

## CHAPTER 02

# Model Building and Gains from Trade

### CONCEPT MAP

- I. The World around Us
  - A. The Scientific Method: Experiments and Theories
  - B. Positive and Normative Analysis
  - C. Economic Models
    - 1. Endogenous and Exogenous Factors
    - 2. The Role of Assumptions
- II. The Production Possibilities Frontier
  - A. The Graph
  - B. Opportunity Cost in the PPF
  - C. Economic Growth
- III. Specialization and Trade
  - A. Absolute Advantage
  - B. Comparative Advantage
  - C. Price
- IV. The Trade-off between the Present and the Future
  - A. Consumer Goods and Capital Goods
  - B. Investment
  - C. The PPF in the Future

### MULTIPLE-CHOICE QUESTIONS

1. An economist's use of experiments and real-world data to test a theory is an example of:
  - a. the scientific method in economics.
  - b. macroeconomics.
  - c. economic growth.
  - d. normative analysis.
  - e. comparative advantage.

ANS: A      DIF: Easy      TOP: I.A.  
REF: The Scientific Method in Economics  
MSC: Remembering

2. On the television show "MythBusters," the hosts design experiments, collect data, and test theories based on popular myths. This is an example of:
  - a. the scientific method as used in economics.
  - b. economic growth.
  - c. gains from trade.
  - d. production possibilities.
  - e. absolute advantage.

ANS: A      DIF: Easy      TOP: I.A.  
REF: The Scientific Method in Economics

MSC: Remembering

3. Economists use the scientific method and the tools of economics to study:
- only the decisions of individuals.
  - only the decisions of business firms.
  - only economic growth and gross domestic product (GDP).
  - only the production possibilities curve.
  - anything around them; the world is the economist's laboratory.

ANS: EDIF: Medium TOP: I.A.

REF: The Scientific Method in Economics

MSC: Remembering

4. The scientific method and the tools of economics are useful in examining:
- only how individuals make decisions.
  - only how business firms make decisions.
  - only how government policies affect macroeconomic outcomes.
  - only the trade-offs evident in production possibilities frontier (PPF).
  - anything; economists will use their tools to study anything in the world around them.

ANS: EDIF: Medium TOP: I.A.

REF: The Scientific Method in Economics

MSC: Remembering

5. A positive statement:
- is a claim that can be tested.
  - is a statement about what ought to be.
  - is a declaration of opinion.
  - is a claim that cannot be tested.
  - cannot be evaluated using the scientific method.

ANS: A DIF: Easy TOP: I.B.

REF: Positive and Normative Analysis

MSC: Remembering

6. Which of the following is a positive statement?
- An economist should test every theory at least twice.
  - Increases in the minimum wage cause unemployment.
  - We ought to deregulate the mortgage market.
  - The government must provide unlimited health care to citizens.
  - We should forgo some current consumption in order to invest in the future.

ANS: BDIF: Easy TOP: I.B.

REF: Positive and Normative Analysis

MSC: Applying

7. Which of the following is a normative statement?
- The sky is blue.
  - The sky is green with pink polka dots.
  - Points on the production possibilities frontier (PPF) are efficient.
  - Points outside the PPF are unattainable with current resources.
  - We should strive to push the PPF outward.

ANS: EDIF: Easy TOP: I.B.

REF: Positive and Normative Analysis

MSC: Applying

8. Which of the following is a positive statement?
- My dog should lose some weight.
  - Legally requiring dogs to have rabies shots will reduce the number of rabid dogs.
  - You should take your dog to the veterinarian once a year for a checkup.
  - Chihuahuas are cuter than bulldogs.
  - All dogs should be required to wear leashes at all times.

ANS: BDIF: Easy TOP: I.B.

REF: Positive and Normative Analysis

MSC: Applying

9. Which of the following is a normative statement?
- You should wear a helmet when cycling.
  - The sky is blue.
  - A bicycle has two wheels.
  - A unicycle has five wheels.
  - Electricity follows the path of least resistance.

ANS: A DIF: Medium TOP: I.B.

REF: Positive and Normative Analysis

MSC: Applying

10. Which of the following is a positive statement?
- Individuals should make good long-term decisions.
  - Corporations should maximize shareholder value.
  - Government should reduce the level of unemployment.
  - The most important effects of policy happen in the short term.
  - The unemployment rate is 8%.

ANS: EDIF: Medium TOP: I.B.

REF: Positive and Normative Analysis

MSC: Applying

11. Which of the following is a positive statement?
- Winters in Arkansas are too cold.
  - Everyone should work in a bank to understand the true value of money.
  - Harvard University is the top education institution in the country.
  - On average, people save 15% when they switch to GEICO.
  - Everyone ought to have a life insurance policy.

ANS: D DIF: Medium TOP: I.B.

