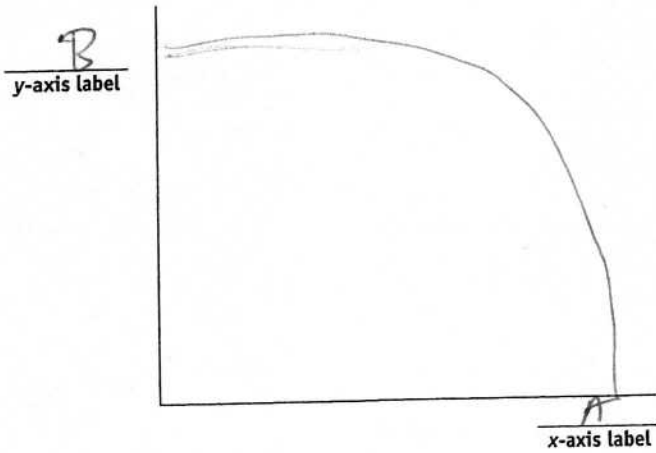


Graphing relationships without numbers

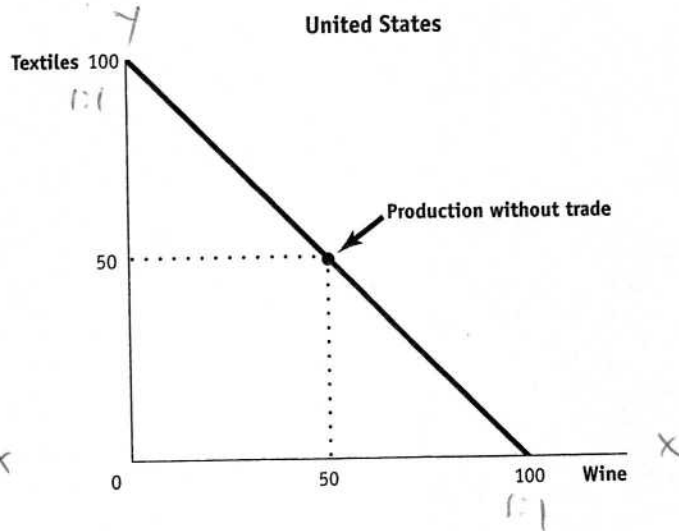
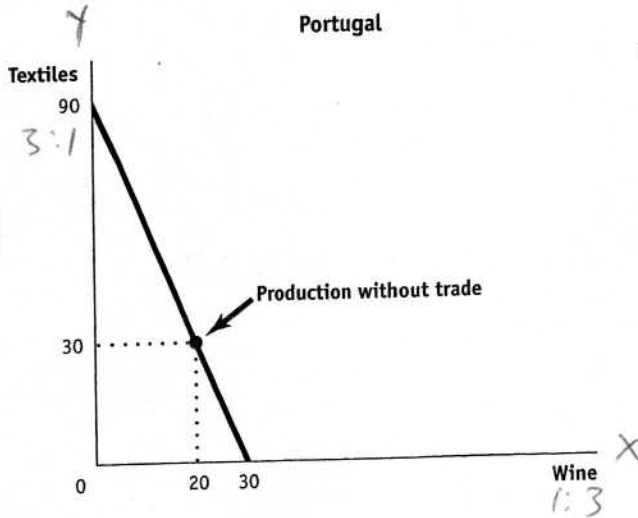
Graph a PPC showing the trade-off between two goods, good "A" and good "B." Draw your PPC so that it illustrates increasing opportunity costs.



$$\text{op cost of } x = \frac{y}{x} \text{ } y's$$

$$\text{op cost of } y = \frac{x}{y} \text{ } x's$$

Complete the Exercise



Use the information on the graphs above to fill in the blanks.

- The opportunity cost of 1 unit of textiles in the United States is 1 unit of wine and in Portugal is 1/3 unit of wine.
- The opportunity cost of 1 unit of wine in the United States is 1 unit of textiles and in Portugal is 3 textiles.
- Assuming the two countries have identical resources, the United States has an absolute advantage in wine & textiles. Portugal has an absolute advantage in textiles ~~nothing~~.
- The United States has a comparative advantage in wine. Portugal has a comparative advantage in textiles.

Fill in the table. Assume that with trade, each country specializes and exports $\frac{1}{2}$ of its production.

	Without Trade		With Trade (Production)		With Trade (Consumption)	
	Wine	Textiles	Wine	Textiles	Wine	Textiles
Portugal	20	30	0	90	30	35
United States	50	50	100	0	70	55
Total	70	80	100	90	100	90

These are somewhat arbitrary

5. What happens to total world output when countries specialize and trade? *it goes up*
6. What is this called? *gains from trade*
7. Are the countries better off? Explain.
Yes. More production + trade = more consumption.

