

EXAMINATION #1 VERSION C
"Introduction to Economics"
September 18, 2013

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]

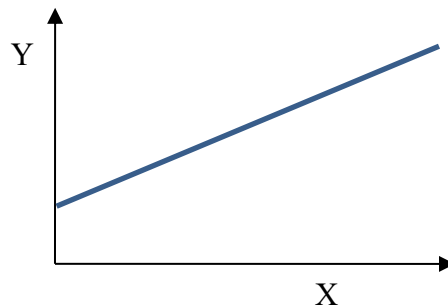
- (1) When we assume that people do the best they can with what they have, we are assuming that people are
- “rational.”
 - “in equilibrium.”
 - “competitive.”
 - “positive.”

- (2) “The unemployment rate is still above its thirty-year average” is an example of
- a positive statement.
 - a normative statement.
 - both of the above.
 - none of the above.

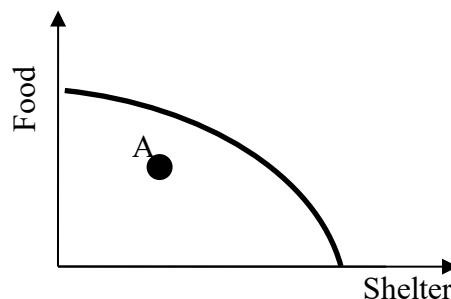
- (3) “The government should decrease taxes” is an example of
- a positive statement.
 - a normative statement.
 - both of the above.
 - none of the above.

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

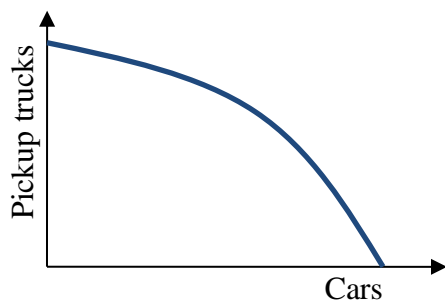
- (5) According to the graph below, as X increases, the slope of the function
- increases.
 - decreases.
 - remains constant.
 - cannot be determined.



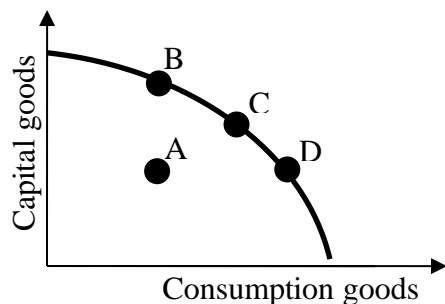
- (6) The graph below shows the production possibility curve for some country. The combination of outputs represented by point A
- is feasible and efficient.
 - is feasible but not efficient.
 - is infeasible.
 - cannot be determined from information given.



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



- (8) The graph below shows the production possibility curve for the country of Fredonia. Which combination of outputs, chosen today, will cause Fredonia's productive capacity to grow fastest in the future?
- Combination A.
 - Combination B.
 - Combination C.
 - Combination D.



- (9) Farm A can produce 200 units of corn per acre or 600 units of soybeans per acre. Farm B can produce 300 units of corn per acre or 600 units of soybeans per acre. Which farm has a comparative advantage in soybeans?
- Farm A.
 - Farm B.
 - Both farms.
 - Neither farm.

- (10) Barter is an unpopular method of trading because it
- is often illegal.
 - causes both parties to lose.
 - is subject to higher taxes.
 - requires that each party be able to offer a good that the other wants.
 - all of the above.

- (11) The *law of one price* means
- efficient markets eliminate price dispersion.
 - the total quantity buyers want to buy is negatively related to the price.
 - a good cannot be resold.
 - all sellers are required by law to quote the same price.
 - the buyer and the seller in each transaction must agree on a price.

- (12) The *law of demand* means that
- the quantity that buyers want to buy is negatively related to the price.
 - demand curves are necessarily straight lines.
 - buyers will pay whatever price is necessary to purchase the good.
 - the number of buyers must equal the number of sellers.

- (13) As consumers' incomes rise, they typically ride the bus less because bus travel is
- an inferior good.
 - a normal good.
 - a substitute good.
 - a complementary good.

