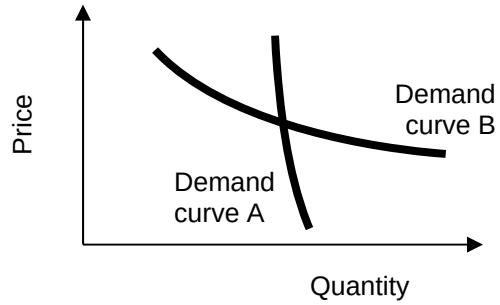
ECON 002 - Principles of Microeconomics Signature: _____
Drake University, Spring 2015
William M. Boal Printed name: _____

EXAMINATION 2 VERSION A
"Applications of Supply and Demand"
March 9, 2015

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) Which demand curve below is *less* elastic?
a. Demand curve A.
b. Demand curve B.
c. Both have the same elasticity because they pass through the same point.
d. Cannot be determined from information given.



(2) Suppose the price elasticity of demand for food is about – 0.2. If the price of food rises, then the amount of money consumers spend on food will
a. increase.
b. decrease.
c. remain constant.
d. cannot be determined from information given.

(3) Assuming that train travel and air travel are substitutes, then the cross-price elasticity of demand for train travel with respect to the price of air travel must be
a. positive
b. negative.
c. zero.
d. cannot be determined from information given.

(4) Some estimates show that rich people buy more clothing than poor people, but they spend a slightly *smaller fraction* of their income on clothing than poor people do. If this is true, then the income elasticity of demand for clothing must be
a. negative.
b. exactly zero.
c. between zero and one.
d. exactly one.
e. greater than one.

(5) To pass the compensation test of Kaldor and Hicks, a change in the economy must result in
a. winners but no losers.
b. gains to winners that exceed any losses to losers.
c. at least some winners.
d. cost savings for the government.
e. a rise in wages, salaries, and other compensation.

(6) Suppose the price of gold were higher in New York than in Los Angeles, initially. Arbitrage would then *tend to*
a. raise the price of gold in both cities.
b. lower the price of gold in both cities.
c. raise the price of gold in New York and lower the price in Los Angeles.
d. raise the price of gold in Los Angeles and lower the price in New York.

(7) Speculators buy when the price is low and resell later when the price is high because they *want to*
a. encourage society to conserve scarce resources.
b. prevent prices from rising too rapidly.
c. make a profit.
d. keep markets orderly.
e. All of the above.

(8) Suppose the futures price of wheat for delivery next June is $15, but you believe that the spot price will be $20 next June. If you are correct, you can make money by
a. selling wheat futures now and selling wheat on the spot market in June.
b. buying wheat futures now and selling wheat on the spot market in June.
c. selling wheat futures now and buying wheat on the spot market in June.
d. buying wheat futures now and buying wheat on the spot market in June.

(9) If the free-market equilibrium price of gasoline is $3, which government price control would be *binding* on the market?
a. a price ceiling (or legal maximum price) of $2.
b. a price floor (or legal minimum price) of $2.
c. Both of the above would be binding.
d. None of the above would be binding.

(10) A quota on *buying* ivory would cause the price of ivory to
a. rise.
b. fall.
c. rise or fall, depending on the shapes of the demand and supply curves.
d. remain constant.

(11) The Federal tax on gasoline is 18.4 cents per gallon. This is an example of
a. an *ad valorem* tax.
b. an excise or per-unit tax.
c. a price control.
d. a subsidy.

(12) Suppose the price elasticity of supply for items sold on the internet in Iowa is 8.0 and the price elasticity of demand is -1.0 . If Iowa imposes a tax on internet sales,
a. Sellers will pay most of the tax.
b. Buyers will pay most of the tax.
c. Sellers and buyers will each pay half of the tax.
d. Answer depends on which side is legally required to remit the tax to the government.

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) [Calculating elasticities: 2 pts] Suppose that if the price of movie admissions is $4, the average person goes to the movies 10 times per year. If the price is $8, the average person goes 6 times per year. Compute the price elasticity of demand movie admissions using the "arc-elasticity" formula.