Problems

1. For each of the following situations, describe the opportunity cost of each decision.
 - a. Sarah considers two options for Saturday night: she can attend a concert that costs \$10 per ticket or she can see a free movie. She attends the concert.
\$10 + free movie.
 - b. A new firm in town debates paying \$20,000 for the prime location versus \$10,000 for another location. The firm estimates that it will eventually serve the same number of customers in either location, but that it will take six months before the suboptimal location provides the same outcome as the prime location. The firm purchases the \$10,000 property.
six months of less customers
 - c. Jamie can be either an unpaid intern at a company or he can earn \$2,000 working as a camp counselor. He takes the internship.
\$2000 and camp experience.

2. The following table presents the possible combinations of study time available to Roberto this week as he prepares for his two midterms: economics and chemistry. Assume Roberto has 20 hours to study and that he will use all 20 hours studying economics and chemistry. Roberto currently plans to study 10 hours for economics and 10 hours for chemistry.

Hours of study time spent on economics	Hours of study time spent on chemistry	Grade in economics	Grade in chemistry
0	20	60	90
5	15	70	85
10	10	80	75
15	5	86	73
20	0	90	70

- a. If he alters his plan and studies 15 hours for economics, what is his opportunity cost?

5 hours for chem = -2 pts on ^{midterm} grade

- b. If he alters his plan and studies 15 hours for chemistry, what is his opportunity cost?

5 hours for econ = -10 pts on midterm

- c. If he alters his plan and studies 20 hours for economics, what is his opportunity cost?

10 hours for chem = -5 pts on midterm

3. Decide whether each of the statements is a normative statement or a positive statement.

- a. The gasoline tax is projected to yield \$10 million in tax revenue next year.

positive

- b. If the gasoline tax were raised by 10 cents per gallon, tax revenue would increase by 4%.

positive

- c. The state should raise the gasoline tax for the coming year. An increase in the tax will reduce congestion and smog, which is more important than the cost to commuters if they shift from private car transportation to public transportation.

normative

d. Mandatory school enhances the work skills of students.

positive

e. The age of mandatory school attendance should be extended.

normative

f. An extension of mandatory school attendance will increase government education costs by \$2 million for the state.

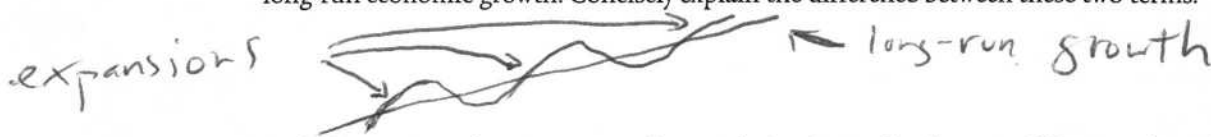
positive

4. Economists sometimes disagree about positive economics, but more often they disagree about normative economics. Define both of these terms, and explain why economists do not always agree.

positive = fact-based
normative = opinion-based.

Economists, like all humans, have different genetic and life experiences and therefore understand the world differently.

5. This section distinguishes between an economic expansion as part of the business cycle and long-run economic growth. Concisely explain the difference between these two terms.



6. In the beginning of 2008, suppose the population in Funland was 2 million people and the level of real GDP, or aggregate output, was \$40 million. During 2008 population increased by 3%, while real GDP increased by 3%. During 2009 population increased by 4%, while real GDP increased by 3%. During 2010 population increased by 5%, while real GDP increased by 3%.

a. Fill in the following table using the given information. (Round to two decimal places.)

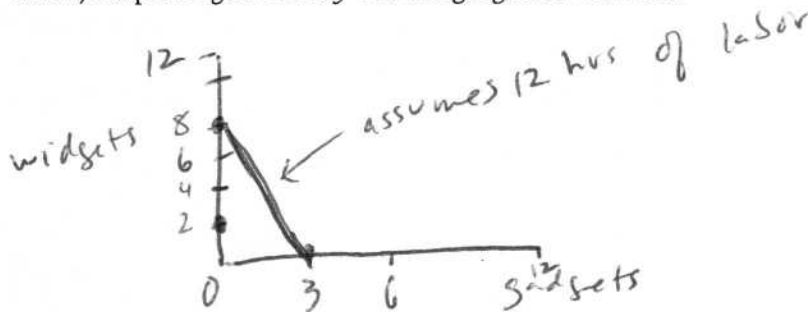
	Beginning of 2008	Beginning of 2009	Beginning of 2010	Beginning of 2011
Real GDP	40 m	41.2 m	42.4 m	43.2 m 43.67
Population	2 m	2.06 m	2.17 m	2.24 m
Real GDP/person	20	20	20.11 19.81	19.50

b. What do you know about this country's standard of living between the beginning of 2008 and the end of 2010? Explain how you know.

