Economics 102
Spring 2012
Homework #2
Due 2/15/12

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!

1. Consider a market for music players where the demand curve is $Q = -P/2 + 50$. The supply curve is $P = Q + 10$. Q is the number of music players and P is the price per music player.
    a. What is the equilibrium price and quantity?
    b. Calculate the values of consumer surplus (CS) and producer surplus (PS) in this market.
    c. Now suppose people are buying twice as much at each price as they did initially. What is the new demand curve equation? And, what is the new equilibrium price and quantity in this market?
    d. Return to the original demand and supply curves. Now suppose supply decreases by 3 units at each price level. What is the new supply curve equation? And, what is the new equilibrium price and quantity in this market?
    e. Return to the original demand and supply curves. Suppose the government implements a price ceiling of $35 in this market. Does this price ceiling cause a shortage or surplus of the good? Provide a numeric measure in your answer.
    f. Given the information in part (e) of this problem, calculate the values of consumer surplus (CS) and producer surplus (PS).
    g. Given the information in part (e) of this problem, calculate the deadweight loss due to the imposition of this price ceiling.
    h. Return to the original demand and supply curves. Suppose the government implements a price ceiling of $45 in this market. If the price ceiling of $45 is imposed, does this cause a shortage or surplus of the good?
    i. Return to the original demand and supply curves. Suppose the government implements a price floor of $45 in this market. If the price floor of $45 is imposed, does this cause a shortage or surplus of the good in the market? Provide a numeric measure in your answer.
    j. Return to the original demand and supply curves. Suppose the government implements a price floor of $35 in this market. If the price floor of $35 is imposed, does this cause a shortage or surplus of the good? Provide a numeric measure in your answer.

2. Let's think about the iPhone (the smartphone produced by Apple) market. For each of the following situations describe the impact on the demand and supply curves for iPhones given the scenario. Then, describe the effect on the equilibrium price and quantity in this market for each of the given scenarios. Assume that there are no other changes than the changes described in each part.
   a. Apple introduces a new version of the iPhone, and the popularity of owning an iPhone increases.
   b. Google introduces a new android smartphone (Google is a different company than Apple and they also produce a smartphone similar to the iPhone).
   c. Holding everything else constant, the price of the Android smartphone increases.
   d. There is a huge increase in the number of students this year and each new student needs an iPhone.
   e. Apple has a technological break-through and as a result the production cost of the iPhone decreases by 50%.
   f. All the Apple workers have been on strike and finally the strike is settled with Apple workers winning the negotiation and getting a 10% increase in their wage.
   g. Some of the factories which produce computer chips for iPhones shut down due to a flood.

3. Consider a small country and the music player market in this country. Let the domestic demand for music players in the small economy be given by $P = 80 - Q$. Let the domestic supply for music players in the small economy be given by $P = 3Q$. Hint: in this problem you will get some fractions; this is okay!
   a. If the country is closed to trade (autarky), what is the equilibrium price and quantity?
   b. Suppose the world price for a music player is \$30. If the country opens its music player market to trade, what quantity of music players will be imported or exported into this country? Explain how you got your answer.
   c. Suppose this small country has opened its music player market to trade. In this question consider only the response of domestic consumers and domestic producers in the music player market. The government of the small country proposes to impose a tariff on music players. Will the domestic consumer be for or against imposing this tariff? Will the domestic producers be for or against imposing this tariff? Explain your answer.
   d. Suppose the government imposes a tariff of 10 dollars on music players. What is the government's tariff revenue? What are the demand and supply prices for music players with the imposition of this tariff?
   e. Calculate the deadweight loss from the imposition of the tariff described in part (d) of this problem.
   f. Suppose the world price for a music player rises to \$70. If the small country is open to trade, what quantity of music players will be imported or exported?
   g. Will the domestic consumer be for or against free trade given this world price of \$70 per music player? Will the domestic producers be for or against trade at this world price of

$70 per music player? Explain your answer.

h. Assume the world price of music players is still $30 and this small economy is open to trade in its market for music players. Suppose the government decides to implement a quota to restrict trade. In addition, the government wants to ensure that the quota rent from imposing the quota is the same as the tariff revenue generated from the previous policy. What should the amount of the quota be in order for the quota rent to equal the tariff revenue? What is the deadweight loss with this policy?