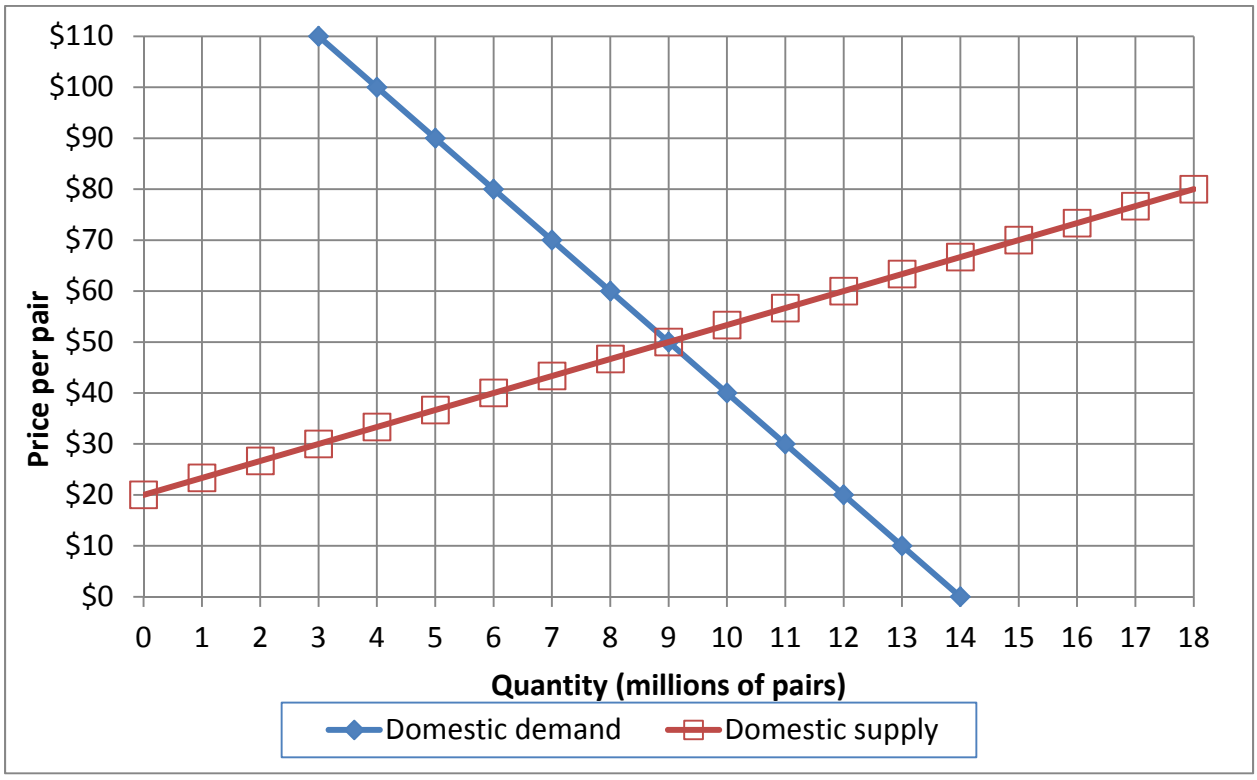
(2) [Using price elasticity of demand: 10 pts] Suppose the water utility *raises* its price by 5%. Suppose the price elasticity of demand for water is -0.8. Assume everything else affecting demand for water remains constant.

a. According to the information above, is demand for water *elastic, inelastic,* or *unitary-elastic*?
b. As the price rises, will the amount of water consumed *increase*, *decrease*, or remain *constant*?
c. ... by approximately how much? %
d. Will the total revenue received by the water utility *increase*, *decrease*, or remain *constant*?
e. ... by approximately how much? %

(3) [Using income elasticities: 10 pts] Suppose the income elasticity of demand for automobiles is 1.6. Now suppose consumer income *rises* by 5%. Assume the price of automobiles does not change.

a. According to the information above, are automobiles a *necessary good*, an *inferior good*, or a *luxury (or superior) good*?
b. As income rises, will the quantity of automobiles demanded *increase*, *decrease*, or remain *constant*?
c. ... by about how much? %
d. Will consumer spending on automobiles, as a fraction of a consumer's total budget, *increase*, *decrease*, or remain *constant*?
e. ... by about how much? %

(4) [Welfare effects of international trade: 18 pts] Domestic supply and demand for shoes in a particular country are given by the following diagram.



a. At first, international trade in shoes is not permitted. Find the equilibrium price without international trade. $

Then this industry is opened to international trade and the international price of shoes turns out to be **$ 30.**

b. Will this country now *export* or *import* shoes?

