

CHOICE, OPPORTUNITY COSTS, AND SPECIALIZATION

FUNDAMENTAL QUESTIONS

1. What are opportunity costs? Are they part of the economic way of thinking?

The **opportunity cost** of something is the one, next-best thing you need to give up in order to get it. For example, if you would prefer to be sleeping now instead of studying economics, the opportunity cost of studying is the sleep you could be enjoying. Opportunity costs are a key element in the way economists look at the world.

2. What is a production possibilities curve?

A **production possibilities curve** shows all the combinations of output that could be produced with a given set of resources and current technology, assuming that the resources are fully and efficiently used.

3. How are specialization and opportunity costs related?

Resources tend to be specialized—that is, better at producing one kind of good or service than another. For example, suppose that Vickeryland can produce either guns or butter. If Vickeryland throws all its resources into producing guns, some resources will not be good at producing guns. If some cows are switched over from making guns to making butter, they will probably be much better at making butter than at making guns. Vickeryland will gain a lot of butter and lose very few guns. But as more and more butter is produced, eventually some resources that were very good at making guns will have to be switched into making butter. If these resources are very good at making guns and not so good at making butter, Vickeryland will give up lots of guns and gain very little butter. When you give up an increasing number of guns to get each additional unit of butter, the opportunity cost of each additional unit of butter increases. If resources were equally adaptable among uses, the opportunity cost of each additional unit of butter would remain constant. The **marginal opportunity cost** would be constant.

4. Why does specialization occur?

It pays to specialize whenever opportunity costs are *different*. Two parties can specialize and then trade, which makes both parties better off. Even if one person or nation does something more efficiently than another in the production of a good or service, it does not mean that that person or nation should produce that good or service. Specialization occurs as a result of **comparative advantage**. Specialization according to comparative advantage minimizes opportunity costs.

5. What are the benefits of trade?

If both parties specialize according to comparative advantage, trading enables them to acquire more of the goods and services they want.

Key Terms

opportunity costs
tradeoff
marginal
marginal cost

marginal benefit
production possibilities curve
(PPC)
marginal opportunity cost

comparative advantage

Quick-Check Quiz

Section 1: Opportunity Costs

- Janine is an accountant who makes \$30,000 a year. Robert is a college student who makes \$8,000 a year. All other things being equal, who is more likely to stand in a long line to get a concert ticket?
 - Janine, because her opportunity cost is lower
 - Janine, because her opportunity cost is higher
 - Robert, because his opportunity cost is lower
 - Robert, because his opportunity cost is higher
 - Janine, because she is better able to afford the cost of the ticket
- Which of the following statements is *false*?
 - At points inside the production possibilities curve, resources are not being fully or efficiently used.
 - Points outside the production possibilities curve represent combinations that are not attainable with the current level of resources and technology.
 - If an individual is producing a combination on his or her production possibilities curve, in order to get more of one good, he or she must give up some of the other.
 - As a nation obtains more resources, its production possibilities curve shifts outward.
 - The “guns or butter” decision is a rare example of a costless choice.

3. At point *A* on a production possibilities curve, there are 50 tons of corn and 60 tons of wheat. At point *B* on the same curve, there are 40 tons of corn and 80 tons of wheat. If the farmer is currently at point *A*, the opportunity cost of moving to point *B* is
- 10 tons of corn.
 - 20 tons of wheat.
 - 1 ton of corn.
 - 2 tons of wheat.
 - 40 tons of corn.
4. President Johnson thought it was possible to spend more resources in Vietnam without giving up consumer goods at home. President Johnson must have believed that the
- American economy was operating at top efficiency.
 - American economy was operating at a point inside its production possibilities curve.
 - American economy was operating at a point on its production possibilities curve.
 - American economy was operating at a point outside its production possibilities curve.
 - production possibilities curve would shift in as the war progressed.

Use the table below to answer questions 5 through 8.

Combination	Clothing	Food
A	0	110
B	10	105
C	20	95
D	30	80
E	40	60
F	50	35
G	60	0

5. If the economy currently is producing at point *B*, the opportunity cost of 10 additional units of clothing is
- 25 units of food.
 - 5 units of food.
 - 10 units of food.
 - 35 units of food.
 - 3.5 units of food.