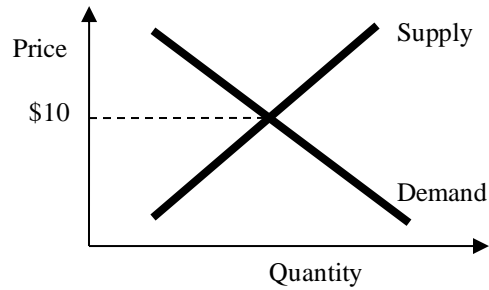
- (14) If the price of natural gas falls, demand for coal will shift left, because natural gas and coal are
- inferior goods.
 - complementary goods.
 - substitute goods.
 - normal goods.

- (15) The *law of supply* means
- legal regulation of sellers.
 - there is always someone willing to sell a product.
 - the quantity that sellers want to produce and sell is positively related to the price.
 - sellers can charge whatever price they want.

- (16) Spaghetti sauce is made from tomatoes, so if the price of tomatoes increases, then the
- demand for spaghetti sauce will shift left.
 - supply of spaghetti sauce will shift left.
 - demand for spaghetti sauce will shift right.
 - supply of spaghetti sauce will shift right.

- (17) Suppose the government relaxes environmental regulations on natural gas production. Then the
- supply of natural gas will shift left.
 - supply of natural gas will shift right.
 - demand for natural gas will shift left.
 - demand for natural gas will shift right.

- (18) Consider the market shown in the diagram below. If for some reason the price were \$10, then
- the price would fall.
 - the price would rise.
 - the demand curve would shift right.
 - the supply curve would shift left.
 - None of the above.



- (19) In late summer, the price of swimsuits decreases and the quantity sold also decreases. This could be caused by a

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

- (20) A price floor, or legal minimum price

- causes excess demand.
- causes the demand curve to shift left.
- causes excess supply.
- causes the supply curve to shift right.

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. That is $\Delta Y/\Delta X = 4$. Now suppose that X increases by 3 units.

- Does Y increase or decrease?
- By how much?

units

- (2) [Percent changes: 2 pts] Productivity (average product) in an industry equals total output divided by the number of workers. Suppose total output increases by 10 percent and the number of workers increases by 2 percent.

- Does productivity *increase* or *decrease*?
- By approximately how much?

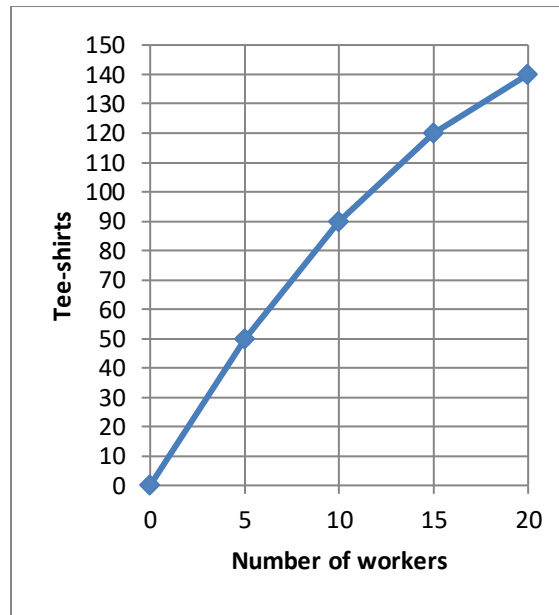
%

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

- a. U.S. Treasury bonds.
- b. Cellular phone towers.
- c. Savings accounts.

- d. Shares of stock in large corporations.
- e. Forklift trucks.
- f. Factories.

