ECO 352 – Spring 2010
International Trade
Problem Set 2 – Due February 25 in class

Question 1: (35 points)

Consider a world consisting of two countries, Freedonia and Sylvania. Suppose that in Freedonia, 40 man-hours are required to produce each unit of clothing, and also 40 man-hours are required to produce each unit of food. In Sylvania, 10 man-hours are required for each unit of clothing and 20 man-hours are required for a unit of food.

1. (5 points) Which country has an absolute advantage in each good?
2. (5 points) Which country has a comparative advantage in each good?
3. (5 points) Assuming that each country has 400 man-hours of labor available for production, draw the production possibilities frontiers for each country. (Put food on the vertical axis.) What do the slopes of these frontiers indicate?
4. (5 points) Draw the world production possibilities frontier. What does its slope indicate?
5. (5 points) If consumers in both countries have Leontief preferences, consuming clothing and food in the fixed proportion of one-to-one, who produces, exports and imports what, and how much, and at what relative price?
6. (10 points) If the labor force of Freedonia increases by a factor of six to 2400, what will change? Will the direction of trade change? Will the volume of trade change? Will prices change?

Question 2: (65 points)

Two agricultural economies, "Home" and "Foreign" produce corn (C) and wheat (W). Home has an endowment of 200 fields; each of Home field can produce either 2 units of corn or 2 units of wheat. Foreign has an endowment of 300 fields; each Foreign field can produce either 1 unit of corn or 2 units of wheat. Consumers in both economies have identical homothetic preferences. Writing D_C and D_W for the demand (consumption) of the two goods, the preferences are represented by the utility function: $U(D_C; D_W) = D_C\ D_W$.

1. (5 points) Draw the production possibility frontiers for both economies (draw the production of corn on the x-axis).

2. (10 points)Let $p = p_C/p_W$ denote the relative price of corn, and $r = C/W$ the relative quantity ratio. With r on the horizontal axis and p on the vertical axis, draw the relative demand and supply curves for both economies in autarky (use a different diagram for each economy). Be sure to indicate the coordinates of the point where both curves intersect. Do these curves depend on the economies' endowments, in terms of number of fields?

3. (10 points) Now assume that these economies open up to international trade. Draw the relative "World" demand and supply curves on a separate diagram. Indicate on the diagram the coordinates of the intersection point between the two curves and the level of the autarky relative prices. Does the relative World supply curve depend on the two economies' endowments in terms of the number of fields?

4. (10 points) What is the pattern (indicate the quantity levels) of production and consumption in both countries in this trade equilibrium? Note that to calculate the consumption quantities, you will have to use the budget constraint of each country, recognizing its output quantities in the trading equilibrium, and the relative price in that equilibrium.

5. Now assume that Home's productivity changes: each field can produce the same amount of corn and wheat, but this amount is 4 (previously it was 2).

   (a) (10 points) How does this change affect the home country's relative supply function? How does it shift the world relative supply function?

   (b) (10 points) What is the trade equilibrium relative price p?

   (c) (10 points) Calculate Home's utility level under trade.