REF: Positive and Normative Analysis

MSC: Applying

12. Which of the following is a normative statement?
- The current exchange rate is 0.7 British pounds per U.S. dollar.
  - In January, the average temperature in Fargo, North Dakota, is 56 degrees.
  - Winters in Arkansas are too cold.
  - On average, people save 15% when they switch to GEICO.
  - University of Virginia graduates earn more than Duke University graduates.

ANS: CDIF: Medium TOP: I.B.

REF: Positive and Normative Analysis

MSC: Applying

13. The important act of holding all other variables constant while examining a particular variable is known as:

- a. endogeneity.
- b. a normative statement.
- c. a positive statement.
- d. macroeconomics.
- e. *ceteris paribus*.

ANS: EDIF: Easy TOP: I.C.  
REF: Economic Models  
MSC: Remembering

14. *Ceteris paribus* means:
- a. in sets of two.
  - b. constant opportunity cost.
  - c. other things being equal.
  - d. buyer beware.
  - e. there is no reason to argue about people's tastes.

ANS: CDIF: Easy TOP: I.C.  
REF: Economic Models  
MSC: Remembering

15. Which of the following is necessary to build a good economic model?
- a. normative statements
  - b. assumptions
  - c. opinions
  - d. complex math
  - e. realism

ANS: BDIF: Easy TOP: I.C.  
REF: Economic Models  
MSC: Remembering

16. The process of examining a change in one variable in a model while assuming that all the other variables remain constant is called:
- a. exogenous factors.
  - b. *ceteris paribus*.
  - c. normative analysis.
  - d. positive analysis.
  - e. faulty assumptions.

ANS: BDIF: Medium TOP: I.C.  
REF: Economic Models  
MSC: Remembering

17. Why do economists use models?
- a. Models are used to add complexity to a simple world.
  - b. Models allow us to study a simplified version of a complex world.
  - c. Models allow us to control exogenous factors.
  - d. Models make the world harder to understand.
  - e. Models allow us to examine more factors than what actually exists in our world.

ANS: BDIF: Easy TOP: I.C.  
REF: Economic Models  
MSC: Understanding

18. Variables that are not accounted for in a model are called:
- a. endogenous factors.

- b. exogenous factors.
- c. normative statements.
- d. positive statements.
- e. the scientific method.

ANS: BDIF: Easy TOP: I.C.1.  
REF: Economic Models  
MSC: Remembering

19. Variables that are controlled for in a model are called:

- a. normative statements.
- b. positive statements.
- c. endogenous factors.
- d. exogenous factors.
- e. the scientific method.

ANS: CDIF: Easy TOP: I.C.1.  
REF: Economic Models  
MSC: Remembering

20. You are considering the “dress well, test well” theory, which argues that you perform better on exams when you dress nicely than you do when you wear sweatpants. If you want to test this theory over the course of the semester, which of the following would be an endogenous factor in your experiment?

- a. your innate ability in the subject
- b. the difficulty of the exam
- c. the relative mix of multiple-choice and short-answer questions
- d. your clothing choice for the exam
- e. the amount of time you spend studying for the exam

ANS: D DIF: Medium TOP: I.C.1.  
REF: Economic Models MSC: Applying

21. When testing a paper airplane on your campus quad, which of the following would be an exogenous factor?

- a. the weight of the paper used in making the plane
- b. the ratio of wingspan to plane length
- c. the height of the body of the plane
- d. the level of wind encountered
- e. the number of folds in the wings

ANS: D DIF: Medium TOP: I.C.1.  
REF: Economic Models MSC: Applying

22. When testing a model rocket on your campus quad, which of the following would be an endogenous factor?

- a. the current wind speed across the quad
- b. the quad’s elevation and air pressure
- c. the extent of precipitation
- d. the gravitational pull of the earth
- e. the size of the rocket engine

ANS: EDIF: Medium TOP: I.C.1.  
REF: Economic Models MSC: Applying

23. Car companies build wind tunnels to test the aerodynamics and the handling capabilities of their car designs. The many variables that can be precisely controlled inside the wind tunnel are considered:
- normative factors.
  - positive factors.
  - comparative factors.
  - endogenous factors.
  - exogenous factors.

ANS: D      DIF: Medium      TOP: I.C.1.  
REF: Economic Models MSC: Applying

24. One reason that economists make assumptions when designing models is to:
- exclude variables that do not add predictive power to the model.
  - make models more like the real world.
  - make models more complex.
  - increase endogenous factors.
  - ensure that all possible factors are included.

ANS: A      DIF: Medium      TOP: I.C.2.  
REF: Economic Models  
MSC: Understanding

25. A model without any simplifying assumptions:
- is highly complex and likely unworkable.
  - excludes important predictive variables.
  - is very helpful for solving tough, real-world problems.
  - does not look like the real-world problem it is meant to address.
  - provides simplified solutions to complex problems.

