PROBLEM SET 1

DUE AT THE BEGINNING OF LECTURE ON TUESDAY, FEBRUARY 2ND

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. It is possible to divide the total amount that the U.S. economy produces into two categories: goods and services. Both types of output are produced using capital (machines) and labor.
   a. Draw the production possibilities curve (PPC) for the U.S. economy based on this categorization. Explain in words what the PPC represents. Why is the PPC for the entire U.S. economy likely to be bowed out?
   b. How would increased enforcement of immigration laws, which led to widespread deportation of workers, affect the PPC?
   c. An important trend over the past several years has been the increasing share of services in total production. How would you represent this development in the PPC diagram?
   d. Suppose there is an improvement in computer technology. While improvements in computer technology will increase productivity in both the goods-producing and services-producing sectors of the economy, they are likely to have particularly large effects in the goods-producing sector. How would you expect this development to be reflected in the PPC diagram?
   e. Suppose that the U.S. economy slips into a recession (a time of above-normal unemployment). What effect, if any, would this have on the PPC?

2. Three friends, Katie, Paul, and Matthew, decide to set up an artists’ collective producing two simple goods—ceramic pots and woven baskets. The three artists agree to each work 6 hours per day. While all three artists can produce both goods, they differ in the number of each good they can produce in an hour. The following table shows the number of pots or the number of baskets each worker could produce in an hour.

<table>
<thead>
<tr>
<th></th>
<th>Pots/Hour</th>
<th>Baskets/Hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Katie</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Paul</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Matthew</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

   a. For each worker, what is the opportunity cost of 1 pot (in terms of baskets)? Of 1 basket (in terms of pots)?
   b. Draw the production possibilities curve (PPC) for the collective (for a single day) when there is no specialization—that is, when each worker divides his or her time between pot production and basket production in the same way as the other two workers. Identify and explain the vertical intercept, the slope, and the horizontal intercept of the PPC in this case. Why does the PPC without specialization have the shape that it does?
   c. Draw the PPC for the collective when the three workers specialize according to
comparative advantage. Again, identify and explain the vertical intercept, the slope(s), and the horizontal intercept of the PPC in this case. Also, give the quantities of pots and baskets that correspond to any kinks in the PPC. Why does the PPC with specialization have the shape that it does?

3. Suppose that all workers within Spain are identical, as are all workers within Italy. The typical worker in Spain can produce 2 pairs of shoes or 6 pounds of ham in a day; the typical worker in Italy can produce 3 pairs of shoes or 6 pounds of ham in a day.
   a. Which country has a comparative advantage in shoe production? In ham production?
   b. Draw the production possibilities curve (per worker, per day) for each country before trade. (Put ham on the vertical axis and shoes on the horizontal axis.)
   c. What is the range of possible terms at which Spain and Italy will trade pounds of ham for a pair of shoes? Explain.
   d. Suppose that the terms of trade are $2.5$ pounds of ham for 1 pair of shoes. Draw the consumption possibilities curve (again, per worker, per day) after trade for each country.

4. Describe and show on a separate graph how each of the following developments would affect the equilibrium price and quantity of limes in the United States.
   a. The Super Bowl causes American consumers want to make more guacamole (which uses limes as an ingredient).
   b. A fungus destroys much of the current lime crop in Mexico (where many of the limes sold in the U.S. are grown).
   c. A bumper crop in Florida lowers the price of lemons (which can play the same role as limes in many recipes).

5. Suppose that the government imposes a minimum price (a price floor) for sugar that is above the equilibrium price. Use a supply and demand diagram to show the effect of this policy on the price of sugar and the quantity of sugar bought. Will there be a shortage or a surplus of sugar?

6. For each of the following decide whether the statement is true, false, or uncertain and explain why. Your explanation is the important part of the answer.
   a. If two people are equally productive in making some good, neither has a comparative advantage over the other in producing the good.
   b. A shift out in the supply curve of blueberries will increase the quantity of blueberries demanded.