ECON 002 - Principles of Microeconomics
Drake University, Fall 2016
William M. Boal

Signature: _____

Printed name: _____

EXAMINATION 1 VERSION B
"Competitive Supply and Demand"
September 21, 2016

INSTRUCTIONS: This exam is closed-book, closed-notes. Simple calculators are permitted, but graphing calculators or calculators with alphabetical keyboards are NOT permitted. Numerical answers, if rounded, must be correct to at least 3 significant digits. Point values for each question are noted in brackets. Maximum total points are 100.

I. Multiple choice: Please circle the one best answer to each question. [1 pt each, 12 pts total]

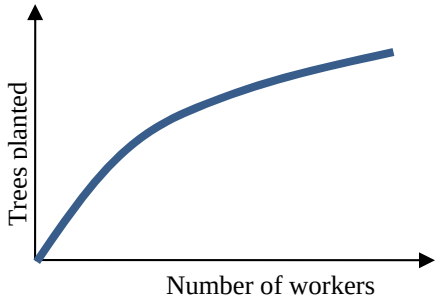
(1) In economics, *rational behavior* means
a. making sacrifices today for a better future.
b. maximizing one's income.
c. using math to make decisions.
d. ignoring "soft" concerns like friendships and charity.
e. doing the best one can with what one has.

(2) The *marginal benefit* of tortilla chips is
a. the benefit of the first tortilla chip eaten.
b. the benefit of the last tortilla chip eaten.
c. the total benefit of all tortilla chips eaten.
d. the average benefit of all tortilla chips eaten.

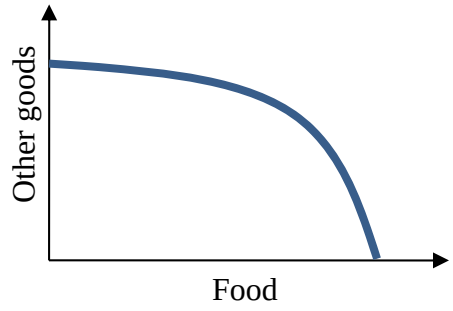
(3) In economics, an *equilibrium* is a situation where
a. economic growth is zero.
b. costs equal benefits.
c. no one wants to change their choices.
d. inflation equals zero percent.

(4) "There are people on Mars that have dug canals" is an example of
a. a positive statement.
b. a normative statement.
c. both of the above.
d. none of the above.

(5) Consider the production function shown below. As more labor is used, the marginal product of labor
a. decreases.
b. increases.
c. first increases, then decreases.
d. remains constant.



The next two questions refer to the following graph of a country's production-possibility curve.



(6) By definition, what is held constant along this production-possibility curve?
a. The prices of food and other goods.
b. The country's total inputs.
c. Output of food.
d. Output of other goods.
e. None of the above.

(7) As more food is produced, the opportunity cost of the last unit of food
a. remains constant.
b. decreases.
c. increases.
d. first increases, then decreases.

(8) The United States and Canada can both produce corn and wheat. If Canada has a comparative advantage in wheat, then which country has a comparative advantage in corn?
a. the United States.
b. Canada.
c. Both countries.
d. Neither country.
e. Cannot be determined from information given.

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

(10) Efficient well-functioning markets
a. generate a variety prices from which buyers and sellers may choose.
b. converge to a price such that consumer surplus equals producer surplus.
c. ensure that every potential buyer and seller makes a trade.
d. obey the law of one price.
e. all of the above.

(11) Caribbean cruises are a normal good, so in a boom, when consumer incomes are rising,
a. demand for Caribbean cruises will shift left.
b. demand for Caribbean cruises will shift right.
c. supply of Caribbean cruises will shift left.
d. supply of Caribbean cruises will shift right.

(12) In autumn, the price of watermelon rises and the quantity sold decreases. This could be caused by a
a. rightward shift in the demand for watermelon.
b. rightward shift in the supply of watermelon.
c. leftward shift in the demand for watermelon.
d. leftward shift in the supply of watermelon.

II. Problems: Insert your answer to each question in the box provided. Use 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) [Percent change, midpoint formula: 2 pts] Suppose the monthly cost of a mobile phone service is $76 in Des Moines and $84 in Chicago. Compute the percent difference using the midpoint method.

