Practice Questions for Experiment 11

1. A nation's production possibility set shows all the combinations of total outputs that can possibly be produced with the resources available in a country without engaging in trade with another country.

Answer: True

Check out the definition on the top of page 304.

2. If country A has an absolute advantage over country B in good 1 and country B has an absolute advantage over country A in good 2, then country B has a comparative advantage over country A in good 2.

Answer: True

The statements about absolute advantage mean

1. productivity in good 2 for country B > productivity in good 2 for country A

2. prod. in 1 for B < prod in 1 for A

Thus, $\dfrac{\text{prod in 2 for B}}{\text{prod. in 1 for B}} > \dfrac{\text{prod. in 2 for A}}{\text{prod in 1 for A}}$

This ~~entire~~ last inequality means B has a comparative advantage over A in producing good 2.

3. If trade is permitted between country A and country B, country A will produce only the good in which it has a comparative advantage, and country B will produce only the good in which it has a comparative advantage.

Answer: False

Here is an international production possibility frontier for Richland and Poorland except now there are 10 residents in each country.
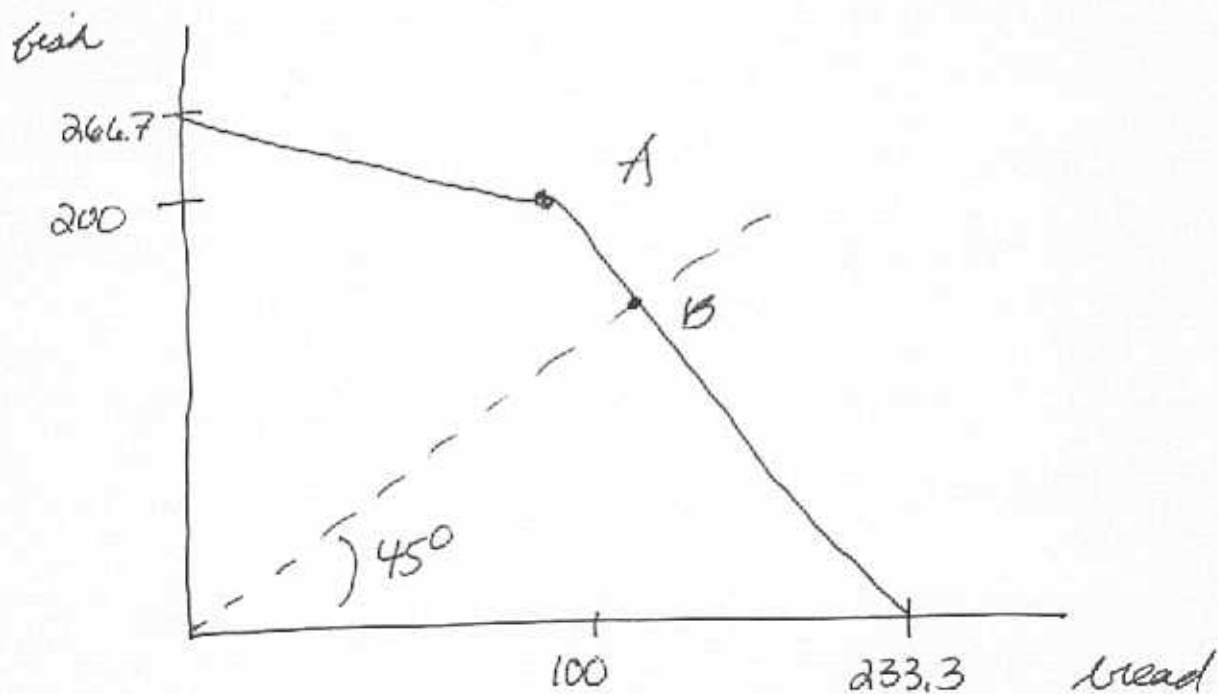
Each country is producing only its comparative advantage at A. But that point is 200 fish and 100 bread. That's a problem because people demand equal amounts of fish and bread. Point B has equal amounts of fish and bread. Poorland produces bread only, but Richland produces fish and bread.