6. If the economy currently is producing at point *F*, the opportunity cost of 10 additional units of clothing is
- 25 units of food.
 - 5 units of food.
 - 10 units of food.
 - 35 units of food.
 - 3.5 units of food.
7. A combination of 20 units of clothing and 80 units of food is
- unattainable.
 - inefficient.
 - possible by giving up 15 units of food.
 - possible if the economy obtains more resources.
 - possible if an improvement in technology shifts the production possibilities curve inward.
8. A combination of 50 units of clothing and 70 units of food
- is inefficient.
 - is obtainable by giving up 35 units of food.
 - does not fully utilize resources.
 - is unattainable with current resources and technology.
 - is possible if an improvement in technology shifts the production possibilities curve inward.
9. Which of the following situations illustrates an opportunity cost?
- Samantha really enjoys playing games with her friends.
 - Mike's college tuition payment just went up.
 - Dan couldn't go to the movies because he spent all his money buying new clothes.
 - Sue can never eat chocolate because she is very allergic to it.
 - Chris had to pay \$50 to buy a concert ticket.
10. The country Erewhon produces only bananas and pineapples. If Erewhon is operating at a point on its bowed-out production possibilities curve and it tries to increase production of pineapples, then
- it must give up a larger and larger amount of bananas as pineapple production increases.
 - resources will be wasted because Erewhon can't produce any more pineapples.
 - pineapple production will get more efficient.
 - the people of Erewhon will become better off.
 - the people of Erewhon will become worse off.

Section 2. Specialization and Trade

Use the table below to answer questions 1 through 4.

Combination	Alpha		Beta	
	Beef	Microchips	Beef	Microchips
A	0	200	0	300
B	25	150	25	225
C	50	100	50	150
D	75	50	75	75
E	100	0	100	0

- The opportunity cost of a microchip in Alpha is _____ unit(s) of beef, and the opportunity cost of a microchip in Beta is _____ unit(s) of beef. The opportunity cost of a unit of beef is _____ unit(s) of microchips in Alpha and _____ unit(s) of microchips in Beta.
 - $\frac{1}{3}$; $\frac{1}{2}$; 3; 2
 - 2; 3; $\frac{1}{2}$; $\frac{1}{3}$
 - $\frac{1}{2}$; $\frac{1}{3}$; 2; 3
 - 3; 2; $\frac{1}{3}$; $\frac{1}{2}$
 - $\frac{1}{2}$; 3; $\frac{1}{3}$; 2
- Alpha has a comparative advantage in _____, and Beta has a comparative advantage in _____. Alpha should produce _____, and Beta should produce _____.
 - beef; microchips; beef; microchips
 - beef; microchips; microchips; beef
 - microchips; beef; microchips; beef
 - microchips; beef; beef; microchips
 - There is no basis for specialization and trade between these two countries because Beta can produce just as much beef and more microchips than Alpha.
- Which of the following statements is true?
 - Alpha can produce more beef than Beta.
 - Alpha can produce more microchips than Beta.
 - Beta can produce more beef than Alpha.
 - Beta can produce more microchips than Alpha.
 - Alpha can produce both more beef and more microchips than Beta.

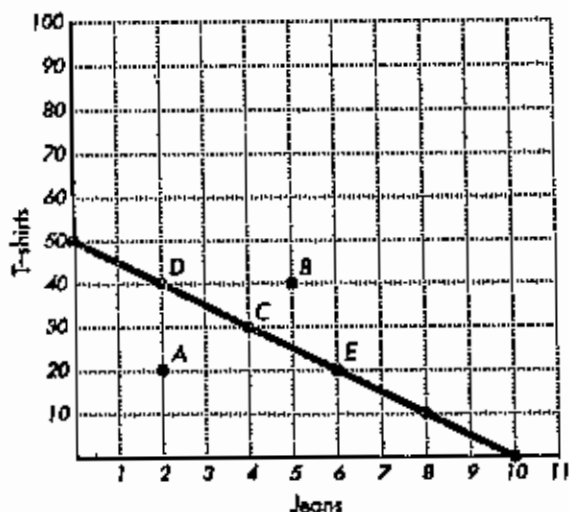
4. Which of the following statements is true?
- Individuals, firms, and nations specialize in the production of the good or service that has the highest opportunity cost.
 - An individual, firm, or nation first must be able to produce more of a good or service before it can have a comparative advantage in the production of that good or service.
 - Comparative advantage exists whenever one person, firm, or nation engaging in an activity incurs the same costs as some other individual, firm, or nation.
 - An individual, firm, or nation specializes according to comparative advantage.
 - An individual, firm, or nation should trade with parties that have the same opportunity costs for the goods and services produced.