%

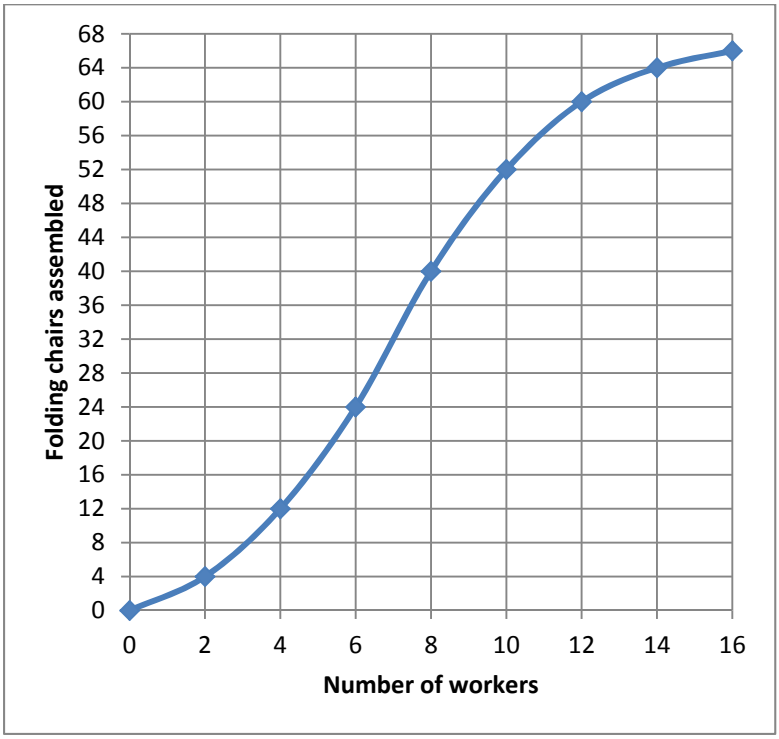
(2) [Percent change of product: 4 pts] Total spending on ice cream equals the price per gallon times the number of gallons purchased. Suppose the price decreases by 8 percent and the gallons purchased increases by 3 percent.

a. Does spending on ice cream *increase* or *decrease*?

b. By approximately how much?

%

(3) [Production functions: 8 pts] Sitwell Folding Chair Company has the hourly production function shown below.



a. If the company employs 2 workers, what is their *average product*?

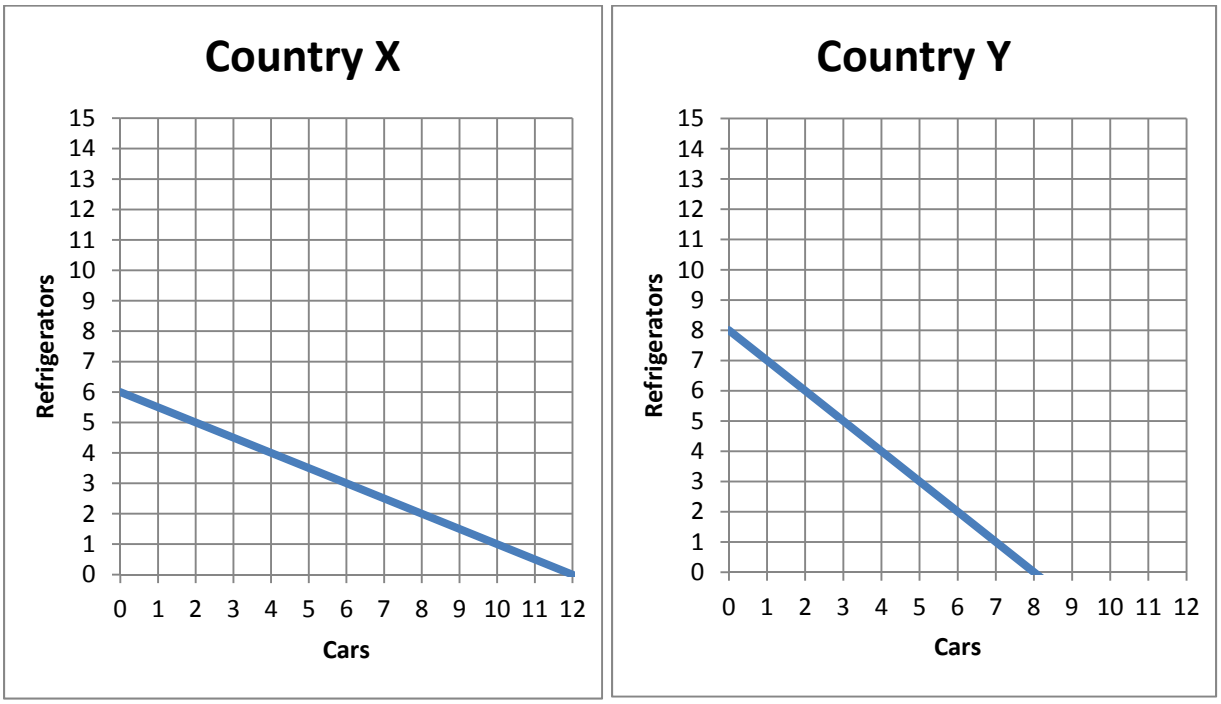
b. If the company employs 4 workers, what is their *average product*?

