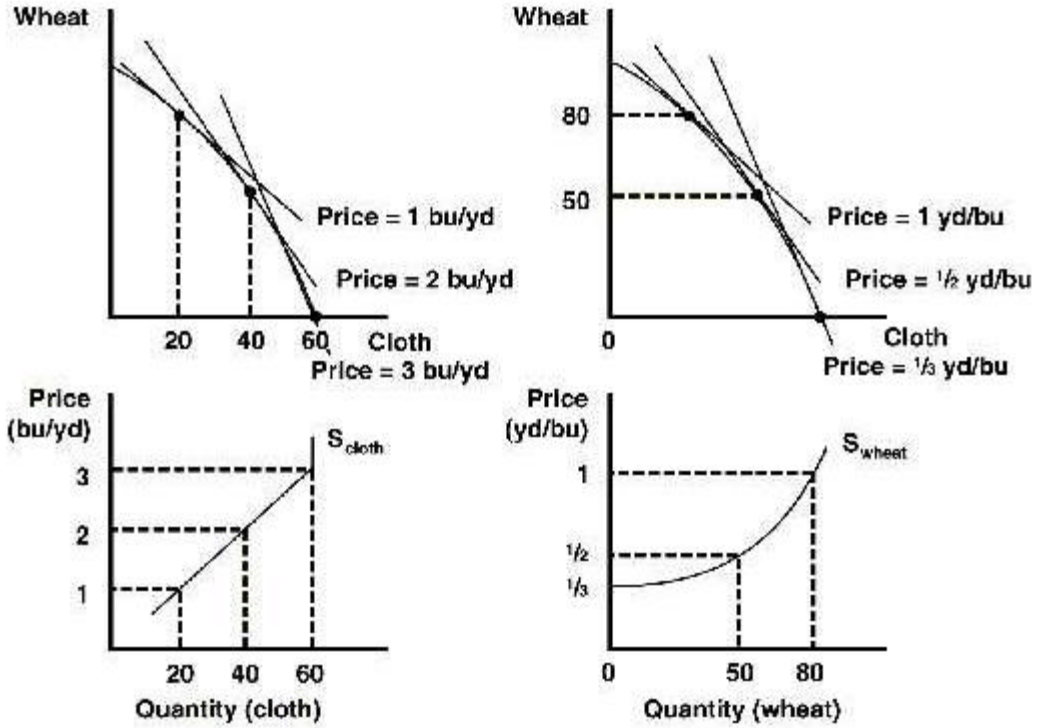
Answer Key to problem set # 2
Econ 335

Even though the prices are written here with units, it is useful to look only at the numbers, and always remember that the slopes in the diagrams basically represent price of the x-axis good in terms of the y-axis good. Thus for instance, if the x-axis is cloth and y-axis is wine, the slope of the budget line or PPC (same as PPF) line is say 2. Then, it basically means the price of cloth (x-axis good) in terms of wheat (y-axis good) is 2. In PPF it represents the opportunity cost of cloth in terms of wheat, i.e., to produce one unit of cloth, how much of wheat production you are foregoing. In a budget line for a consumer, the slope means how much of wheat consumption you are foregoing to consume one extra unit of cloth (if slope is 2 then you are foregoing 2 units of wheat). In our notation in the class, all this is equivalent to having a price system:

$$p_w = 1, \text{ and } p_{c|w} = \text{price of cloth in terms of wheat.}$$

2. You can disregard this question, if you have difficulty. Agree. Imports permit the country to consume more (or do more capital investment using imported capital goods). Anything that is exported is not available for domestic consumption (or capital investment). Although this loss is bad, exports are like a necessary evil because exports are how the country pays for the imports that it wants.

4. For a given relative price of cloth, the quantity produced and supplied of cloth is shown by the point of tangency between the production possibility curve and a line with a slope equal to the (negative of the) relative price ratio. By varying the relative price of cloth, the quantities of cloth supplied at different relative prices can be determined, and these combinations graphed to produce a supply curve for cloth. The same procedure can be used to derive the supply curve for wheat. The quantity of wheat must be measured from the vertical axis in the production-possibility-curve graph, and the relative price of wheat is the reciprocal of the slope of the price line. (The supply curve for wheat is actually a curve, not a straight line, in this case.)

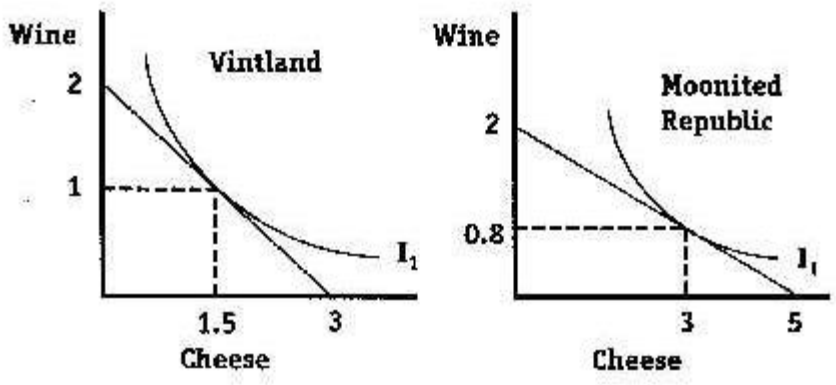


6. For price ratios below 2 bushels per yard, the country exports wheat and imports cloth. As the price becomes lower, the quantity produced of cloth decreases and the quantity consumed of cloth increases. Thus, the quantity of imports demanded increases as the price ratio declines. (This is the downward-sloping demand-for-imports curve from Chapter 2.) As the relative price of cloth, the import good, declines (equivalently, as the relative price of wheat, the export good, increases), the country's terms of trade improve. As the relative price of cloth declines, the country reaches higher community indifference curves, so the country's well-being or welfare is increasing.

