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Econ221, Micro Principles - Mankiw

Interdependence and the Gains from Trade I

In this problem set, you will learn how trade between two countries (or two people) can benefit both countries (or both people).

Professor Description: This problem set covers production possibilities frontiers, opportunity cost, absolute and comparative advantages, specialization of production, and gains from trade. Customized for Mankiw, 4th Edition.

Scenario

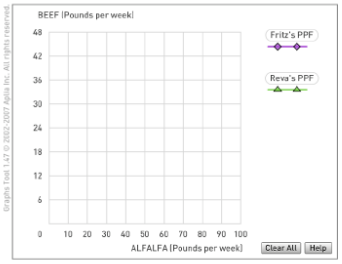
Fritz and Reva are both farmers. The table below shows the amount of alfalfa and beef each farmer can produce in a day. Both farmers work 6 days per week and spend their time producing alfalfa, beef, or some combination of the two.

	Alfalfa (Pounds per day)	Beef (Pounds per day)
Fritz	15	6
Reva	10	8

Question 1.1

1.1. Using the purple line (diamond symbols), graph Fritz's production possibilities frontier (PPF) for a given week. Then use the green line (triangle symbols) to graph Reva's PPF for a given week. (IMPORTANT: The table shows how much each farmer can produce in a day. Remember that each farmer works 6 days per week.)

Tool tip: For information on using the graph tool, click the Help button.



Question 1.2

1.2. What is Fritz's opportunity cost of producing 15 pounds of alfalfa?

- **A.** 6 pounds of beef
- **B.** 15 pounds of beef
- **C.** 10 pounds of beef
- **D.** 8 pounds of beef

Question 1.3

1.3. What is Fritz's opportunity cost of producing one pound of alfalfa?

- **A.** 0.4 pound of beef
- **B.** 1 pound of beef
- **C.** 0.67 pound of beef
- **D.** 0.8 pound of beef

Question 1.4

1.4. What is Fritz's opportunity cost of producing one pound of beef?

- **A.** 1 pound of alfalfa
- **B.** 1.25 pounds of alfalfa
- **C.** 1.5 pounds of alfalfa
- **D.** 2.5 pounds of alfalfa

Question 1.5

1.5. What is Reva's opportunity cost of producing one pound of beef?

- **A.** 1 pound of alfalfa
- **B.** 1.25 pounds of alfalfa
- **C.** 1.5 pounds of alfalfa
- **D.** 2.5 pounds of alfalfa

Question 1.6

1.6. Which of the following statements is true?

- **A.** Reva has a comparative advantage in the production of beef and Fritz has a comparative advantage in the production of alfalfa.
- **B.** Reva has a comparative advantage in the production of alfalfa and Fritz has a comparative advantage in the production of beef.
- **C.** Reva has a comparative advantage in both the production of beef and the production of alfalfa.
- **D.** Fritz has a comparative advantage in both the production of beef and the production of alfalfa.

Question 1.7

1.7. Which of the following statements is true?

- **A.** Reva has an absolute advantage in the production of beef and Fritz has an absolute advantage in the production of alfalfa.
- **B.** Reva has an absolute advantage in the production of alfalfa and Fritz has an absolute advantage in the production of beef.
- **C.** Reva has an absolute advantage in both the production of beef and the production of alfalfa.
- **D.** Fritz has an absolute advantage in both the production of beef and the production of alfalfa.

Scenario

Suppose that France and Switzerland both produce cheese and wine. France's opportunity cost of producing a bottle of wine is 1.5 pounds of cheese, while Switzerland's opportunity cost of producing a bottle of wine is 3 pounds of cheese.

Question 2.1

2.1. Which country has a comparative advantage in the production of wine?

- **A.** France
- **B.** Switzerland
- **C.** Neither France nor Switzerland
- **D.** Both France and Switzerland

Question 2.2

2.2. Which country has a comparative advantage in the production of cheese?

- **A.** France
- **B.** Switzerland
- **C.** Neither France nor Switzerland
- **D.** Both France and Switzerland

- **E.** There is not enough information to determine this

Question 2.3

2.3. Suppose that France and Switzerland begin trading wine and cheese with each other. What can be said about the trade patterns between the two countries?