Practice Questions and Problems

Section 1: Opportunity Costs

- _____ are forgone opportunities or forgone benefits.
- People purchase items and participate in activities that _____ (maximize, minimize) opportunity costs.
- The opportunity cost of an activity is the _____-valued alternative that must be forgone.
- A(n) _____ is a graph that illustrates the tradeoffs facing a society.
- A point that lies _____ the production possibilities curve indicates that resources are not being fully or efficiently used.
- Points outside the production possibilities curve represent combinations of goods and services that are _____, given current resources and technology.
- A new semiconductor chip is designed that can deliver more computing power for less cost. As a result, the production possibilities curve will shift _____.
- A society that prohibits certain groups of people from working (for example, women, children, or African Americans) is producing at a point _____ its production possibilities curve.
- It is possible to produce more of one good without giving up units of another good if a society is producing _____ its production possibilities curve.
- It is not possible to produce more of one good without giving up units of another good if a society is producing _____ its production possibilities curve.
- Opportunity cost is a(n) _____ (objective, subjective) concept.

12. Use the graph below to answer the following questions.



- a. Point A represents a combination of T-shirts and jeans that is _____ .
- b. Point B represents a combination of T-shirts and jeans that is _____ .
13. Mardi and Martin paid \$20 each to see a new foreign film. Halfway through the film, Mardi got disgusted and wanted to leave. Martin insisted that they stay because they had paid \$40 to see the film and he wanted to get his money's worth out of it. Can you offer them some economic insight to help them resolve the argument?
- _____
- _____
- _____
- _____
14. Roger Southby was almost finished with his accounting degree when he discovered the wonderful world of marketing. Roger would like to switch majors but does not want to waste the years of schooling he already has. What can you tell Roger to help him make his decision?
- _____
- _____
- _____
- _____

Section 2: Specialization and Trade

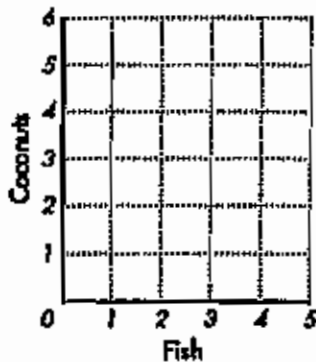
- The _____ is the amount of one good or service that must be given up to obtain one additional unit of another good or service.
- It is in your best interest to specialize where your opportunity costs are _____ (highest, constant, lowest).
- A nation has a comparative advantage in those activities in which it has _____ (the highest, constant, the lowest) opportunity costs.
- People specialize according to their _____ advantage.
- If a country specializes in the production of goods and services in which it has a comparative advantage, it can trade with other countries and enjoy a combination of goods and services that lies _____ its production possibilities curve.
- Use the table below to answer the following questions.

Combination	Robinson Crusoe		Man Friday	
	Coconuts	Fish	Coconuts	Fish
A	5	0	10	0
B	4	1	8	1
C	3	2	6	2
D	2	3	4	3
E	1	4	2	4
F	0	5	0	5

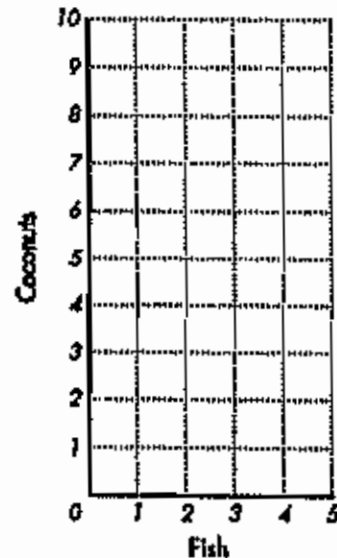
- The marginal opportunity costs for Robinson Crusoe and Friday are _____ (increasing, constant, decreasing).
- The marginal opportunity cost of a coconut is _____ fish for Robinson Crusoe and _____ fish for Friday.
- The marginal opportunity cost of a fish is _____ coconut(s) for Robinson Crusoe and _____ coconut(s) for Friday.
- Robinson Crusoe has a comparative advantage in _____, and Friday has a comparative advantage in _____.