4. The small island nation of Ruritania is populated by two farmers, Alf and Barney. Each farmer has 100 acres. The land can be used either for growing wheat or as pasture for beef cattle. Alf's land is better than Barney's land. Each acre that Alf plants to wheat will yield 50 bushels of wheat per year. Each acre that Alf devotes to pasture will yield 70 pounds of beef per year. Each acre that Barney plants to wheat will yield 25 bushels of wheat per year and each acre that Barney devotes to pasture will yield 30 pounds of beef per year.

(a) Alf's farm has absolute advantage in the production of beef and comparative advantage in the production of wheat.
(b) Barney's farm has comparative advantage in the production of beef.
(c) Barney's farm has comparative advantage in the production of wheat.
(d) Alf's farm has comparative advantage in both beef and wheat.
(e) More than one of the above statements is true.

Answer: C

Alf's wheat productivity = 50 bushels/acre

Alf's beef productivity = 70 pounds/acre

$$\frac{Alf's\ wheat\ prod}{Alf's\ beef\ prod} = \frac{5}{7}\ bushels/pound$$

Barney's wheat prod = 25 bushels/acre

Barney's beef prod = 30 pounds/acre

$$\frac{Barney's\ wheat\ prod}{Barney's\ beef\ prod} = \frac{25}{30} = \frac{5}{6}\ bushels/pound$$

Alf has greater productivity in wheat and beef than Barney. So, Alf has an absolute advantage in both. But Barney gets more wheat per pound of beef than Alf. Thus, Barney has a comparative advantage in wheat, and Alf has a comparative advantage in beef.

5. We can draw a national production possibility frontier for the island of Ruritania which shows the combinations of total amounts of beef and wheat that can produced when resources in Ruritania are allocated efficiently. If we graph total wheat production on the horizontal axis and total beef production on the vertical axis then the production possibility frontier consists of
(a) two line segments, one of which extends from (0,10,000) to (2,500,7,000) and one of which extends from (2,500,7,000) to (7,500,0).
(b) a single line segment extending from (0,10,000) to (7,500,0).
(c) two line segments, one of which extends from (0,3,000) to (2,500,0) and one of which extends from (0,7,000) to (5,000,0).
(d) two line segments, one of which extends from (0,10,000) to (5,000,3,000) and one of which extends from (5,000,3,000) to (7,500,0).
(e) two line segments, one of which extends from (0,10,000) to (3,000,7,000) and one of which extends from (3,000,7,000) to (7,500,0).

Answer: A

If Barney grows only wheat, he grows 2,500 bushels.
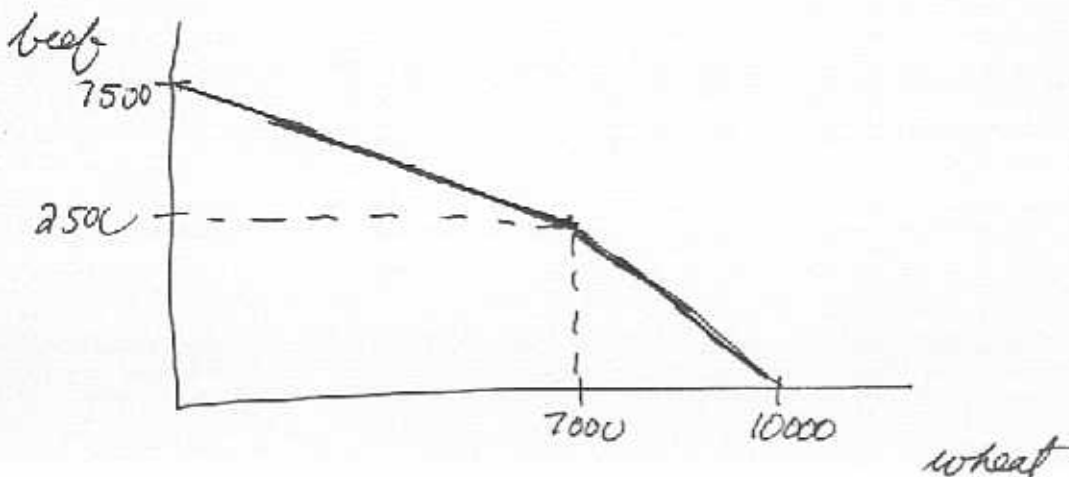If Alf grows only wheat, he grows 5,000 bushels.
So, one point on the frontier is (7500, 0)
If Barney only raises beef, he raises 3,000 pounds.
If Alf only raises beef, he raises 7,000 pounds.
So, another point is (0, 10000)

