

Econ101:Problem Set 3

- 1) Assume that labor is the only input in the production of calculators and backpacks in Canada and Japan. The following table gives the **output per hour** of labor in each country.

Productivity per one hour of labor

	Calculators	Backpacks
Canada	4	6
Japan	3	2

Which country has an absolute advantage in the production of calculators? In backpacks?

Canada has an absolute advantage in both calculators and backpacks.

- 2) In Canada, what is the opportunity cost, in terms of calculators, of producing six more backpacks? What is the opportunity cost, in terms of backpacks, of producing 12 more calculators?

The opportunity cost of 6 more backpacks is 4 calculators, or 0.67 calculators per backpack. The opportunity cost of 12 more calculators is 18 backpacks, or 1.5 backpacks per calculator.

- a) Find these opportunity costs for Japan.

The opportunity cost of 6 more backpacks is 9 calculators, or 1.5 calculators per backpack. The opportunity cost of 12 more calculators is 8 backpacks or 0.67 backpacks per calculator.

- b) Should each good be produced where its opportunity cost in terms of the other good, is least?

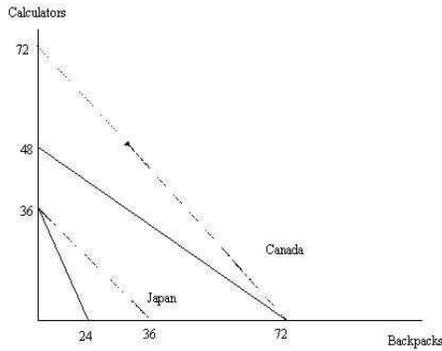
Yes—this is where it would have a comparative advantage.

- c) Using this information, state which country has the comparative advantage in calculators and which has the comparative advantage in backpacks. Should each country specialize in the good in which it has a comparative advantage?

Canada has a comparative advantage in producing backpacks. Japan has a comparative advantage is producing calculators. Yes, each country should specialize in producing the good in which it has a comparative advantage. Then with trade each country will expand its potential consumption.

- d) Assume each country has 12 million hours of labor input and that the calculator and backpack industries exhibit constant costs. Also, assume the terms of trade are one calculator for one backpack. For each country, construct two production possibility frontiers (one before trade and one after specialization and trade) on the same graph (see textbook for example).

Slopes: Before trade After trade (arbitrary choice)



Japan $-3/2 -1$

Canada $-2/3 -1$

Note that the slopes of the PPF's before trade are the opportunity cost of backpacks in terms of calculators.

e) Are the countries made better off by specializing and trading? Explain.

After trade the slopes of the consumption possibilities frontiers will reflect the rate of trade of backpacks for calculators determined by the markets in each country. This will be in between the prices or opportunity costs in each country before trade. Here I chose 1 for the slopes of the trade since it is in between $2/3$ and $3/2$ and it is convenient.

3) Use the table below to determine if the statements that follow are true or false. Be prepared to support your answers.

	Opportunity Cost of Each Product	
	Peanut Butter	Jelly
Rob	1 jelly	1 PB
Ellen	4 jelly	1/4PB

- Rob and Ellen will agree to trade with each other if the terms of trade are 20 peanut butter: 100 jelly. **False**
- Rob and Ellen will agree to trade with each other if the terms of trade are 20 peanut butter: 50 jelly. **True**
- What is the range for the term of trade (T) in peanut butter: jelly?
 - $1 < T < 4$
 - $1/4 < T < 8$
 - $1/4 < T < 1$**
 - $0 < T < 4$