- e. Robinson Crusoe should specialize in producing _____, and Friday should specialize in producing _____.
- f. Plot Robinson Crusoe's and Friday's production possibilities curves on the graphs below.

Robinson Crusoe's Production Possibilities Curve



Friday's Production Possibilities Curve



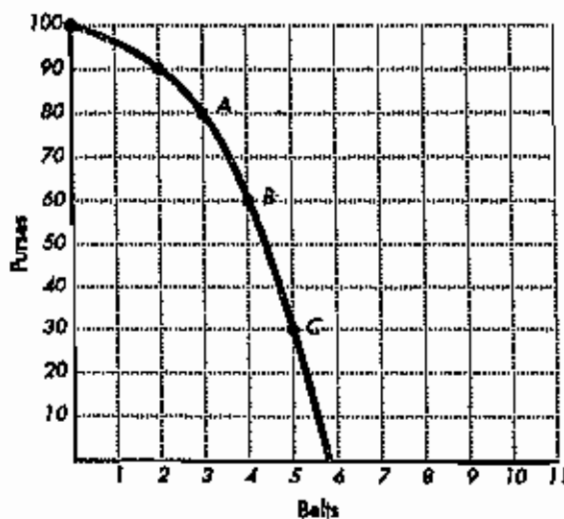
- g. Without specialization, Robinson Crusoe would choose to produce 4 coconuts and 1 fish. Without specialization, Friday would choose to produce 4 coconuts and 3 fish.

Suppose they specialize according to comparative advantage and agree to trade in a ratio of 3 coconuts for 2 fish. Friday keeps 4 coconuts and trades _____ coconut(s) for _____ fish. Robinson Crusoe keeps 1 fish and trades _____ fish for _____ coconut(s).

With specialization and trade, Robinson Crusoe now has _____ coconut(s) and _____ fish. Label this point *R* on Crusoe's graph. Friday now has _____ coconuts and _____ fish. Label this point *S* on Friday's graph. Notice that both *R* and *S* are outside the original production possibilities curves, so specialization and trade enable both parties to have more fish and coconuts than they had before.

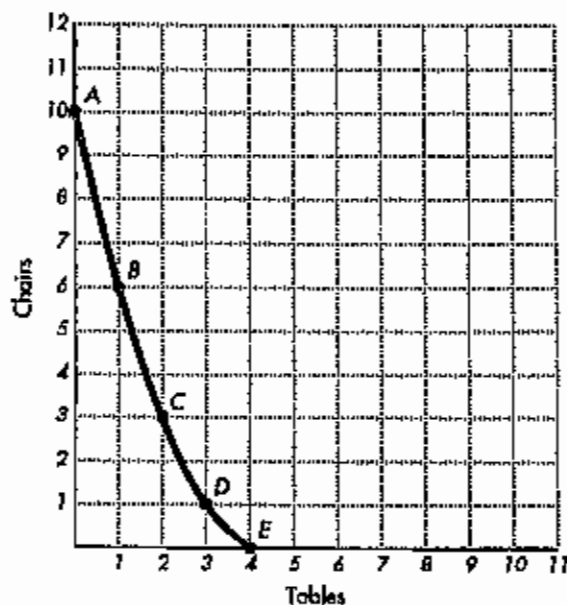
Robinson Crusoe's gain(s) from trade is(are) _____; Friday's gain(s) from trade is(arc) _____.

7. Use the graph below to answer the following questions.



- If an individual currently is producing the combination of purses and belts at point A, the marginal opportunity cost of 1 belt is _____ purse(s).
- If an individual currently is producing the combination of purses and belts at Point B, the marginal opportunity cost of an additional belt is _____ purse(s).
- The marginal opportunity cost is _____ (increasing, constant, decreasing).
- If an individual currently is producing the combination of purses and belts at point B, the marginal opportunity cost of an additional purse is approximately _____ belt(s).
- If an individual currently is producing the combination of purses and belts at point A, the marginal opportunity cost of an additional purse is approximately _____ belt(s).