c. How many pairs? million

d. Does consumer surplus in this country *increase or decrease* from international trade in shoes?

e. By how much? $ million

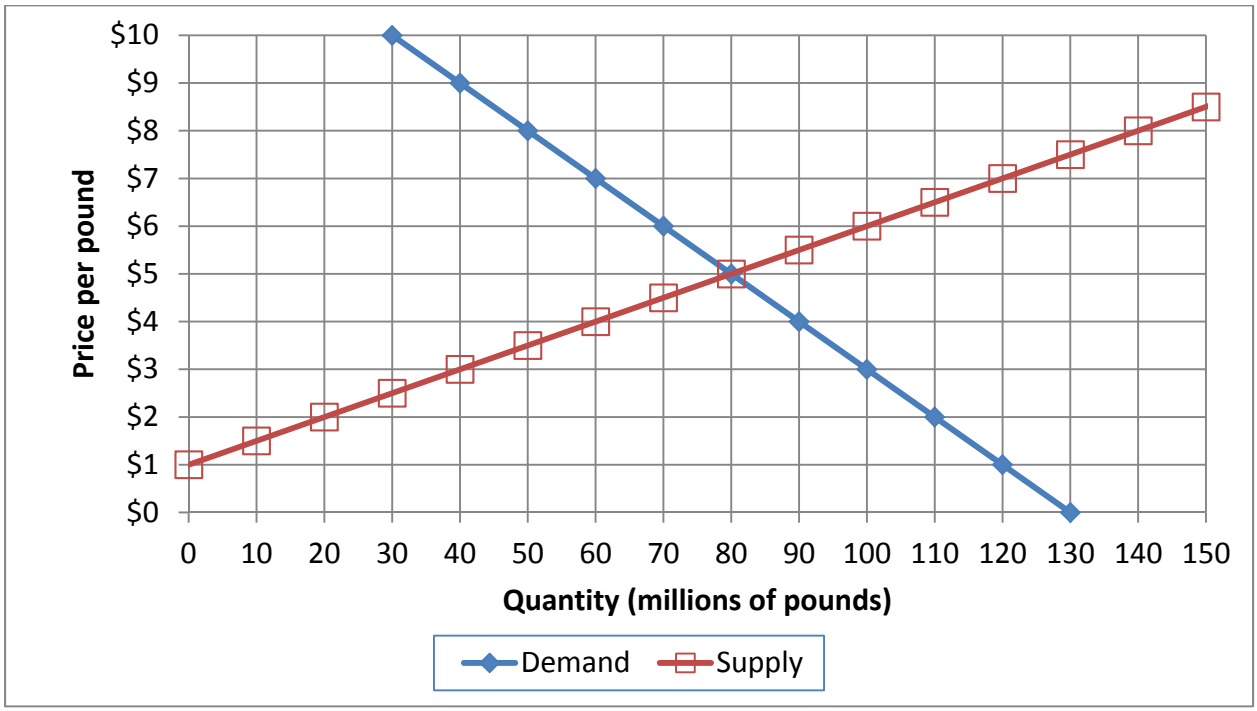
f. Does producer surplus in this country *increase or decrease* from international trade in shoes?

g. By how much? $ million

h. Does total social welfare in this country *increase or decrease* from international trade in shoes?

i. By how much? $ million

(5) [Welfare analysis of market controls: 18 pts] The following graph shows the market for butter.



a. Find the equilibrium price without government intervention. $

Suppose the government imposes a price ceiling (or legal maximum price) of **$ 4** per pound. No butter may be sold for a price more than the price ceiling.

b. How many pounds of butter will actually be sold? million pounds

c. Will there be *excess demand*, *excess supply*, or *neither*?

d. How much? million pounds

e. Does producer surplus *increase*, *decrease*, or *remain constant* because of the price ceiling, as compared to the market without government intervention?