ANS: A      DIF: Difficult      TOP: I.C.2.  
REF: Economic Models  
MSC: Understanding

26. The production possibilities frontier (PPF) shows:
- the trade-off between the efficient production of two different goods.
  - the difference between micro analysis and macro analysis.
  - the difference between normative and positive analysis.
  - how a firm should price a new product.
  - how price and quantity are related for a single good.

ANS: A      DIF: Easy      TOP: II.A.  
REF: What Is a Production Possibilities Frontier?      MSC: Remembering

27. A graph that shows the maximum attainable combinations of two goods when society efficiently uses its productive resources is called:
- a production possibilities frontier (PPF).
  - a supply curve.
  - opportunity cost.
  - a consumer demand curve.
  - absolute advantage.

ANS: A      DIF: Easy      TOP: II.A.  
REF: What Is a Production Possibilities Frontier?      MSC: Remembering

28. At full employment, a society produces:
- somewhere within its production possibilities frontier (PPF).

- b. somewhere outside its PPF.
- c. at the origin on its PPF graph.
- d. on its PPF.
- e. only one good.

ANS: D      DIF: Easy      TOP: II.A.

REF: What Is a Production Possibilities Frontier?      MSC: Remembering

29. The \_\_\_\_\_ illustrates the various combinations of output that a society can produce if all of its resources are being used efficiently.
- a. concept of absolute advantage
  - b. law of positive statements
  - c. law of demand
  - d. production possibilities frontier (PPF)
  - e. principle of comparative advantage

ANS: D      DIF: Easy      TOP: II.A.

REF: What Is a Production Possibilities Frontier?      MSC: Remembering

30. The area inside (within) the production possibilities frontier (PPF) contains:
- a. normative points.
  - b. positive points.
  - c. efficient points.
  - d. inefficient points.
  - e. high opportunity cost points.

ANS: D      DIF: Easy      TOP: II.A.

REF: What Is a Production Possibilities Frontier?      MSC: Remembering

31. *Ceteris paribus*, if a society is producing at a point on the production possibilities frontier (PPF), it can only increase the production of one good by:
- a. also increasing the production of the second good.
  - b. decreasing the production of the second good.
  - c. increasing the price of the second good.
  - d. decreasing the price of the second good.
  - e. reducing the resources available for production.

ANS: BDIF: Medium      TOP: II.A.

REF: What Is a Production Possibilities Frontier?      MSC: Remembering

32. A society that is producing its maximum combination of goods and using all available resources for production:
- a. has minimized its opportunity cost.
  - b. has maximized its opportunity cost.
  - c. is operating on its production possibilities frontier (PPF).
  - d. is operating outside its production possibilities frontier (PPF).
  - e. has eliminated scarcity.

ANS: CDIF: Medium      TOP: II.A.

REF: What Is a Production Possibilities Frontier?      MSC: Remembering

33. On a production possibilities frontier (PPF) that shows the trade-off between consumer goods and capital goods given a fixed amount of labor, unemployment is illustrated by:
- a. movement from a point within the frontier to a point on the frontier.
  - b. a point outside the frontier.
  - c. a point within the frontier.
  - d. movement from a point on the frontier to another point on the frontier.

e. a point on the frontier.

ANS: CDIF: Medium TOP: II.A.

REF: What Is a Production Possibilities Frontier?

MSC: Understanding

34. How will a reduction in the national unemployment rate affect a nation's production possibilities frontier (PPF)?

- a. It will cause the PPF to shift inward.
- b. It will cause the PPF to shift outward.
- c. It will move society to a point farther inside the PPF.
- d. It will move society outward to a point closer to or on the PPF.
- e. It will push society to a point outside its PPF.

ANS: D DIF: Medium TOP: II.A.

REF: What Is a Production Possibilities Frontier?

MSC: Understanding

35. Think of the production possibilities frontier (PPF) model. When society is producing the largest possible output from its resources, it is operating:

- a. inefficiently.
- b. efficiently.
- c. with no opportunity cost.
- d. inside (within) the PPF.
- e. beyond its opportunity cost.

ANS: BDIF: Medium TOP: II.A.

REF: What Is a Production Possibilities Frontier?

MSC: Understanding

36. Which of the following is NOT an assumption that economists make when developing a production possibilities frontier (PPF)?

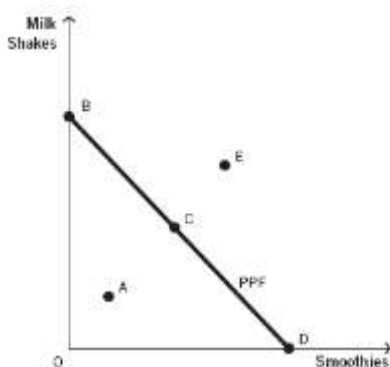
- a. We live in a world with only two goods.
- b. There are no increases in technology.
- c. There is no change in available resources.
- d. Society will always be producing somewhere on the PPF.
- e. There are no decreases in technology.