8. Use the graph below to answer the following questions.



- If an individual currently is producing the combination of chairs and tables at point A, the marginal opportunity cost of an additional table is _____ chair(s).
 - If an individual currently is producing the combination of chairs and tables at point B, the marginal opportunity cost of an additional table is _____ chair(s).
 - The marginal opportunity cost is _____ (increasing, constant, decreasing).
 - If an individual currently is producing the combination of chairs and tables at point C, the marginal opportunity cost of an additional chair is approximately _____ table(s).
 - If an individual currently is producing the combination of chairs and tables at point B, the marginal opportunity cost of an additional chair is approximately _____ table(s).
- A straight-line production possibilities curve illustrates _____ (increasing, constant, decreasing) marginal opportunity costs.
 - A bowed-out production possibilities curve illustrates _____ (increasing, constant, decreasing) marginal opportunity costs.
 - A bowed-in production possibilities curve illustrates _____ (increasing, constant, decreasing) marginal opportunity costs.
 - Because resources tend to be specialized, the production possibilities curve is likely to be _____ (bowed in, bowed out, a straight line), indicating that marginal opportunity costs are _____ (increasing, decreasing, constant).

Thinking About and Applying Choice, Opportunity Costs, and Specialization

I. Opportunity Costs

Marc and Shelly Colby are a couple in their thirties with two children. Marc owns his own company and makes \$150,000 a year, and Shelly has been responsible for raising their children. Now that the children are in school all day, Shelly is considering going back to school to finish her degree. She estimates that tuition will cost about \$3,000. Marc likes carpentry and is thinking about going to a special school for a year to learn more about it. He estimates that the school will cost about \$1,500. After they discuss it, they decide that Shelly should go back to school but that it costs too much for Marc to go to carpentry school. Explain.

II. More on Opportunity Costs

Mr. Safi and Mr. Nohr are neighbors. Mr. Safi makes \$200 an hour as a consultant, while Mr. Nohr makes \$10 an hour as an aerobics instructor. The men are complaining that the grass on their lawns has grown so fast due to recent rainy weather that it is hard to keep their lawns looking nice. Mr. Safi comments that he hires a neighbor's child to cut his grass "because it is too expensive for me to cut it myself." Explain Mr. Safi's comment.

Chapter 2 Homework Problems

Name _____

1. If you spent all evening next Friday studying economics, what would be your opportunity cost?
2. What do economists call a graph showing the different combinations of two products that a society can produce with given resources and technology?
3. Bob and Bill are woodcarvers. In a week of work, Bob can carve *either one bird or two bookends*. In a week of work, Bill can carve *either two birds or six bookends*.
 - a. What is Bob's opportunity cost of making one bird?
 - b. What is Bill's opportunity cost of making one bird?
 - c. Does Bob or Bill have a comparative advantage in making birds? Why?
4. Bill is thinking about asking Bob to work with him in a woodcarving partnership. Since Bill can make more birds in a week than Bob can, and Bill can also make more bookends in a week than Bob can, why would Bill want to work with Bob?

5. The Longs and the Shorts are neighbors. Both husbands work full-time during the day, and both families have two small children. Mrs. Long stays at home during the day to care for her children, but Mrs. Short works full-time during the day and sends her children to day care. The Short family has a higher income, primarily because Mrs. Short works outside the home.
- There are two grocery stores near the Longs and the Shorts. One is a “no-frills” store that claims to have the lowest prices in town. The aisles are not marked, and specific items are hard to find. The other is a “superstore.” Its prices are higher, but it is easy to find specific items, and the same store also offers dry cleaning, banking, photo developing, a pharmacy, and postal services. Which family is more likely to shop at the “no-frills” store? Use your economic reasoning to explain your answer.

 - One family clips cents-off coupons from newspapers and magazines, watches for sales, and buys whatever brand is least expensive. The other family does not clip coupons and usually buys its favorite brands, whether on sale or not. Which family clips coupons and buys sale items? Explain why.

 - Which family is more likely to buy milk and other small items at convenience stores? Why?

If your instructor assigns these problems, write your answers above, then tear out this page and hand it in.

Answers

Quick-Check Quiz

Section 1: Opportunity Costs

1. c; 2. e; 3. a; 4. b; 5. c; 6. d; 7. b; 8. d; 9. c; 10. a

If you missed any of these questions, you should go back and review Section 1 in Chapter 2.

Section 2: Specialization and Trade

1. c; 2. a; 3. d; 4. d

If you missed any of these questions, you should go back and review Section 2 in Chapter 2.