It went down. If GDP growth is less than population growth, GDP/person goes down. You really don't need to know the specific numbers - just compare the %s.

7. The country of Utopia produces two goods from its available resources and technology. The only resource that Utopia has is labor. It takes 3 hours of labor to produce 2 widgets and 4 hours of labor to produce 1 gadget. For this question, assume that the PPC for Utopia is a straight line.

a. Sketch the PPC for the country of Utopia. (Hint: Choose a relevant time period, e.g., 20 hours, as your labor constraint, and sketch your PPC based on this amount of time and labor.) Graph widgets on the y-axis and gadgets on the x-axis.



b. What is the slope of your PPC?

$$-2\frac{2}{3} \left(\frac{8}{3}\right)$$

c. What is the opportunity cost of producing an additional widget in Utopia?

$$\frac{3}{8} \text{ gadgets}$$

d. What is the opportunity cost of producing an additional gadget in Utopia?

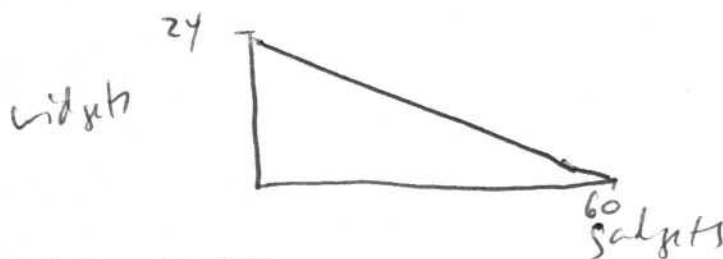
$$\frac{8}{3} \left(2\frac{2}{3}\right) \text{ widgets}$$

8. The country of Jonesville produces two goods from its available resources and technology. The only resource that Jonesville has is labor. It takes 2 hours of labor to produce a gadget and 5 hours of labor to produce a widget. For this question, assume that the PPC for Jonesville is linear.

a. Suppose that you want to draw a PPC for Jonesville. What must you do first?

get something to write with (that's a joke =>)
 Draw and label the two axes.

b. Sketch the PPC for Jonesville assuming that it has 120 hours of labor available. Place gadgets on the x-axis and widgets on the y-axis.



c. What is the slope of the PPC?

$$-\frac{2}{5}$$

d. What is the opportunity cost of producing an additional gadget?

$\frac{2}{5}$ widget

e. What is the opportunity cost of producing an additional widget?

$2\frac{1}{2}$ gadgets

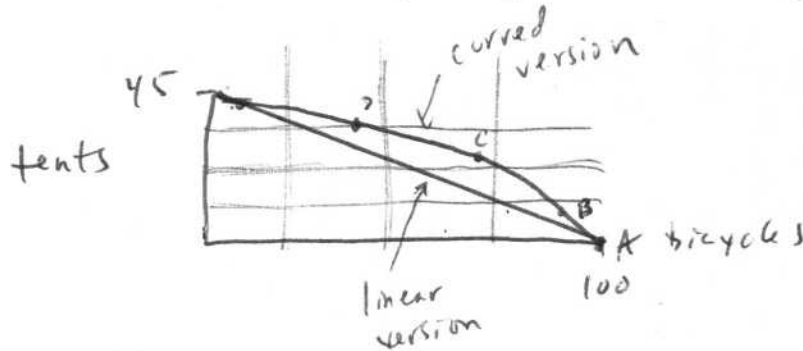
f. Suppose that Jonesville has 240 hours of labor available instead of 120 hours of labor. Does this affect the opportunity cost of producing widgets or gadgets? Explain your answer.

No. Since the question says the PPC is linear, the opportunity cost remains fixed between any 2 options (points).

9. The following table provides six possible production combinations that Smithtown can produce from its available resources and technology during this year. Assume that Smithtown produces only bicycles and tents from its available resources.

Combination	Bicycles	Tents
A	100	0
B	90	10
C	70	25
D	40	36
E	10	42
F	0	45

a. Sketch Smithtown's PPC. Measure bicycles along the x-axis and tents along the y-axis.



b. Suppose Smithtown is currently producing at combination C. If Smithtown chooses to produce at combination B, what is the opportunity cost of moving from combination C to B?

15 tents

c. Suppose Smithtown is currently producing at combination C. If Smithtown chooses to produce at combination D, what is the opportunity cost of moving from combination C to D?