If Barney specializes in his comparative advantage, which is wheat; and Barney specializes in his, which is beef, we have another point (2500, 7000)

6. There are 100 workers in the country of North Potato and 100 workers in the country of South Potato. Workers in either country work 50 hours per week and they can spend their time either producing food or producing clothing. It takes a North Potato worker 20 hours to produce a unit of food and 5 hours to produce a unit of clothing. It takes a South Potato worker 40 hours to produce a unit of food and 5 hours to produce a unit of clothing. People in each country believe that food and clothing must be consumed in fixed proportions, one unit of food per unit of clothing. Thus the payoff to a consumer in either country is Minimum{F,C} which is the minimum of the number of units of food she consumes and the number of units of clothing that she consumes. If no trade is allowed and people in North Potato consume only the goods that they produce themselves, then each week, each person in North Potato will consume:

(a) 3 units of food and 3 units of clothing.
(b) 3 units of food and 5 units of clothing.
(c) 2 units of food and 2 units of clothing.
(d) 20 units of food and 5 units of clothing.
(e) 5 units of food and 20 units of clothing.

Answer: C

Let F stand for units of food and C stand for units of clothing. The frontier of the production possibility set is defined by the equation

$$20F + 5C = 50$$

If a person consumes equal amounts of food and clothing, $F = C$. Thus

$$25F = 50$$
$$F = 2$$
$$C = 2$$

7. Which of the following statements is true of North and South Potato?

(a) North Potato has comparative and absolute advantage over South Potato in the production of food.
(b) South Potato has comparative and absolute advantage over North Potato in the production of food.
(c) South Potato has comparative advantage but not absolute advantage over North Potato in the production of food.
(d) South Potato does not have comparative advantage in either food or clothing.
(e) Trade between North and South Potato would harm South Potato and help North Potato.

Answer: A

Productivity in food for NP $= \frac{1}{20}$

Productivity in clothing for NP $= \frac{1}{5}$

Productivity in food for SP $= \frac{1}{40}$

Productivity in clothing for SP $= \frac{1}{5}$

Thus, NP has an absolute advantage in food $\left(\frac{1}{20} > \frac{1}{40} \right)$

How much food can each get for each unit of clothing given up?

NP: $\dfrac{\text{prod in food for NP}}{\text{prod. in clothing for NP}} = \dfrac{\frac{1}{20}}{\frac{1}{5}} = \dfrac{1}{4}$

SP: $\dfrac{\text{prod in food for SP}}{\text{prod. in clothing for SP}} = \dfrac{\frac{1}{40}}{\frac{1}{5}} = \dfrac{1}{8}$

NP has a comparative advantage in food.

8. The international production possibility frontier for North and South Potato shows all of the combinations of total food output and total clothing output that are possible for the two countries if resources are allocated efficiently. If we represent food output on the horizontal axis and clothing output on the vertical axis, the international production possibility frontier for the two Potatoes is:

(a) two line segments, one running from (375,0) to (125,1,000) and one running from (125,1,000) to (0,2,000).
(b) a single straight line segment running from (375,0) to (0,2,000).
(c) two line segments, one running from (500,0) to (300,1,200) and one running from (300,1,200) to (0,2,000).
(d) two line segments, one running from (375,0) to (250,1,000) and one running from (250,1,000) to (0,2,000).
(e) two line segments, one running from (250,0) to (0,1,000) and one running from (125,0) to (0,1,000

If both countries produce only food, NP produces 250 units, and SP produces 125 units. Thus, one point is (375,0). If both countries produce only clothing, each produces 1000 units. Thus, another point is (0,2000). The third point is where each country produces only its comparative advantage. NP produces 250 units of food, and SP produces 1000 units of clothing, which is the point (250, 1000)

9. If free international trade is allowed between North and South Potato,

(a) North potato will produce some clothing and some food and South Potato will produce some food and some clothing.
(b) North Potato will produce clothing and no food and South Potato will produce food and no clothing.
(c) North Potato will produce food and no clothing and South Potato will produce some food and some clothing.
(d) North Potato will produce food and no clothing and South Potato will produce clothing and no food.
(e) Both countries will produce some food and some clothing.

