot be determined* ?

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

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



(9) [Market equilibrium, price controls: 12 pts] The following graph shows the labor market. Note that the hourly wage is the price.



First, find the unregulated market equilibrium.

a. Find the equilibrium price.

\$	
	million

b. Find the equilibrium quantity.

Second, suppose the government imposes a minimum hourly wage (a type of price floor) of \$14. No worker may be hired for any lower wage.

c. Compute the quantity of workers demanded at this wage.

	million
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d. Compute the quantity of workers supplied at this wage.

	million
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e. Will there be *excess supply* or *excess demand* with this price floor?

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f. How much?

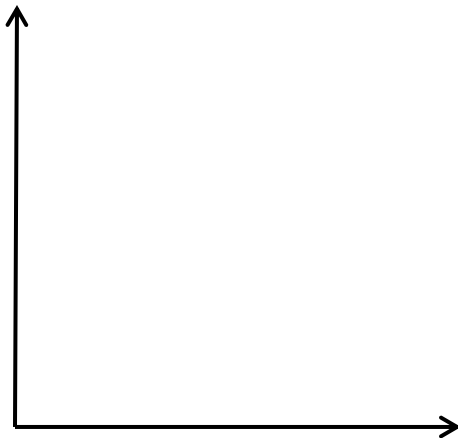
	million
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III. Critical thinking: Write a one-paragraph essay answering **ONE** question below (your choice). [4 pts]

(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) Why are watermelons cheap in Iowa in summer, but expensive in winter? Justify your answer with a supply-and-demand diagram.

Circle the question you are answering. Write your answer below. Full credit requires correct economic reasoning, legible writing, good grammar including complete sentences, and accurate spelling.



[end of exam]