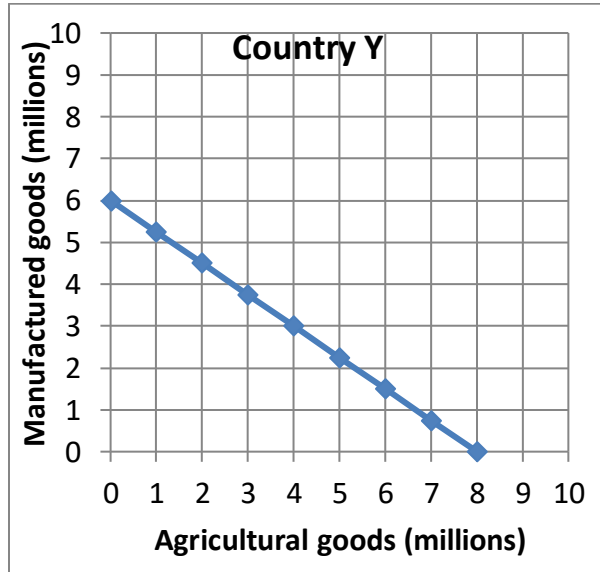
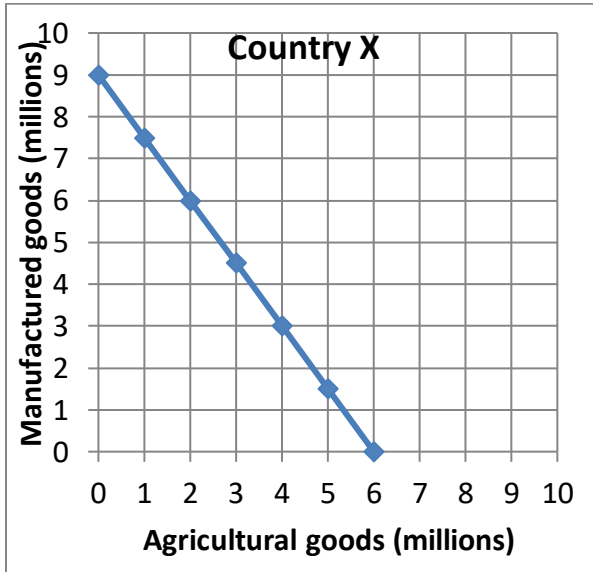
(4) [Production functions: 10 pts] Acme Tee-shirt Company has the daily production function shown below.



- a. If the company employs 5 workers, what is their average product?
- b. If the company employs 15 workers, what is their average product?
- c. What is the marginal product of workers, as the number of workers increases from 5 to 10?
- d. What is the marginal product of workers, as the number of workers increases from 15 to 20?
- e. Does Acme's production function have diminishing returns? Answer *YES* or *NO*.

shirts per worker
shirts per worker
shirts per worker
shirts per worker

(5) [Comparative advantage, gains from trade: 17 pts] Country X and Country Y each produce agricultural goods and manufactured goods. 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 X's opportunity cost of producing a unit of agricultural goods?
- [2 pts] What is Country Y's opportunity cost of producing a unit of agricultural goods?
- [2 pts] What is Country X's opportunity cost of producing a unit of manufactured goods?
- [2 pts] What is Country Y's opportunity cost of producing a unit of manufactured goods?
- [2 pts] Which country has a comparative advantage in producing agricultural goods?
- [2 pts] Which country has a comparative advantage in producing manufactured goods?

	units of manufactured goods
	units of manufactured goods
	units of agricultural goods
	units of agricultural goods

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

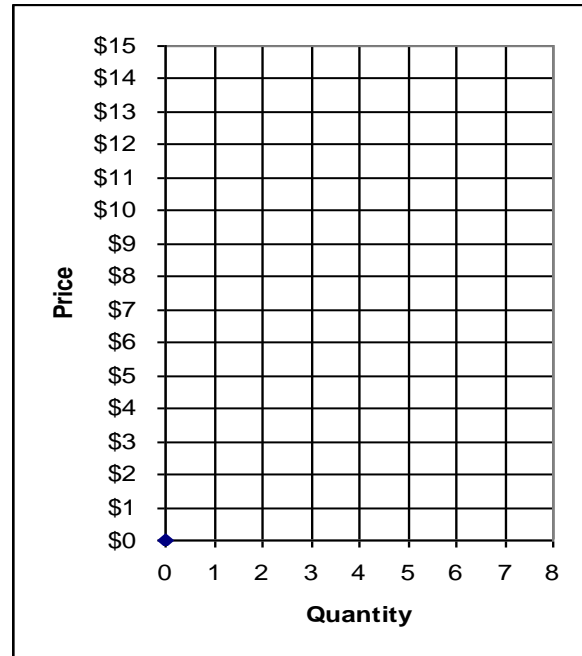
(6) [Market equilibrium: 12 pts] Suppose seven buyers and seven sellers engage in a market similar to the activity

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>	\$ 1
<i>Barb</i>	\$14	<i>Steve</i>	\$ 2
<i>Ben</i>	\$13	<i>Sam</i>	\$ 3
<i>Bailey</i>	\$12	<i>Sven</i>	\$ 4
<i>Brian</i>	\$ 9	<i>Sarina</i>	\$11
<i>Betty</i>	\$ 8	<i>Sean</i>	\$12
<i>Bert</i>	\$ 7	<i>Sally</i>	\$13

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 \$8. 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 **high-efficiency light bulbs**. Suppose new technology allows these bulbs to be manufactured at much lower cost.