c. What is the *marginal product* of workers, as the number of workers increases from 8 to 10?

d. What is the marginal product of workers, as the number of workers increases from 10 to 12?

chairs per worker
chairs per worker
chairs per worker
chairs per worker

(4) [Comparative advantage, gains from trade: 17 pts] Country X and Country Y can each produce cars and refrigerators. They each face a tradeoff between these two products because of limited workforces. Their production possibility curves are shown below.



a. What is Country X's opportunity cost of producing a car? refrigerators

b. What is Country Y's opportunity cost of producing a car? refrigerators

c. What is Country X's opportunity cost of producing a refrigerator? cars

d. What is Country Y's opportunity cost of producing a refrigerator? cars

e. Which country has a comparative advantage in producing cars?

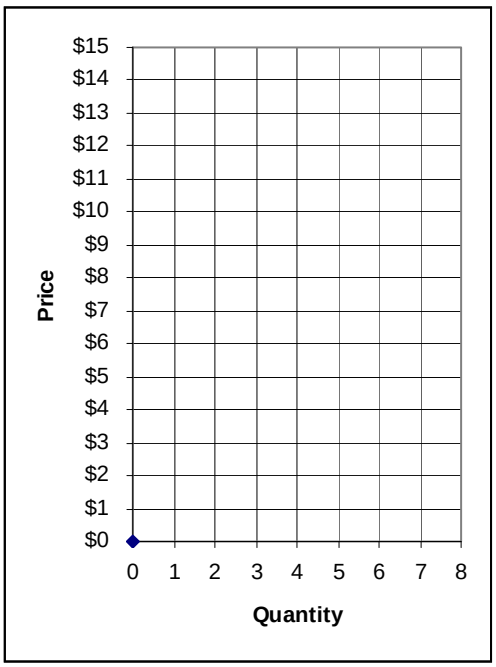
f. Which country has a comparative advantage in producing refrigerators?

g. [3 pts] Fill in the blanks: *Both* countries can consume combinations of products *outside* their individual production possibility curves if _____ exports *two* refrigerators to _____, which exports _____ cars in return.

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

(5) [Market equilibrium: 12 pts] Suppose seven buyers and seven sellers engage in a market similar to the exercise 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 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 are zero. Buyers' values and sellers' costs are given in the following table.

Buyer	*Value*	*Seller*	*Cost*
Bob	\$12	*Sue*	\$ 1
Barb	\$12	*Steve*	\$ 2
Ben	\$11	*Sam*	\$ 4
Bailey	\$11	*Sven*	\$ 5
Brian	\$10	*Sarina*	\$ 6
Brittany	\$10	*Sam*	\$ 8
Brandon	\$ 2	*Sophia*	\$12



Suppose with some experience, the market settles on a single price. All trades are made at that price. (You can use the graph at right for scratch work.)

a. If the price were \$3, would there by *excess demand*, *excess supply*, or *neither*?

Now consider the market equilibrium.

b. What is the equilibrium price? Give an answer to the nearest whole dollar. \$

c. How many units of the good will be sold in this market? units

d. Compute the total revenue received by sellers (which equals the total spending by buyers). \$

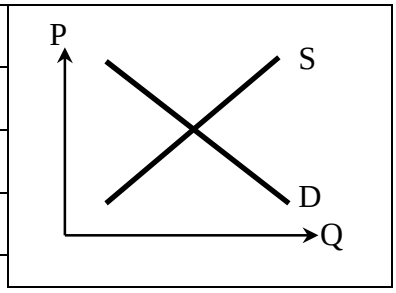
e. Compute the combined total surplus (or gains from trade) of all buyers and sellers. (Check your answer carefully! No partial credit for being "close"!) \$

f. Who enjoys higher surplus in this particular market, the *buyers* or the *sellers?* Or is buyers' total surplus *equal* to sellers' total surplus?

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

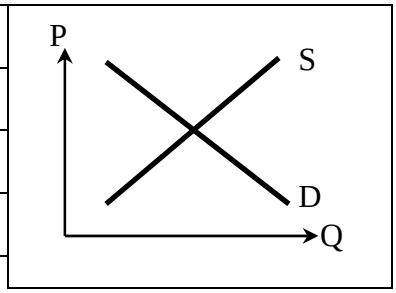
a. Consider the market for ***pizza***: The price of mozzarella cheese (an important ingredient in pizza) rises.

