Solutions available Wednesday, September 18

- 1. The following questions ask you to consider the market for natural gas. Use a supply and demand diagram to analyze each of the following scenarios. Explain briefly. *Be sure to show how both the equilibrium price and quantity change in each case.*
 - a) Concerns over climate change mean that more new electric power plants are designed to use natural gas, rather than coal.
 - b) Technological advances improve the efficiency of home furnaces that use natural gas.
 - c) Because of melting sea ice in the Arctic Ocean, sea shipping routes linking the Atlantic and Pacific coasts of Europe, Russia, and North America will soon be accessible during at least part of the year. This will reduce the cost of shipping natural resources between these regions. Suppose that one such natural resource which may be shipped is liquefied natural gas. How will melting sea ice in the Arctic Ocean affect natural gas markets?
- **2.** From 1979 to 1989 in the United States, the number of working men grew 12% while the number of working women grew 29%. During this time, average wages for men fell slightly while average wages for women rose about 7%. Which of the following two explanations seems most consistent with the data?
 - a) Women decided to work more, raising their relative supply (relative to men).
 - b) Discrimination against women declined, raising the relative (to men) demand for female workers.
- **3.** Like many universities, Great State University (GSU) has a shortage of parking places. Currently, 5,037 parking spaces for students are available on campus. To park on campus, students must purchase a parking sticker. However, at the current price of \$75, significantly more than 5,037 parking stickers were sold. As a result, many students who have parking stickers are nonetheless unable to find parking on campus.
 - a) Consider the market for parking spaces (*NOT the market for stickers, but the actual spaces!*). What does the supply curve look like? Why? Illustrate the supply curve for parking spaces.
 - b) Add a demand curve to your drawing. Currently, more stickers are sold than there are spaces available. Illustrate this scenario.
 - c) Is the market for parking spaces in equilibrium? Why or why not? If it is not, what can be done to alleviate the problem in the short run? Are there other solutions that may work in the long run but not in the short run?

4. The following demand and supply curves describe the labor market for bus drivers in Endor.

Demand:	<i>P</i> = 20 – 0.75Q
Supply:	<i>P</i> = 2 + 0.25Q

where *P* is the wage per hour, and *Q* represents the number of bus drivers hired, in thousands (e.g. Q = 1 means that 1,000 drivers have been hired).

- a) Calculate the equilibrium wage and the number of drivers hired. Illustrate on a graph.
- b) After a brief rebellion, bus drivers in Endor successfully argue for a minimum wage law. The minimum wage law requires that all bus drivers earn at least \$11 per hour. How many drivers will be employed under this new minimum wage? Illustrate on a graph.
- c) Using your graphs from (a), calculate the consumer surplus and producer surplus at the initial equilibrium price and quantity from part (a).
- d) Calculate the new consumer surplus and producer surplus with the minimum wage of \$11 (part b).
- e) How does the total consumer and producer surplus in part (c) compare to the total consumer and producer surplus in part (d)? What explains the difference in these two figures? Please explain intuitively.