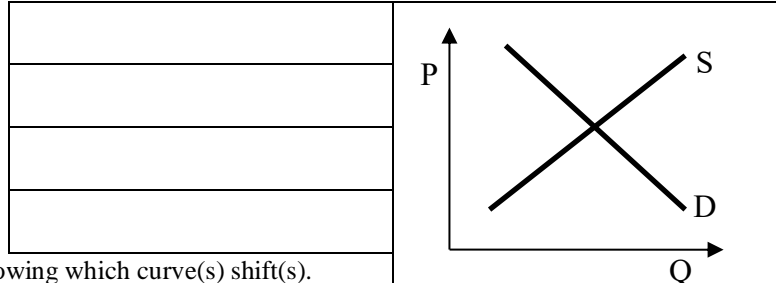
Does demand shift *left*, shift *right*, or remain *unchanged* ?

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 **sodapop**. Consumers become more interested in avoiding junk food.

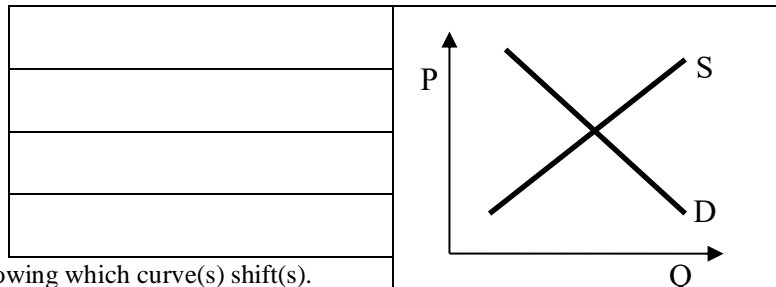
Does demand shift *left*, shift *right*, or remain *unchanged* ?

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 **gasoline**. Consumers' incomes fall due to a recession. Simultaneously, the price of petroleum falls. (Gasoline is made from petroleum.)

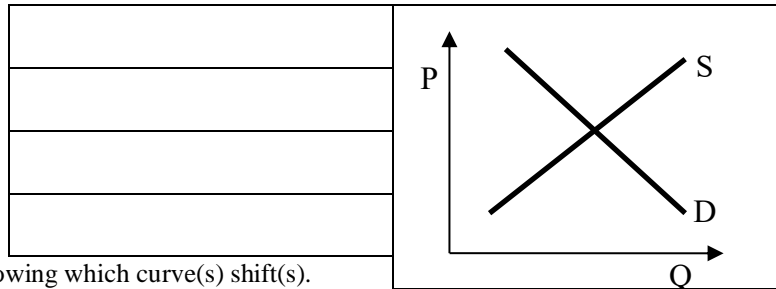
Does demand shift *left*, shift *right*, or remain *unchanged* ?

