

**ECONOMICS 1**  
**Problem Set 1**

Due in your first section meeting in the week of Sept. 15.

1. You have recently purchased a large estate in Napa valley and are deciding how to use your land. You can either grow grapes or raise llamas (both of which are actually done in Napa.) Your land includes flat, loamy areas which are excellent for grapes, as well as more rocky, hilly areas which are less good for grapes. Llamas can be grazed on any of the land equally well.

You know that you can produce the following combinations of grapes and llamas, depending on how much land you use for grapes and how much for llamas.

<u>Llamas</u>	<u>Grapes</u>
0	125,000 bushels
200	115,000
400	95,000
600	70,000
800	40,000
1000	0

- a) Draw the production possibility frontier that you face for grapes and llamas.
- b) You decide to raise 200 llamas and grow 115,000 bushels of grapes. What is the opportunity cost of these 200 llamas?
- c) Explain why the ppf is bowed outward.
- d) You plan to sell the wool from the llamas as well as all the grapes that you grow. The wool from each llama can be sold for \$120 apiece and grapes can be sold for \$1 per bushel. Could you make more revenue by shifting your production toward more llamas and less grapes, or vice versa? Explain. (Recall that you are now producing 200 llamas and 115,000 bushels of grapes.)
- e) You read an article that describes a way to grow grapes more effectively on any land. The method increases grape output per acre by 10%. Draw the new ppf that you would face if you implemented this method.
2. Robinson Crusoe lives happily on a little island eating fish and coconuts. He is able to catch one fish for each hour he spends fishing, and he could collect 10 coconuts per hour. These rates are the same no matter how much time he spends in each activity. He refuses to work more than 6 hours each day.
- a) Draw Robinson's production possibility frontier. Be sure to show the units on the axes.

- b) What is the opportunity cost of one fish?
  - c) What accounts for the shape of the ppf? That is: what is atypical of this island economy that explains this shape?
3. For each of the following events, show the shift in the demand curve and/or supply curve that results from the event, and the change in equilibrium price and quantity.
- a) Medical reports show that oat bran does not reduce cholesterol, contrary to earlier beliefs. What happens to the demand and supply curves for oat bran? What happens to the equilibrium price and quantity of oat bran sold?
  - b) The price of water sold to agricultural producers in California is raised. What happens to the demand and supply curves for vegetables? What happens to the equilibrium price and quantity of vegetables sold?
  - c) An earthquake eliminates 10% of the existing housing in a California town. What happens to the demand and supply curves for housing in this town? What happens to the equilibrium price and quantity of housing sold in this town?
  - d) An insect pest attacks the coffee crop around the world. What happens to the demand and supply curves for *tea*? What happens to the equilibrium price and quantity of *tea* sold?
4. Each of the following statements is misguided. Explain what is wrong with the reasoning.
- a) "The supply curve for personal computers must be downward sloping, since output keeps rising and prices keep coming down."
  - b) "Rent control in Berkeley has forced the landlords in neighboring communities to keep rents low in order to compete with Berkeley's low-rent housing."
  - c) "Fines for illegal parking should be doubled. This would provide the city with twice as much revenue from parking fines, as well as reducing the amount of illegal parking."
  - d) "There is no opportunity cost associated with the time that a retired person spends on volunteer work, since the retired person would not have been paid for the time anyway."
5. A life-extending drug is very expensive to produce. The equilibrium price for the drug is very high, such that some people who could benefit from the drug simply cannot afford to buy it. The government is considering a program that would cover 50% of the price of the drug. People who buy the drug would pay half the price, and the government would pay the other half.

- a) Show the effect of this policy on the supply curve, demand curve, or both. (Note: The government pays a percent of the price, NOT a given dollar amount independent of price. That is, the government does NOT pay, say, \$100 for each unit sold, no matter what the price of the drug. Rather, the government pays \$100 if the price is \$200, it pays \$150 if the price is \$300, and so on. This fact affects the way the curves shift.)
- b) Will the equilibrium quantity of the drug sold increase or decrease?
- c) Will producers of the drug obtain the same, more, or less money per unit sold?
- d) Will buyers of the drug actually see their costs for the drug drop by 50% per unit purchased?