8. a. Moonited Republic has an absolute advantage in wine—it takes fewer labor hours to produce a bottle (10<15). Moonited Republic also has an absolute advantage in producing cheese—it takes fewer labor hours to produce a kilo (4<10).

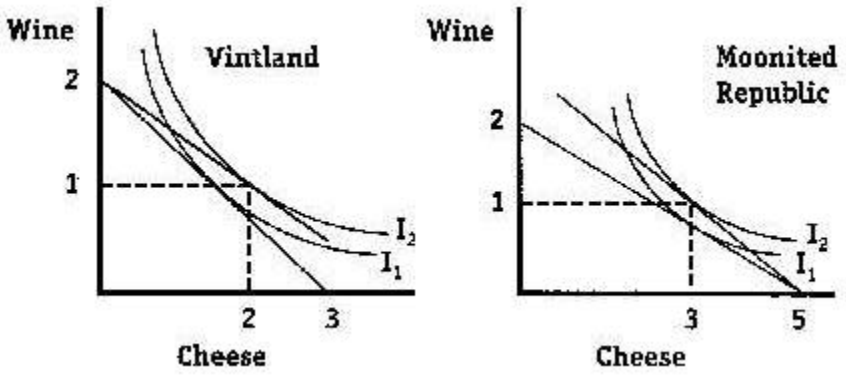
b. Moonited Republic has a comparative advantage in cheese—its relative advantage is largest in cheese ((4/10)<(10/15)). Vintland has a comparative advantage in wine—its relative disadvantage is smaller in wine ((15/10)<(10/4)). With no trade the relative price of cheese is 2/3 (=10/15) bottles of wine per kilo of cheese in Vintland, and it is 2/5 (=4/10) in Moonited Republic. Cheese is relatively cheap in Moonited Republic.

c.



d. When trade is opened, Moonited Republic exports cheese and Vintland exports wine. If the equilibrium free trade price ratio is 1/2 bottle per kilo, Moonited Republic will specialize completely in producing cheese, and Vintland will specialize completely in producing wine.

e. With free trade Moonited Republic produces 5 (=20/4) million kilos of cheese. If it exports 2 million kilos, then it consumes 3 million kilos. It consumes the 1 million bottles of wine that it imports. With free trade Vintland produces 2 (=30/15) million bottles of wine. If it exports 1 million bottles, then it consumes 1 million bottles. It consumes the 2 million kilos of cheese that it imports.

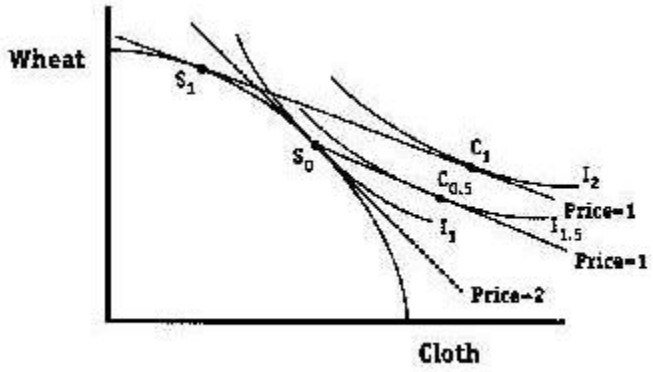


f. Each country gains from trade. Each is able to consume combined quantities of wine and cheese that are beyond its ability to produce domestically. (The free trade consumption point is outside of the production possibility curve.). Each reaches a better community indifference curve (I2 rather than I1 in each country).

10. If the number of labor hours to make a bushel of wheat is reduced by half to 1 hour, this reinforces the U.S. comparative advantage in wheat. (In fact, the United States then has an absolute advantage in wheat.) The United States is still predicted to export wheat and import cloth. If, instead, the number of hours to make a yard of cloth is reduced by half to 2 hours, this reduces the U.S. absolute disadvantage in cloth, but it does not change the pattern of comparative advantage. The relative price of cloth is now 1 (=2/2) bushel per yard in the

United States with no trade, but this is still higher than the price of 0.67 bushel per yard in the rest of the world. The United States still has a comparative advantage in wheat, so the United States is still predicted to export wheat and import cloth.

12. a. Production remains at S0, and the country can trade with the rest of the world at a price ratio of one bushel per yard. The country's consumption shifts to point C0.5, and the country reaches community indifference curve I1.5. The country gains from trade—its consumption point is outside of its production capabilities and it reaches a higher community indifference curve.



b. If the country adjusts its production point to the tangency at point S1, it can consume at point C1 and reach an even higher indifference curve I1.

c. The trade volume grows. This is easiest to see for cloth imports. The quantity consumed of cloth increases and the quantity produced of cloth decreases, so the quantity imported of cloth increases. Because trade is balanced in both cases and the price ratio is the same (1 bushel per yard), the volume of wheat exports also increases.