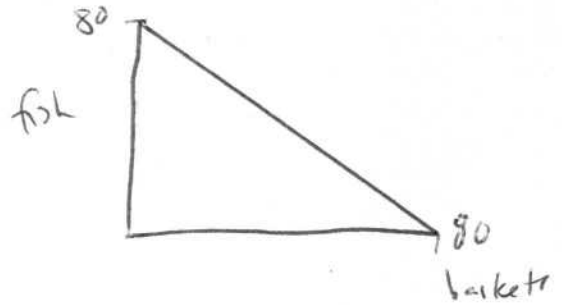
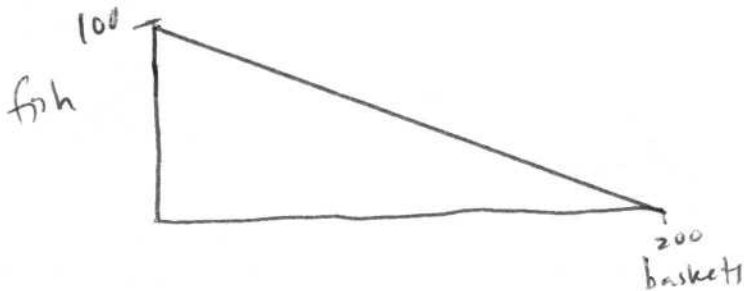
30 bikes

d. Smithtown's PPC is not linear. Explain why not.

Opportunity cost varies from point to point.

10. There are two islands in the middle of the ocean, and these two islands produce fish and baskets. Big Island can produce either 100 fish per day and 0 baskets per day or 0 fish per day and 200 baskets per day. Big Island can also produce any combination of fish and baskets that lies on its linear PPC. Small Island can produce either 80 fish per day and 0 baskets per day or 0 fish per day and 80 baskets per day. Like Big Island, Small Island has a linear PPC.

a. Sketch two graphs. Sketch Big Island's PPC on the first graph and Small Island's PPC on the second graph. Place fish/day on the y-axis and baskets/day on the x-axis.



b. What is the slope of Big Island's PPC?

$$-\frac{1}{2}$$

c. What is the slope of Small Island's PPC?

$$-1$$

d. What is the opportunity cost of producing an additional basket on Big Island? What is the opportunity cost of producing an additional basket on Small Island? Which island can produce baskets at a lower opportunity cost?

① $\frac{1}{2}$ fish ② 1 fish ③ Big Island

e. What is the opportunity cost of producing an additional fish on Big Island? What is the opportunity cost of producing an additional fish on Small Island? Which island can produce fish at a lower opportunity cost?

① 2 baskets ② 1 basket ③ Small Island

f. What good should Big Island specialize in producing?

Baskets

g. What good should Small Island specialize in producing?

FISH

Review Questions

Circle the correct answer.

- Scarcity of resources implies that
 - people can do whatever they want and do not need to worry about making choices.
 - life involves making choices about how to best use these scarce resources.
 - societies need to invest time and money to discover more resources.
 - only very wealthy individuals are not constrained by their resources.
- Camillo is offered two jobs: one pays a salary of \$30,000 per year and offers four weeks of vacation, and the other pays a salary of \$32,000 per year and offers two weeks of vacation. What is the opportunity cost for Camillo of taking the job offering \$32,000 per year?
 - \$2,000 plus two weeks of vacation per year
 - \$2,000 per year
 - two weeks of vacation per year
 - \$30,000 plus two weeks of vacation per year
- Which of the following statements is true about positive economics?
 - Positive economics is about how the world should work.
 - Positive economics is about how the world works.
 - Positive economics is descriptive.
 - Statements I, II, and III are all true.
 - Statements I and III are true.
 - Statements II and III are true.
 - Statement II is true.
- Which of the following statements is an example of normative economics?
 - The United States should pass a value-added tax because this is a tax that will work best.
 - A value-added tax will add \$10 billion to the administrative costs of the U.S. tax system.
 - A value-added tax will increase the economic burden of taxes on poor people by 15%.
 - Statements I, II, and III
 - Statements I and III
 - Statements I and II
 - Statement I
- Macroeconomics, unlike microeconomics,
 - considers the behavior of individual firms and markets.
 - focuses on the production and consumption of particular goods.
 - tries to explain increases in living standards over time.
 - finds that the behavior of individuals is more important than its aggregate summation.
- In a recession,
 - unemployment increases, aggregate output decreases, and people enjoy higher living standards.
 - unemployment increases while aggregate output and aggregate income decrease.
 - aggregate output and aggregate income decrease, always leading to a depression.
 - aggregate output must fall for at least three consecutive quarters.
- Economic growth
 - refers to increases in real GDP per capita over the long run.
 - refers to short-term fluctuations in real GDP per capita.
 - is best measured using the employment rate.
 - is of little importance to economists.