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

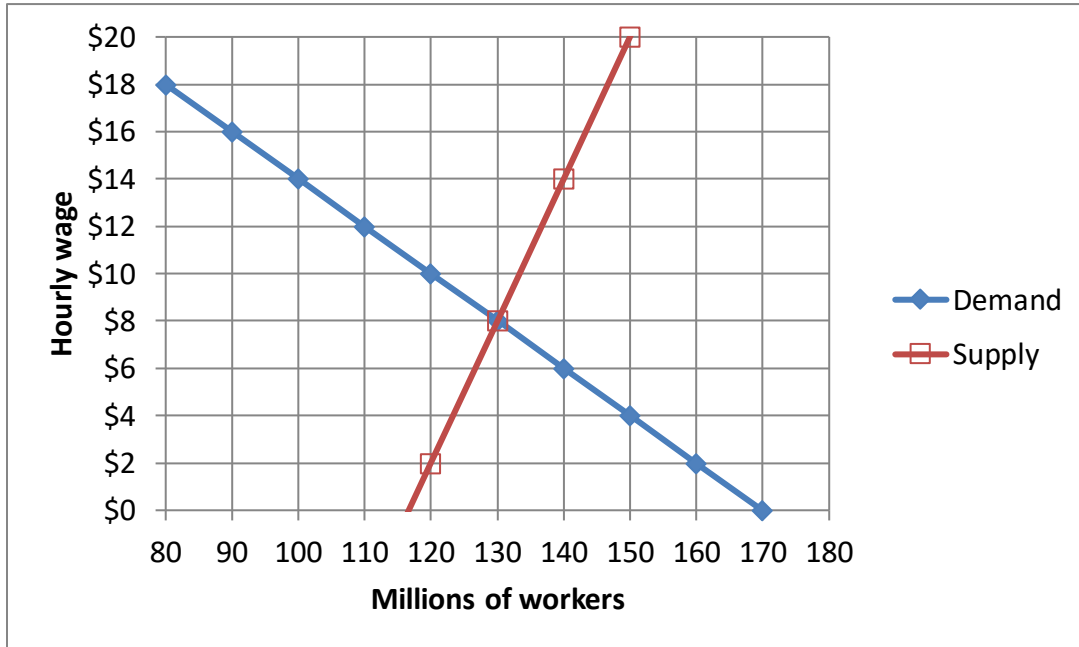
Does the equilibrium price *increase*, *decrease*, or *cannot be determined* ?

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

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



(6) [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
million
million

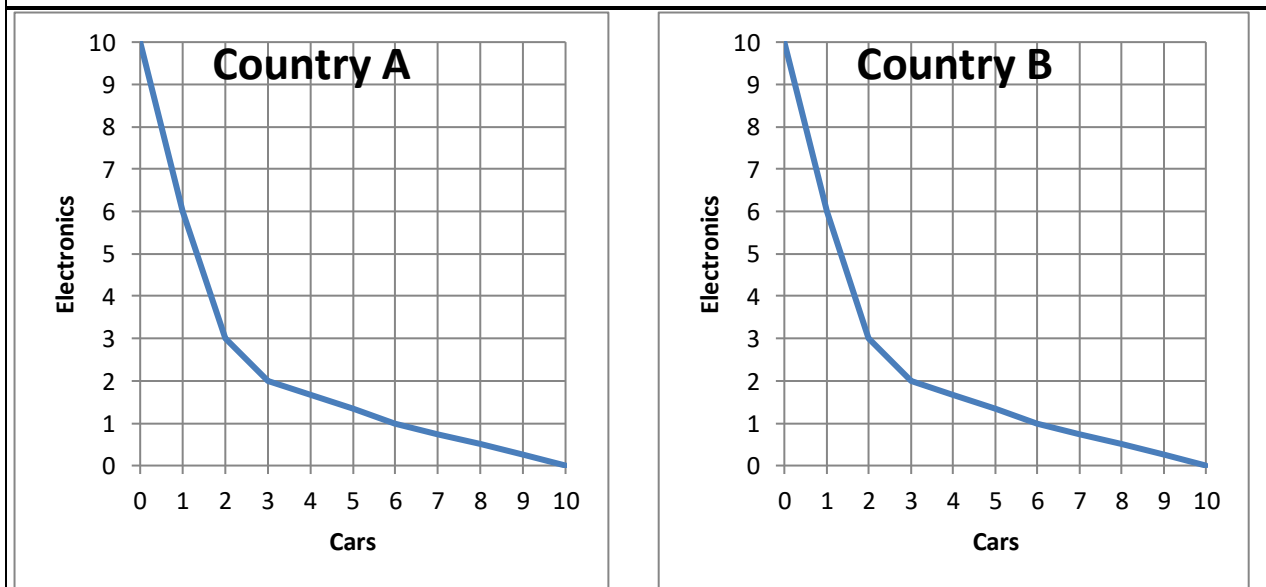
d. Compute the quantity of workers supplied at this wage.

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

f. How much?

III. Critical thinking: Write a one-paragraph essay answering the question below. [4 pts]

In this course, we have emphasized gains from trade based on *differences* in production possibility curves. Now consider the PP curves of two countries shown below, which are *identical*. Can both countries enjoy combinations of goods outside their individual PP curves through trade? If you answer NO, explain why not. If you answer YES, explain why, give an example of a trade that puts both countries outside their individual PP curves, and plot the trade on the graphs.



[end of exam]