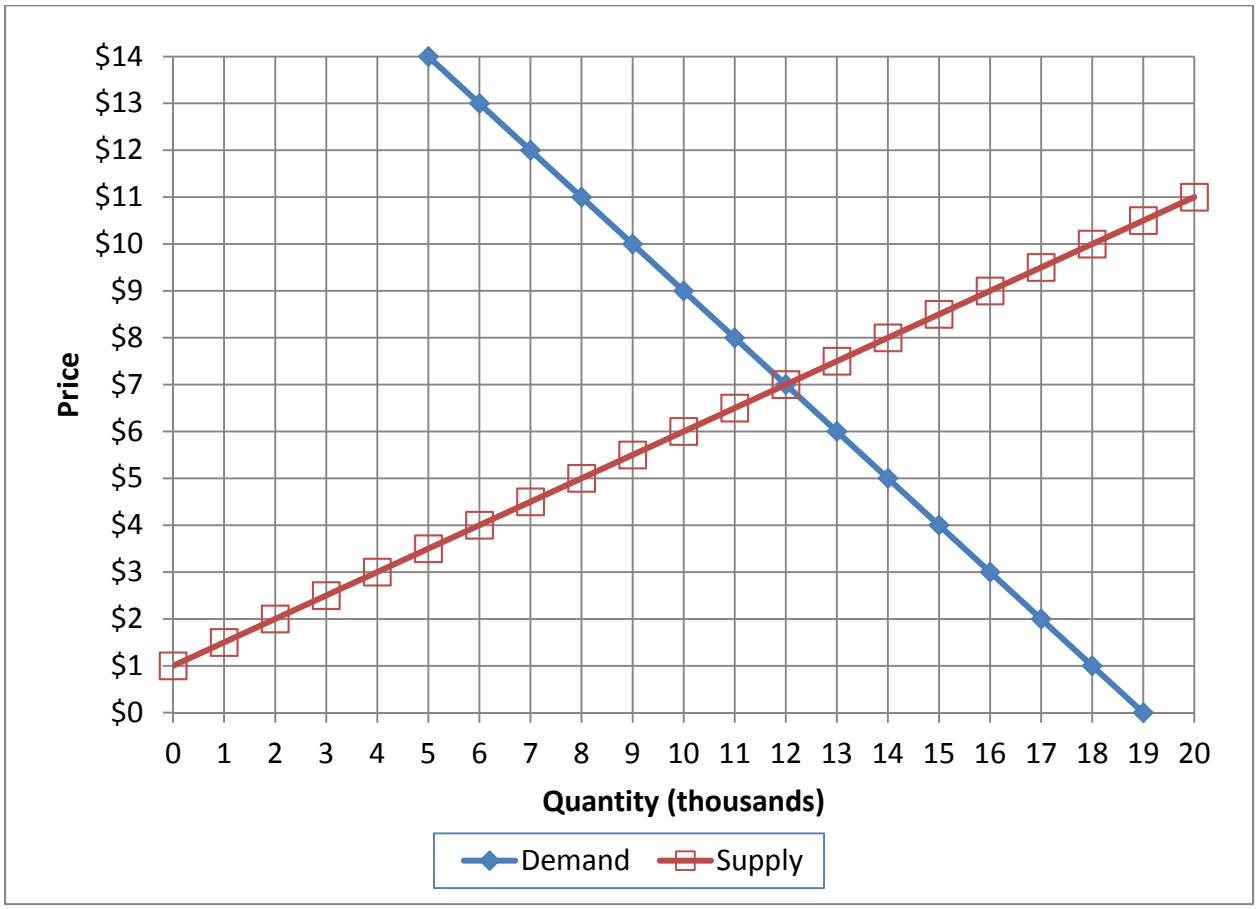
f. By how much? $ million

g. Does consumer surplus *increase*, *decrease*, or *remain constant* because of the price ceiling, as compared to the market without government intervention? (Assume optimistically that butter is purchased by those consumers who value butter the most.)

h. By how much? $ million

i. Compute the deadweight social loss caused by the price ceiling. $ million

(6) [Welfare analysis of tax or subsidy: 18 pts] The graph below shows the market for restaurant meals.



Suppose the government imposes an excise **tax of $ 3** per restaurant meal.

