EC155a: Problem set #1
Due on Friday, September 29 by 5:00 PM at Professor Isham's office
(Hillcrest Environmental Center 119)

1. In the "Race to Solar Power Africa," we read about the power of markets to improve well-being in Ghana, Côte d'Ivoire, and Tanzania. Which of Mankiw's first eight principles are best illuminated in this article? Based on what you read in this article, what are the most significant advantages to Adam's Smith's 'Invisible Hand'? What are its most significant drawbacks?

2. A year ago, a cider company invested $5,000,000 in land and new equipment. Over their first 12 months of production, they lost $2,000,000. They are now considering changing the production technique for their cider, but this change would cost them an additional $1,000,000 per year. If this were the *only* cost to produce their cider over the next 12 months, how much would they have to earn in sales to justify the adoption of this new technique? Justify your answer.

3. Emily Nunez '12 has started a new company called Sword and Plough. Take a look at the following two videos about her company:
    *   http://www.today.com/video/today/55998300#55998300
    *   http://on.aol.com/video/funded--sword-and-plough-517988020

    Based on what you read about S&P and see in these two videos, show - using the PPF model - what happens to the production possibilities, if anything, for the 'Signature Tote' and the 'Dopp Kit' when:

    A. The Nunez sisters change to more modern production equipment
    B. Their taxes are reduced so their costs go down.
    C. There is a change in demand for their products based on the airing of the Today Show

    D. Is this PPF likely to be very concave? Why or why not?

    In all cases, justify your answers.

4. The following table shows the production abilities for five workers employed by a firm.

Worker #	Units of good x/day	Units of good y/day	Opportunity cost of good x
1	40	110	
2	27	51	
3	28	77	
4	24	96	
5	30	75	

Calculate the opportunity costs of the production of good x and plot the firm's PPF, labelling each possible production point A- E, including the respective ordered pairs.

5. Suppose that you receive this labor productivity data for airplane and bulldozer productivity from Brazil and Mexico

	Bulldozers	*Airplanes*
Mexico	*3 days per unit*	*12 days per unit*
Brazil	*2 days per unit*	*10 days per unit*

A. What is the opportunity cost to Mexico of producing a bulldozer?
B. What is the opportunity cost to Mexico of producing an airplane?
C. What is the opportunity cost to Brazil of producing a bulldozer?
D. What is the opportunity cost to Brazil of producing an airplane?
E. Which country has the absolute advantage in the production of bulldozers?
F. Which country has the absolute advantage in the production of airplanes?
G. Which country has the comparative advantage in the production of bulldozers?
H. Which country has the comparative advantage in the production of airplanes?
I. Which of the following trade offers would be acceptable to both Mexico and Brazil, and why?

    i.   1 airplane = 6 bulldozers

    ii.   1 bulldozer = 0.33 airplanes
    iii.   1 airplane = 4.5 bulldozers

6. State whether the following pairs of goods are complements or substitutes. (If you think a pair is ambiguous in this respect, explain why.)

    A. Tennis courts and squash courts
    B. Squash racquets and squash balls
    C. Ice cream and chocolate
    D. Cloth diapers and paper diapers

7. In a closed economy (e.g., no international trade), what will happen to the equilibrium price and quantity of potatoes if population increases and a new, higher yielding variety of potato plant is developed? Explain your answer and plot the relevant supply and demand curves.

8. You're given the following demand and supply tables

P	D1	D2	D3
$37	20	4	8
$47	15	2	7
$57	10	0	6
$67	5	0	5

P	S1	S2	S3
$37	0	4	14
$47	0	8	16
$57	10	12	18
$67	10	16	20

    A. Draw the *market* demand and supply curves
    B. What is the excess supply/demand at price $37? Price $67?
    C. Label the equilibrium price and quantity