ANS: D DIF: Difficult TOP: II.A.

REF: What Is a Production Possibilities Frontier?

MSC: Understanding

Refer to the following figure to answer the next four questions.



37. Which point in the corresponding figure represents a combination of smoothies and milk shakes that society cannot currently produce?

- a. point A
- b. point B
- c. point C



- d. point D
- e. point E

ANS: EDIF: Easy      TOP: II.A.  
 REF: What Is a Production Possibilities Frontier?      MSC: Analyzing

38. Which point in the corresponding figure shows that productive resources are not fully employed?
- a. point A
  - b. point B
  - c. point C
  - d. point D
  - e. point E

ANS: A      DIF: Easy      TOP: II.A.  
 REF: What Is a Production Possibilities Frontier?      MSC: Analyzing

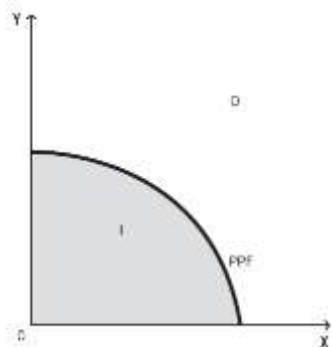
39. In the figure, point A is:
- a. an efficient point.
  - b. unattainable with current resources.
  - c. an inefficient point.
  - d. the equilibrium.
  - e. the point where society would prefer to consume.

ANS: CDIF: Easy      TOP: II.A.  
 REF: What Is a Production Possibilities Frontier?      MSC: Analyzing

40. In the figure, point E is:
- a. an efficient point.
  - b. unattainable with current resources.
  - c. an inefficient point.
  - d. the equilibrium.
  - e. evidence that trade does not enrich society.

ANS: BDIF: Easy      TOP: II.A.  
 REF: What Is a Production Possibilities Frontier?      MSC: Analyzing

Consider the production possibilities frontier (PPF) shown in the figure below to answer the next three questions.



41. Given current resources and technology, the attainable range is best described as:
- a. only area O: points outside the PPF.
  - b. points on the PPF only.
  - c. only area I: points inside the PPF.
  - d. area I: points inside the PPF and points on the PPF.

e. Area O: points outside the PPF and points on the PPF.

ANS: D      DIF: Medium      TOP: II.A.

REF: What Is a Production Possibilities Frontier?

MSC: Analyzing

42. The set of efficient points is best described as:

- a. only area O: points outside the PPF.
- b. points on the PPF only.
- c. only area I: points inside the PPF.
- d. area I: inside the PPF and points on the PPF.
- e. area O: outside the PPF and points on the PPF.

ANS: BDIF: Medium      TOP: II.A.

REF: What Is a Production Possibilities Frontier?

MSC: Analyzing

43. Given current resources and technology, the unattainable range is best described as:

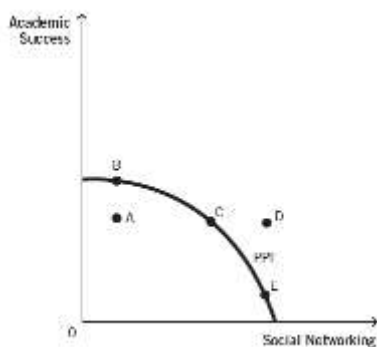
- a. only area O: points outside the PPF.
- b. points on the PPF only.
- c. only area I: points inside the PPF.
- d. area I: inside the PPF and points on the PPF.
- e. Area O: outside the PPF and points on the PPF.

ANS: A      DIF: Medium      TOP: II.A.

REF: What Is a Production Possibilities Frontier?

MSC: Analyzing

*Refer to the accompanying figure to answer the next four questions.*



44. How is opportunity cost illustrated?

- a. a move from point A to point B
- b. a move from point A to point C
- c. a move from point C to point D
- d. a move from point B to point C
- e. a move from point D to point E

ANS: D      DIF: Medium      TOP: II.A.

REF: The Production Possibilities Frontier and Opportunity Cost MSC: Analyzing

45. The inefficient point(s) is (are):

- a. point A.
- b. points C and D.
- c. point C.
- d. point D.
- e. points B, C, and E.

ANS: A      DIF: Easy      TOP: II.A.

REF: What Is a Production Possibilities Frontier?

MSC: Analyzing

46. Unemployed resources are evident at:

- a. point A.
- b. point B.
- c. point C.
- d. point D.
- e. points B, C, and E.

ANS: A      DIF: Easy      TOP: II.A.