a. Compute the equilibrium quantity sold. ____ thousand

b. Compute the equilibrium net price received by sellers (excluding the tax). $ ____ per meal

c. Compute the equilibrium total price paid by buyers (including the tax). $ ____ per meal

d. Does producer surplus *increase*, *decrease*, or *remain constant* because of the tax? ____

e. By how much? $ ____ thousand

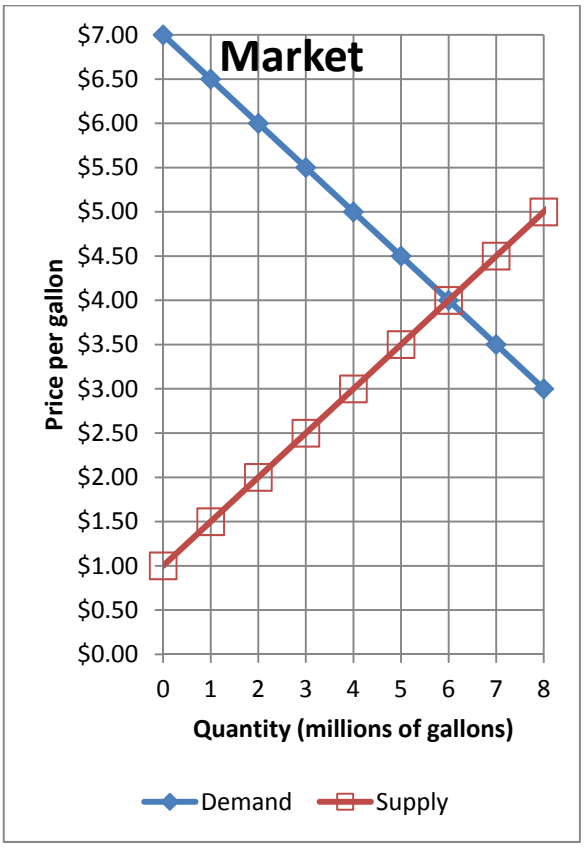
f. Does consumer surplus *increase*, *decrease*, or *remain constant* because of the tax? ____

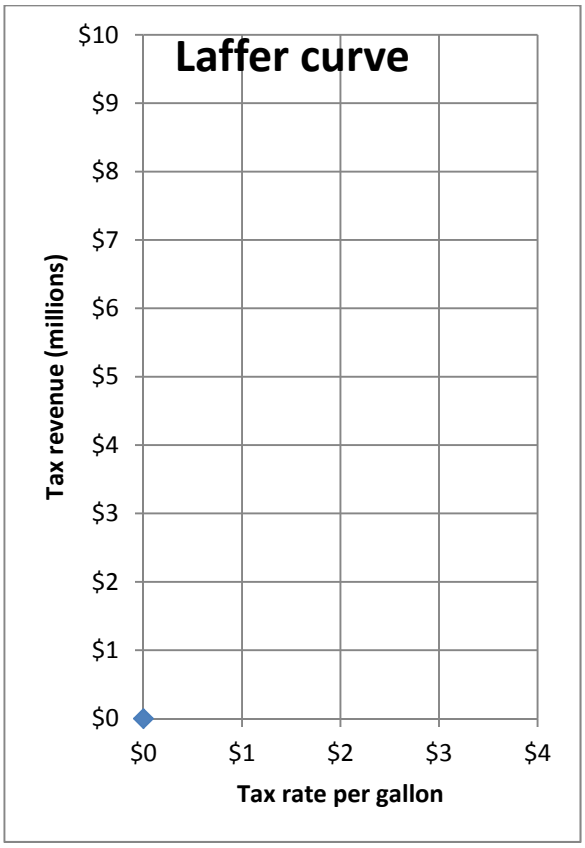
g. By how much? $ ____ thousand

h. Compute the total tax revenue collected by the government. $ ____ thousand

i. Compute the deadweight social loss caused by the tax. $ ____ thousand

(7) [Taxes, Laffer curve: 9 pts] The graph below at left shows the market for gasoline.





a. [6 pts] For each excise tax rate below, find the quantity traded in the market and compute the tax revenue received by the government.

Tax rate per gallon	Quantity traded in market	Tax revenue received by the government
$1	million	$ million
$2	million	$ million
$3	million	$ million

b. [3 pts] Plot your answers from the last column clearly in the graph above at right. If I cannot see your dots, I cannot give credit.

III. Critical thinking: Write a one-paragraph essay answering *one* question below (your choice). [3 pts]

(1) Suppose that when the *price* of gasoline falls by 10 percent, consumer *spending* on gasoline falls by 6 percent. Compute the price elasticity of demand for gasoline. Show your work and circle your final answer.

(2) Suppose a country opens its tee-shirt industry to international trade. As a consequence, the price of tee-shirts falls from $10 to $6, and 15 million tee-shirts are imported. Does the country's overall welfare increase or decrease as a result of this change? By how much? Sketch a graph, show your work and circle your final answer.

Please 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]