Answer: C

The international production possibility frontier is depicted below
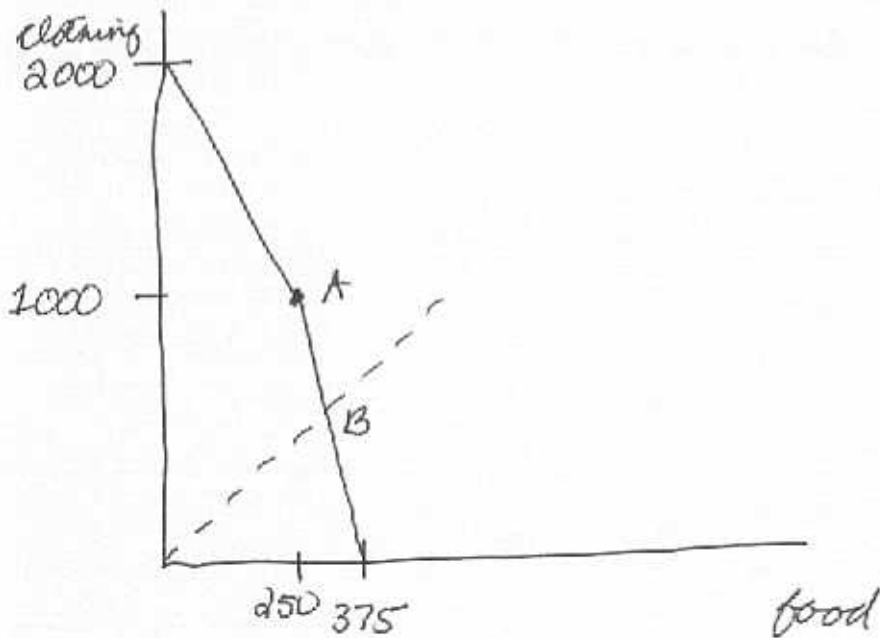
The dashed line represents points with an equal amount of food and clothing, which is what people demand. Note that this line intersects the production possibility curve at point B, which is more food and less clothing than A where each country is producing only the good in which it has a comparative advantage. Free trade will lead to a situation in which NP specializes in food but SP produces all the clothing and some food.

10. Hillsdale County has two farms. Jack's farm is on the hill where the soil is less fertile. Jill's farm is in the fertile valley. On Jack's farm, it takes 3 acres to raise one cow, and two acre to raise one goat. On Jill's farm, it takes 2 acres to raise a cow, and 1 acre to raise a goat. Given those requirements, which of the following statements is true?
(a) Jill has an absolute advantage in raising both cattle and goats, and Jack has a comparative advantage in raising cattle.
(b) Jill has an absolute advantage in raising both cattle and goats, and Jack has a comparative advantage in raising goats.
(c) Jill has an absolute advantage in raising cattle, Jack has an absolute advantage in raising goats, and Jill has a comparative advantage in cattle.
(d) Jack has an absolute advantage in both cattle and goats and a comparative advantage in cattle.

Answer: A

Jack:

cow productivity = $\frac{1}{3}$ cow per acre

goat productivity = $\frac{1}{2}$ goat per acre

Jill:

cow productivity = $\frac{1}{2}$ cow per acre

goat productivity = 1 goat per acre

Jill has an absolute advantage in both

How many cows do we gain per unit of goats sacrificed?

Jack:

$$\frac{\text{cow productivity}}{\text{goat productivity}} = \frac{\frac{1}{3}}{\frac{1}{2}} = \frac{2}{3}$$

Jill:

$$\frac{\text{cow productivity}}{\text{goat productivity}} = \frac{\frac{1}{2}}{1} = \frac{1}{2}$$

Jack has a comparative advantage in cattle