

ECO 401-002, 003  
Spring 2011  
Problem Set #1

Due: Friday, January 28.

1. Use a separate supply and demand diagram to illustrate the effect of each of the following changes on the market for taxi service in a city:
  - a) Bus drivers go on strike
  - b) Gasoline prices rise sharply
  - c) Several large new parking garages open in the downtown area
2. Concerned about impending cuts in federal welfare programs, the state legislature decides to study the problem of hunger in Kentucky. Two proposals are considered. The first is to place a price ceiling on bread at \$1.50 per loaf. The second is to place a price ceiling on hamburger at \$2.00 per pound. Currently bread sells for \$1.00 per loaf and hamburger sells for \$2.50 per pound. Using supply and demand diagrams, evaluate the impact of each of these maximum prices on their respective markets.
3. Southern Kentucky University, concerned about budget shortfalls, raises its annual tuition from \$10,000 to \$10,500. Student enrollment falls from 5,000 to 4,700. (a) Calculate the price elasticity of demand, showing your work. (b) Will SKU accomplish its goal, i.e., will the tuition hike raise increase the university's total revenue?
4. As manager of a local convenience store, you decide to try a marketing experiment. You raise the price of Pepsi from \$4.99 per case to \$5.49 per case, while holding the price of Coke constant. You find that Coke sales increase by about 50 percent. The cross-price elasticity of demand between Pepsi and Coke thus is approximately equal to what?
5. U.S. market demand for aluminum is given by  $Q^D = 500 - 50P + 10I$ , where  $P$  is the price of aluminum expressed in dollars per ton and  $I$  is the average income per person in the U.S. (expressed in thousands of dollars per year). Suppose further that the market supply is given by  $Q^S = -400 + 50P$ . In both equations quantity is measured in millions of tons of aluminum per year.
  - a) What is the market equilibrium price and quantity when  $I = 30$ ? Illustrate your answer in a diagram.
  - b) Calculate own-price elasticity of demand for aluminum at that price and quantity. Hint:  $\epsilon_{Q,P} = (\Delta Q/\Delta P)(P/Q)$ .
  - c) Calculate income elasticity of demand for aluminum. Hint:  $\epsilon_{Q,I} = (\Delta Q/\Delta I)(I/Q)$ .