Practice Questions and Problems

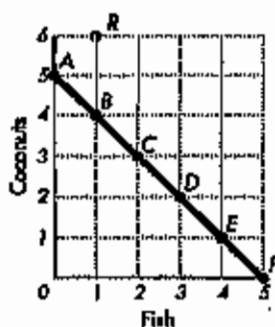
Section 1: Opportunity Costs

1. Opportunity costs
2. minimize
3. highest
4. production possibilities curve (PPC)
5. inside
6. unattainable
7. outward
8. inside
9. inside
10. on
11. subjective
12. a. inefficient (does not fully utilize all resources)
b. unattainable
13. Whether they stay or leave, they cannot get their \$40 back. It is a *sunk cost* and should not enter the decision-making process. The relevant costs are the opportunity costs of staying versus the opportunity costs of leaving.
14. The years of schooling Roger already has are a *sunk cost*—he cannot get them back whether he continues as an accounting major or switches to marketing. These costs should have no effect on his decision to change majors because he cannot change what already has happened. The relevant costs are the opportunity costs of continuing his accounting major versus the opportunity costs of switching to marketing.

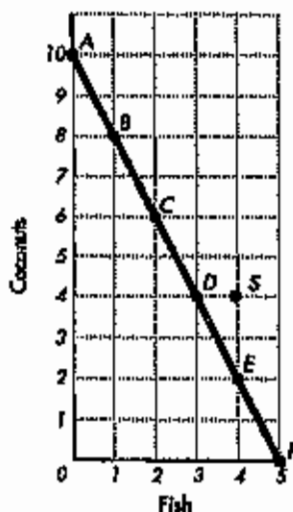
Section 2: Specialization and Trade

1. marginal opportunity cost
2. lowest
3. the lowest
4. comparative
5. outside
6. a. constant
 - b. $1; \frac{1}{2}$
 - c. $1; 2$
 - d. fish; coconuts
 - e. fish; coconuts
 - f.

Robinson Crusoe's Production Possibilities Curve



Friday's Production Possibilities Curve



- g. 6; 4; 4; 6; 6; 1; 4; 4; 2 coconuts; 1 fish
7. a. 20
- b. 30 (To get an additional belt, we must move from B to C. At B, we had 60 purses and 4 belts. At C, we have 30 purses and 5 belts. We gave up 30 purses for 1 belt.)
- c. increasing
- d. 0.05 (We must move toward point A to get additional purses. Moving from B to A, we give up 1 belt for 20 purses. For 1 purse, we give up approximately $\frac{1}{20}$ or 0.05 belt.)
- e. 0.1 (We must move up the curve to get additional purses. At point A we have 80 purses and 3 belts. Moving up the curve, we have 90 purses and 2 belts. We gave up 1 belt for 10 purses. For 1 purse, we give up approximately $\frac{1}{10}$ or 0.1 belt. Notice that as we make more purses, the opportunity cost in terms of belts increases.)

8. a. 4
b. 3 (To get more tables, we must move from *B* to *C*. At *B*, we had 6 chairs and 1 table. At *C*, we have 3 chairs and 2 tables. We gave up 3 chairs for 1 table.)
c. decreasing
d. $\frac{1}{3}$ (To get more chairs, we must move toward point *B*. At point *C* we had 2 tables and 3 chairs. At point *B* we have 1 table and 6 chairs. We gave up 1 table for 3 chairs. To get 1 chair, we give up approximately $\frac{1}{3}$ table.)
e. $\frac{1}{4}$ (To get more chairs, we must move toward point *A*. At point *B* we had 1 table and 6 chairs. At point *A* we have no tables and 10 chairs. We gave up 1 table for 4 chairs. To get 1 chair, we give up approximately $\frac{1}{4}$ table.)
9. constant
10. increasing
11. decreasing
12. bowed out; increasing

Thinking About and Applying Choice, Opportunity Costs, and Specialization

I. Opportunity Costs

Tuition isn't the only cost. If Marc has to give up \$150,000 a year to go to carpentry school for a year, he and Shelly may feel that the benefits from carpentry school are not worth \$150,000. Carpentry school costs too much. Because Shelly is not working outside the home, her major cost is the leisure time she will have now that their children are in school. She may feel that the benefits of having her degree are worth giving up her leisure time.

II. More on Opportunity Costs

The opportunity cost for Mr. Safi to cut his grass is \$200 an hour—what he would make in his next-best use. It is better for him to spend his hour consulting and pay the neighbor's child to cut the grass (unless the neighbor's child charges \$200 an hour!).