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).



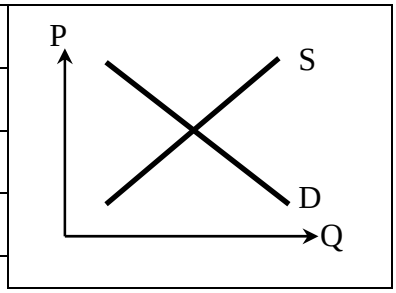
b. Consider the market for ***sodapop***: Consumers become more interested in avoiding junk food.

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).

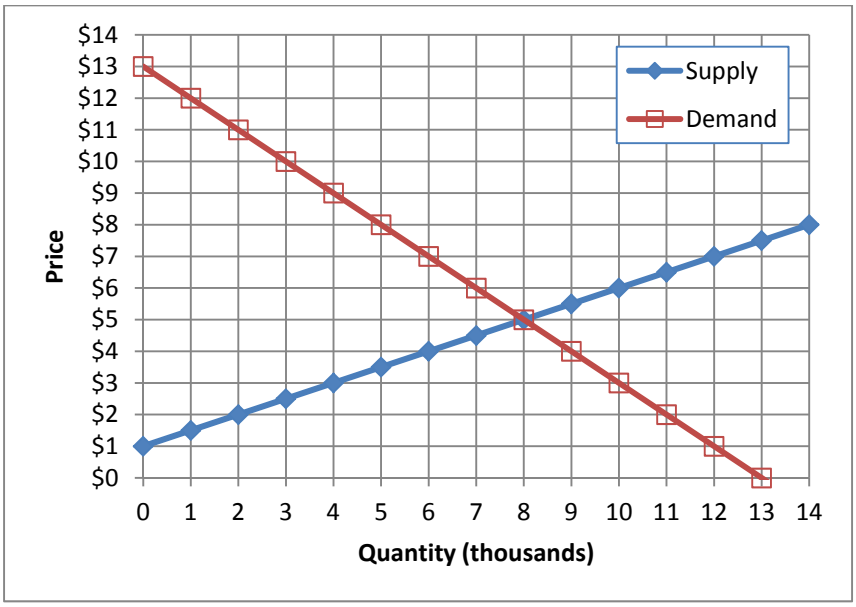


c. Consider the market for ***airline tickets***: The price of jet fuel rises. At the same time, a recession lowers consumers' incomes.

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).



(7) [Consumer surplus, producer surplus: 22 pts] The market for pencil sharpeners is depicted in the graph below.



Suppose the price in this market were $7 for some reason.

a. Would there be *excess demand*, *excess supply*, or *neither*?

b. How much?

c. Would the price tend to *rise*, *fall*, or remain *constant*?

thousand

Now suppose the market is in equilibrium.

d. What is the equilibrium price?

e. What is the equilibrium quantity?

f. How much are consumers willing to pay for the 6 thousandth pencil sharpener?

g. How much consumer surplus do they enjoy for the 6 thousandth pencil sharpener?

h. What is the marginal cost to producers of the 2 thousandth pencil sharpener?

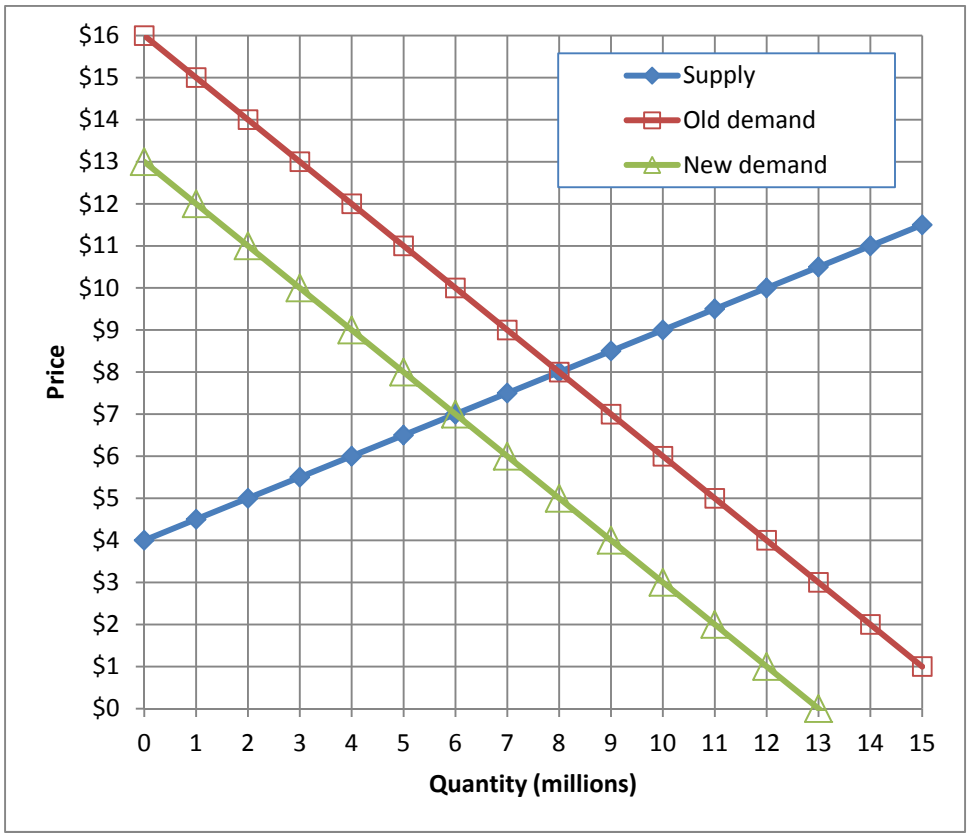
i. How much producer surplus do they enjoy for the 2 thousandth pencil sharpener?