- **A.** France will export cheese and import Swiss wine, and Switzerland will export wine and import French cheese.
- **B.** France will export wine and import Swiss cheese, and Switzerland will export cheese and import French wine.
- **C.** There is not enough information to determine who will import and export wine and cheese.

Question 2.4

2.4. Suppose that France and Switzerland are considering trading wine and cheese with each other. What price of wine, in terms of cheese, would benefit both countries and make both countries willing to trade?

- **A.** P = 1 pound of cheese per bottle of wine
- **B.** P = 2 pounds of cheese per bottle of wine
- **C.** P = 4 pounds of cheese per bottle of wine
- **D.** P = 4.5 pounds of cheese per bottle of wine

Question 3

3. True or False: A country that has superior production technologies can have a comparative advantage over another country in all the goods it produces.

- True
- False

Scenario

Consider Nigeria and Ghana, two countries that produce cocoa beans and yams. Suppose Nigeria and Ghana each have 2 million workers in their labor force who can be hired to produce yams, cocoa, or both. The table below shows the amount of yams or cocoa that one worker can produce each year. Assume there are no other countries willing to trade goods, so when there is no trade between these two countries, each country consumes the amount of yams and cocoa it produces.

	Cocoa (Tons)	Yams (Tons)
Nigeria	12	18
Ghana	10	10

Question 4.1

4.1. _____ has a comparative advantage in the production of cocoa and _____ has a comparative advantage in the production of yams.

- **A.** Nigeria; Ghana
- **B.** Ghana; Nigeria

Question 4.2

4.2. Suppose that initially, before these countries begin trading goods, Nigeria uses 1 million workers per year to produce yams and 1 million workers per year to produce cocoa, while Ghana uses 1.4 million workers per year to produce yams and 600,000 workers per year to produce cocoa.

The graph below shows Nigeria's PPF and Ghana's PPF for a given year. Place the green point (triangle symbol) on Nigeria's PPF to show its initial yearly consumption level before Nigeria begins trading goods with Ghana. Then place the blue point (circle symbol) on Ghana's PPF to show its initial yearly consumption level. (Recall that Nigeria and Ghana do not trade with other countries, so when there is no trade between the two of them, each country consumes the amount of yams and cocoa it produces.)

Question 4.3

4.3. Again, suppose that before these countries begin trading goods, Nigeria uses 1 million workers per year to produce yams and 1 million workers per year to produce cocoa, while Ghana uses 1.4 million workers per year to produce yams and 600,000 workers per year to produce cocoa. In this case, the total production of cocoa in Nigeria and Ghana combined is ___ million tons per year, and the total combined production of yams is ___ million tons per year. (Hint: You may want to refer to the previous question.)

- **A.** 18; 32
- **B.** 20; 20
- **C.** 28; 36

- **D.** 24; 32
- **E.** 18; 20

Question 4.4

4.4. Suppose that Nigeria and Ghana begin to trade yams and cocoa. Nigeria specializes in the production of yams (it uses all of its resources to produce yams) and Ghana specializes in the production of cocoa (it uses all of its resources to produce cocoa). In this case, the total production of cocoa is ___ million tons per year and the total production of yams is ___ million tons per year.

- **A.** 20; 36
- **B.** 20; 20
- **C.** 24; 36
- **D.** 24; 20
- **E.** 28; 36

Question 4.5

4.5. Compare total output before Nigeria and Ghana began trading with total output after they began specializing and trading. After specialization and trade, the combined production of cocoa increased by ___ million tons per year and the combined production of yams increased by ___ million tons per year.

- **A.** 2; 4
- **B.** 0; 0
- **C.** 4; 4
- **D.** 2; 6

Due Date: 09.09.07, 11:45 PM 17/Practice Visible to Students