REF: What Is a Production Possibilities Frontier?

MSC: Analyzing

47. Given your current resources, you would need even more hours in each day in order to attain:

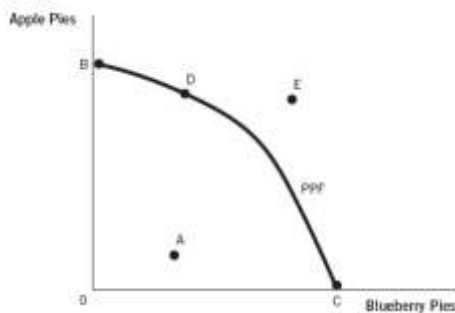
- a. point A.
- b. point B.
- c. point C.
- d. point D.
- e. point E.

ANS: D      DIF: Easy      TOP: II.A.

REF: What Is a Production Possibilities Frontier?

MSC: Analyzing

Refer to the following figure to answer the next four questions.



48. Which of the following represents an inefficient point?

- a. point A
- b. point B
- c. point C
- d. point D
- e. point E

ANS: A      DIF: Easy      TOP: II.A.

REF: What Is a Production Possibilities Frontier?

MSC: Analyzing

49. Which of the following represents a point that is unattainable with current resources and technology?

- a. point A
- b. point B
- c. point C
- d. point D
- e. point E

ANS: EDIF: Easy      TOP: II.A.

REF: What Is a Production Possibilities Frontier?

MSC: Analyzing

50. What is the most preferred consumption point for a pie-appreciating society?

- a. point A

- b. point B
- c. point C
- d. point D
- e. point E

ANS: EDIF: Difficult TOP: II.A.

REF: What Is a Production Possibilities Frontier? MSC: Analyzing

51. You can see that the opportunity cost of moving from point B to point D is different from the opportunity cost of moving from point D to point C because:
- a. apples are bigger than blueberries.
  - b. the slope of the production possibilities frontier (PPF) is different in each of the two segments.
  - c. they are all efficient points.
  - d. they are all attainable points.
  - e. the opportunity cost is constant along the PPF.

ANS: BDIF: Difficult TOP: II.B.

REF: The Production Possibilities Frontier and Opportunity Cost MSC: Analyzing

52. The \_\_\_\_\_ states that the opportunity cost of producing a good always rises as you produce more of it.
- a. law of increasing relative cost
  - b. law of positive economics
  - c. law of demand
  - d. production possibilities frontier (PPF) model
  - e. zero-sum game

ANS: A DIF: Easy TOP: II.B.

REF: The Production Possibilities Frontier and Opportunity Cost MSC: Remembering

53. When the opportunity cost of producing a good rises as you produce more of it, you experience:
- a. normative economics.
  - b. increasing relative costs.
  - c. downward-sloping demand.
  - d. inferior goods.
  - e. increasing marginal utility.

ANS: BDIF: Easy TOP: II.B.

REF: The Production Possibilities Frontier and Opportunity Cost MSC: Remembering

54. As you move from one efficient point on the production possibilities frontier (PPF) to another efficient point on the PPF, you experience:
- a. decreasing relative cost.
  - b. opportunity cost.
  - c. macroeconomics.
  - d. unlimited resources.
  - e. unattainable combinations.

ANS: BDIF: Medium TOP: II.B.

REF: The Production Possibilities Frontier and Opportunity Cost MSC: Remembering

55. Suppose you are studying a production possibilities frontier (PPF) that has a bowed-out shape relative to the origin. What causes this shape?
- a. economic growth
  - b. the law of increasing relative cost

- c. absolute advantage
- d. normative economics
- e. more resources

ANS: BDIF: Medium TOP: II.B.

REF: The Production Possibilities Frontier and Opportunity CostMSC: Understanding

56. Opportunity cost is evident on the production possibilities frontier (PPF) graph:
- a. as you move from one point on the frontier to another point on the frontier.
  - b. as you move from the origin to any inefficient point.
  - c. as you move from one unattainable point to an efficient point on the frontier.
  - d. as you move from an inefficient point to the origin.
  - e. at any one single point on the graph.

ANS: A DIF: Difficult TOP: II.B.

REF: The Production Possibilities Frontier and Opportunity CostMSC: Understanding

57. Suppose you find a production possibilities frontier (PPF) that is shaped like a straight line. What can you determine about the production of the two goods?
- a. Production of the two goods is subject to decreasing relative cost.
  - b. Production of the two goods is subject to increasing relative cost.
  - c. Production of the two goods is subject to constant opportunity cost anywhere along the PPF.
  - d. One producer must have an absolute advantage in production.
  - e. More resources will not cause the PPF to shift.

ANS: CDIF: Difficult TOP: II.B.

