

Economics 102
Spring 2010
Home Assignment #2
Due 2/17/10 at the lecture

Directions: The homework will be collected in a box **before** the lecture. Please place your name, TA name and section number on top of the homework (legibly). Make sure you write your name as it appears on your ID so that you can receive the correct grade. Please remember the section number for the section **you are registered**, because you will need that number when you submit exams and homework. Late homework will not be accepted so make plans ahead of time. **Please show your work.**

Good luck!

Problem 1

The following table gives the demand and supply for pairs of winter boots at two different prices. Assume that the demand and supply functions are linear.

Price	Quantity Demanded	Quantity Supplied
30	720	90
120	180	360

- (a) Calculate the demand and supply functions for this market.

- (b) Find the equilibrium price and quantity in this market.

- (c) The government puts a tax of \$5 on each pair of winter boots, requiring producers to give the government \$5 for every pair they sell.
 - (i) What will the new equilibrium price and quantity be in the boot market once this tax is implemented? **Hint: the numbers in this question are not “nice”: you may want to use a calculator when doing this set of questions.**

 - (ii) Calculate consumer and producer surplus and the government’s tax revenue as a result of this policy.

 - (iii) Will the equilibrium price and quantity differ if consumers have to pay the tax to the government instead of the producers?

(d) Because of global warming, the demand of winter boots has dropped 25%. That is, at each price, people want to buy 25% less of the good. Calculate the new demand curve and the new equilibrium (assuming, as in parts (a)-(b), that there is no tax).

Problem 2

The table below provides basic information for the market for CD players. Assume that the demand and supply equations are linear.

TABLE

Quantity demanded (Units)	Quantity supplied (Units)	Price (US\$)
	240	80
280	280	160
120		240

- (a) Fill in the missing information in the table above.
- (b) Find the demand and supply equations for this market..
- (c) Find the market equilibrium.
- (d) Assume that the development of MP3 players reduces the consumption of CD players by 100 units at each price level. Given this information calculate the new equilibrium price and quantity in the market for CD players.

Problem 3

In Kaliland, a small closed economy, the supply and demand for boxes of coconuts are given by **D: $P + 5Q = 200$** and **S: $P - 3Q = 40$** . The world price of coconuts is \$50 per box.

- a) Find the equilibrium price and quantity when the economy is closed.
- b) Graph the domestic supply and demand curves for coconuts in Kaliland.
- c) Now Kaliland opens its coconut market to trade. Find the quantity of coconuts demanded and supplied domestically. What is the total quantity of imports in the coconut market?

d) Graph the newly opened economy by adding the world price to the domestic supply and demand curves. Calculate the total consumer and producer surplus under free trade and label the appropriate areas on the graph.

Problem 4

You are given the demand function and the supply function in a particular market:

Demand: $P = -2*Q+20$

Supply: $P = 2Q$;

- a) Find the equilibrium price P and quantity Q in this market if it is a closed market.

- b) Suppose the government imposes a tax that raises the price of the good in this market by \$2. What price will consumers pay for the good? What price will producers receive for the good once they pay the government the \$2 per unit tax? How many goods will be sold in the market? Draw and label a graph that clearly depicts this market before and after the imposition of the tax.

- c) Given the implementation of the tax described in part (b), what is the loss in consumer surplus and the loss in producer surplus with the imposition of this tax compared to the situation that occurs if the economy were a closed economy? Show the areas of consumer and producer surplus on your graph.

- d) What is the government revenue from the imposition of this tax?

- e) What is the deadweight loss from the imposition of this tax?

Problem 5

You are given the following information about an economy that produces only three final goods: apricots, soy milk, and coffee.

Year	Apricots		Soy milk		Coffee	
	Price	Quantity	Price	Quantity	Price	Quantity
2008	\$2	3	\$3.5	10	\$1	3
2009	\$4	5	\$4	15	\$3	5
2010	\$6	4	\$4.5	20	\$2	10

- Compute nominal GDP (NGDP) in 2008, 2009, and 2010.
- Compute real GDP (RGDP) in 2008, 2009, and 2010 using 2008 as the base year.
- With 2008 as the base year, what is the GDP deflator for 2008, 2009, and 2010?
- Assume that apricots are purchased by households, coffee is exported abroad, and soy milk is acquired by the government in a purchasing program. Provided that investment and imports are equal to zero from 2008 – 2010, complete the following table.

Year	Consumption (C)	Government expenditure (G)	Net exports (NX)
2008			
2009			
2010			

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2008			
2009			
2010			