j. Compute total consumer surplus.

k. Compute total producer surplus.

$
thousand
$
$
$
$
$ thousand
$ thousand

(8) [Consumer surplus, producer surplus: 4 pts] Consider the market for movie tickets as depicted in the graph below.



Suppose demand shifts from the "old demand" curve to the "new demand" curve, due to increased availability of online streaming services such as Netflix.

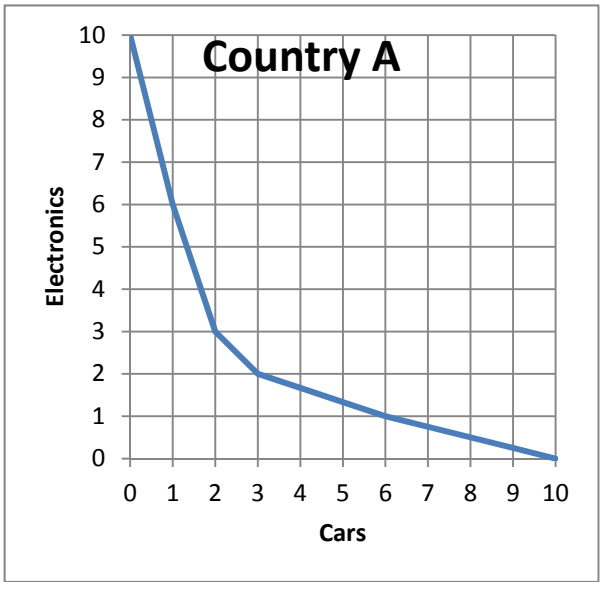
a. Are producers *better* off or *worse* off as a result of the demand shift?

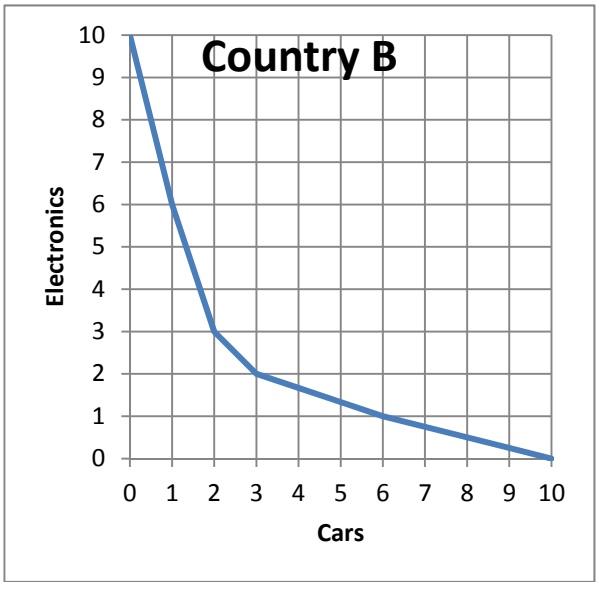
b. By how much? (Compute the change in producer surplus.)

$ million

III. Critical thinking: Write a one-paragraph essay answering the question below. Full credit requires correct economic reasoning, legible writing, good grammar including complete sentences, and accurate spelling. [4 pts]

(1) In this course, we have emphasized gains from grade 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, state verbally an example of a trade that puts both countries outside their individual PP curves, and plot that trade on the graphs.





[end of exam]