REF: The Production Possibilities Frontier and Opportunity CostMSC: Understanding

58. The movie *Saving Private Ryan* is about a military mission to find and recover a particular soldier—Private Ryan. The movie is predominantly about how much was given up in an effort to save this one particular soldier. The main economic theme of the movie is:
- a. absolute advantage.
  - b. opportunity cost.
  - c. normative analysis.
  - d. comparative advantage.
  - e. positive advantage.

ANS: BDIF: Medium TOP: II.B.

REF: The Production Possibilities Frontier and Opportunity CostMSC: Applying

*Michael and Angelo are both artists who can create sculptures or paintings each day. The following table describes their maximum outputs per day. Use this table to answer the next four questions.*

	Sculptures	Paintings
Michael	10	5
Angelo	6	2

59. What is Michael's opportunity cost of a sculpture?
- a. 2 paintings
  - b. 1/2 painting
  - c. 3 paintings
  - d. 1/3 sculpture
  - e. 1/2 sculpture

ANS: BDIF: Medium TOP: II.B.

REF: The Production Possibilities Frontier and Opportunity CostMSC: Applying

60. What is Angelo's opportunity cost of a sculpture?
- a. 1/2 painting
  - b. 1/3 painting
  - c. 3 paintings
  - d. 1/3 sculpture
  - e. 6/10 sculpture

ANS: BDIF: Medium TOP: II.B.

REF: The Production Possibilities Frontier and Opportunity CostMSC: Applying

61. What is Michael's opportunity cost of a painting?
- a. 1/2 painting
  - b. 1/2 sculpture
  - c. 3 paintings
  - d. 2 sculptures
  - e. 2 paintings

ANS: D DIF: Medium TOP: II.B.

REF: The Production Possibilities Frontier and Opportunity Cost

MSC: Applying

62. What is Angelo's opportunity cost of a painting?
- a. 1/3 painting
  - b. 1/3 sculpture
  - c. 2/5 sculpture
  - d. 3 paintings
  - e. 3 sculptures

ANS: EDIF: Medium TOP: II.B.

REF: The Production Possibilities Frontier and Opportunity Cost

MSC: Applying

*Refer to the following table to answer the next two questions.*

	<b>New York Pizzas</b>	<b>Philly Cheesesteaks</b>
Jay-Z	40	120
Alicia Keys	50	125

63. Given the same quantity of resources, what is Alicia Keys's opportunity cost of producing a New York pizza?
- a. 5/2 Philly cheesesteaks
  - b. 2/5 Philly cheesesteak
  - c. 3 Philly cheesesteaks
  - d. 1/3 New York pizza
  - e. 4/5 New York pizza

ANS: A DIF: Medium TOP: II.B.

REF: The Production Possibilities Frontier and Opportunity CostMSC: Applying

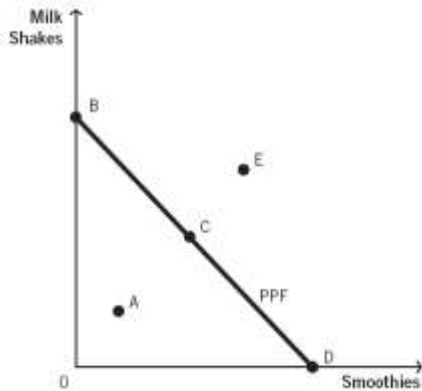
64. Given the same quantity of resources, what is Jay-Z's opportunity cost of producing a New York pizza?
- a. 5/2 Philly cheesesteaks
  - b. 1/3 Philly cheesesteak
  - c. 3 Philly cheesesteaks
  - d. 120/125 New York pizza

e. 4/5 New York pizza

ANS: CDIF: Medium TOP: II.B.

REF: The Production Possibilities Frontier and Opportunity CostMSC: Applying

65. Which statement best describes the opportunity cost evident in the production possibilities frontier (PPF) for the accompanying figure?

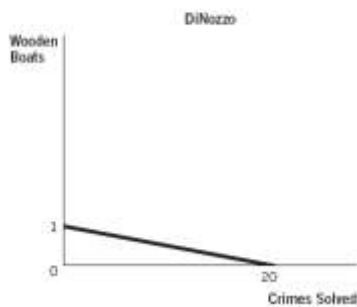
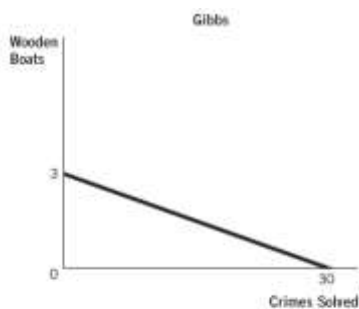


- a. The law of increasing relative cost applies because the PPF is a straight line.
- b. The law of increasing relative cost applies because the PPF is bowed outward.
- c. The opportunity cost is constant because the PPF is a straight line.
- d. The opportunity cost is constant because the PPF is bowed outward.
- e. The opportunity cost decreases because the line has negative slope.

