

PROBLEM SET 2

DUE AT THE BEGINNING OF LECTURE ON TUESDAY, FEBRUARY 18TH

You may work together on the problems, but your answers must be ***in your own words*** and ***handwritten***. You also must ***list the other students with whom you worked***.

For all questions be sure to explain your answers and to use graphs whenever appropriate.

1. Consider a household's choices between restaurant meals and everything else.
 - a. Draw the household's budget constraint, with restaurant meals on the vertical axis and everything else on the horizontal axis. In terms of the household's income and the prices of restaurant meals and everything else, what are the vertical intercept, the horizontal intercept, and the slope of the budget constraint?
 - b. What is the condition for the household to be allocating its income in the way that maximizes utility? Explain in words the intuition behind the condition.
 - c. Suppose an influx of chefs into the area causes the price of restaurant meals to fall. How will the household need to modify its consumption of restaurant meals and everything else to continue maximizing its utility? (Be sure to discuss both the substitution effect and the income effect of the price change.)

2. Alicia gets great happiness from the first few cookies she has, but soon finds that additional cookies taste gross. She also gets a lot of pleasure from the first few tomatoes she has, but she finds that she still enjoys additional tomatoes quite a bit as she consumes more and more.
 - a. Using this information, sketch Alicia's marginal utility as a function of quantity for each good.
 - b. For which good is Alicia's price elasticity of demand likely to be larger?

3. How would each of the following developments affect the equilibrium price and quantity in the market for milk in the short run? How would each affect the amount of milk that a typical profit-maximizing dairy farm wants to produce in the short run? (You should assume that the market for milk is perfectly competitive.)
 - a. The price of corn used to feed cows falls.
 - b. Because of the development of new techniques, the price of alternatives to milk, such as soy milk and almond milk, falls.
 - c. A ban on various hormones and antibiotics causes cows to give less milk.

4. Consider the market for candy, which is very competitive. Suppose that initially the market is in long-run equilibrium, but that then the government introduces a tax on candy. The tax takes the form of a certain amount per pound of candy, and is physically collected from sellers.
 - a. Show the situation in the market for candy and the situation of a typical candy producer before the imposition of the tax. What are the profits of the typical firm?
 - b. How would the imposition of the tax affect the price and quantity of candy in the short run? How would it affect the output and profits of a typical candy producer?

- c.** What would the imposition of the tax do to the equilibrium price and quantity of candy in the long run? What would it do to the profits of a typical candy producer in the long run?

- 5.** Consider the market for some good produced by a competitive industry. The market begins in equilibrium.
 - a.** At the initial equilibrium price and quantity, what are consumer surplus, producer surplus, and the total surplus in this market?
 - b.** Now suppose the government imposes a binding price floor (that is, a minimum price that is above the prevailing equilibrium price). However, in contrast to what normally happens with a price floor, when firms cannot sell as much of the good as they want to at the price floor, in this case the government buys any amounts that firms want to sell at the price floor but consumers do not want to buy. It then destroys whatever it buys. What are the resulting quantity produced, quantity bought by consumers, and quantity bought by the government and destroyed?
 - c.** What is consumer surplus with this policy? What is producer surplus with this policy? What (if any) is the deadweight loss from the policy?