ANS: CDIF: Medium TOP: II.B.

REF: The Production Possibilities Frontier and Opportunity CostMSC: Analyzing

*The figures below depict the production possibilities frontiers (PPFs) for two people who can allocate the same amount of time between building wooden boats and solving crimes. Refer to these figures to answer the next three questions.*



66. What is Gibbs's opportunity cost of making a wooden boat?

- a. 20 solved crimes
- b. 30 solved crimes

- c. 10 solved crimes
- d. 1/20 of a boat
- e. 1/10 of a boat

ANS: CDIF: Medium TOP: II.B.

REF: The Production Possibilities Frontier and Opportunity CostMSC: Analyzing

67. What is DiNozzo's opportunity cost of making a wooden boat?

- a. 20 solved crimes
- b. 30 solved crimes
- c. 10 solved crimes
- d. 1/20 of a boat
- e. 1/10 of a boat

ANS: A DIF: Medium TOP: II.B.

REF: The Production Possibilities Frontier and Opportunity CostMSC: Analyzing

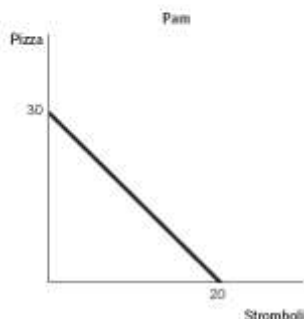
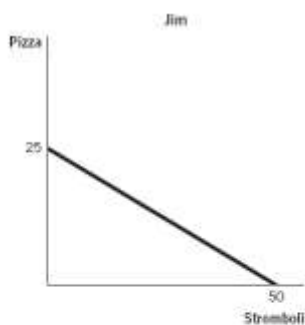
68. What is Gibbs's opportunity cost of solving a crime?

- a. 20 solved crimes
- b. 30 solved crimes
- c. 5 solved crimes
- d. 1/20 of a boat
- e. 1/10 of a boat

ANS: EDIF: Medium TOP: II.B.

REF: The Production Possibilities Frontier and Opportunity CostMSC: Analyzing

*The figures below depict the production possibilities frontiers (PPFs) for two people who can allocate the same amount of time between making pizzas and making stromboli. Refer to these figures to answer the next three questions.*



69. What is Jim's opportunity cost of making 1 pizza?

- a. 50 stromboli
- b. 20 stromboli
- c. 2.5 stromboli
- d. 2 stromboli



e. 1.5 stromboli

ANS: D      DIF: Medium      TOP: II.B.

REF: The Production Possibilities Frontier and Opportunity Cost

MSC: Analyzing

70. What is Pam's opportunity cost of making 1 stromboli?

- a. 30 pizzas
- b. 20 stromboli
- c. 2 pizzas
- d. 1.5 pizzas
- e. 2/3 pizza

ANS: D      DIF: Medium      TOP: II.B.

REF: The Production Possibilities Frontier and Opportunity Cost MSC: Analyzing

71. What is Jim's opportunity cost of making 1 stromboli?

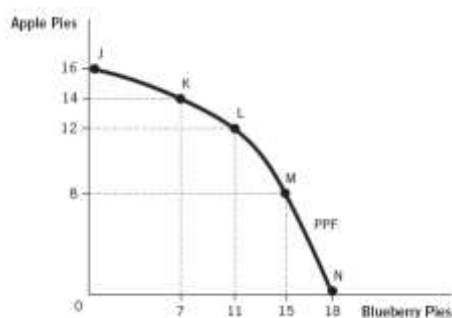
- a. 1/2 pizza
- b. 2/3 pizza
- c. 2 pizzas
- d. 2 stromboli
- e. 25 pizzas

ANS: A      DIF: Medium      TOP: II.B.

REF: The Production Possibilities Frontier and Opportunity Cost

MSC: Analyzing

Refer to the following figure for the next three questions.



72. The opportunity cost of increasing the production of apple pies from 12 to 14 pies is:

- a. 2 blueberry pies.
- b. 14 apple pies.
- c. 7 blueberry pies.
- d. 4 blueberry pies.
- e. 2 apple pies.

ANS: D      DIF: Medium      TOP: II.B.

REF: The Production Possibilities Frontier and Opportunity Cost MSC: Analyzing

73. The opportunity cost of increasing production of apple pies from 14 to 16 pies is:

- a. 2 blueberry pies.
- b. 14 apple pies.
- c. 7 blueberry pies.
- d. 4 blueberry pies.
- e. 16 blueberry pies.

ANS: C      DIF: Medium      TOP: II.B.

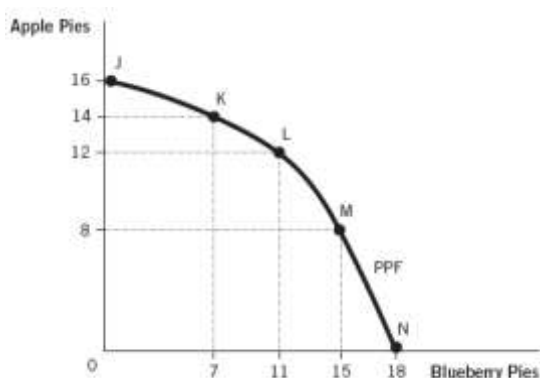
REF: The Production Possibilities Frontier and Opportunity Cost MSC: Analyzing

74. The opportunity cost of increasing production of blueberry pies from 7 to 11 pies is:
- 2 blueberry pies.
  - 14 apple pies.
  - 7 blueberry pies.
  - 4 apple pies.
  - 2 apple pies.

ANS: EDIF: Medium TOP: II.B.

REF: The Production Possibilities Frontier and Opportunity Cost MSC: Analyzing

Refer to the following figure for the next two questions.



75. As you move from points N to M to L, the opportunity cost of additional apple pie:
- decreases due to the law of increasing relative cost.
  - increases due to the law of increasing relative cost.
  - decreases due to the law of normative economics.
  - increases due to the law of marginal analysis.
  - decreases due to enhancements in technology.

ANS: BDIF: Difficult TOP: II.B.

REF: The Production Possibilities Frontier and Opportunity Cost MSC: Understanding

76. According to the figure, a new technology that makes it easier to peel, core, and prepare apples will cause:
- the entire production possibilities frontier (PPF) to shift outward.
  - the entire PPF to shift inward.
  - the PPF to rotate outward to a larger maximum quantity of apple pies with no change in maximum blueberry pies.
  - the PPF to rotate outward to a larger maximum quantity of blueberry pies with no change in maximum apple pies.
  - the PPF to stay exactly the same because there is no change in resources.

ANS: CDIF: Medium TOP: II.C.

REF: The Production Possibilities Frontier and Economic Growth MSC: Analyzing

77. Economic growth can be depicted on a production possibilities frontier (PPF) as an:
- inward shift of the PPF.
  - outward shift of the PPF.
  - inward rotation along the x axis.
  - inward rotation along the y axis.
  - increase in opportunity cost.

ANS: BDIF: Medium TOP: II.C.

REF: The Production Possibilities Frontier and Economic Growth MSC: Remembering

78. An increase in general resources that affects the production of both goods on a production possibilities frontier (PPF) would cause an:
- inward shift of the PPF.
  - outward shift of the PPF.
  - outward rotation along the x axis.
  - outward rotation along the y axis.
  - increase in opportunity cost.

ANS: BDIF: Difficult TOP: II.C.

REF: The Production Possibilities Frontier and Economic Growth

MSC: Remembering

79. Economic growth is represented on a production possibilities frontier (PPF) by the PPF:
- getting steeper.
  - getting flatter.
  - shifting inward.
  - shifting outward.
  - rotating downward.

ANS: D DIF: Medium TOP: II.C.

REF: The Production Possibilities Frontier and Economic Growth  
Understanding

MSC:

80. An increase in the labor force would be reflected in a society's production possibilities frontier (PPF) by an:
- increase in opportunity cost.
  - inward shift of the PPF.
  - outward shift of the PPF.
  - outward rotation along the x axis.
  - outward rotation along the y axis.

ANS: CDIF: Medium TOP: II.C.

REF: The Production Possibilities Frontier and Economic Growth

MSC: Applying

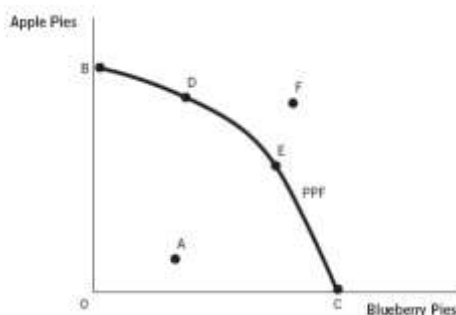
81. A town on the Gulf Coast is battered by a massive hurricane that destroys most of its productive resources. The community's production possibilities frontier (PPF) would show an:
- inward shift of the PPF.
  - outward shift of the PPF.
  - outward rotation along the x axis.
  - outward rotation along the y axis.
  - increase in opportunity cost.

ANS: A DIF: Difficult TOP: II.C.

REF: The Production Possibilities Frontier and Economic Growth

MSC: Applying

82. Refer to the graph below. This society could reach point F when there is a(n):



- increase in the monetary price of apple pie.

- b. credible new study that shows blueberries reduce the risk of heart attack.
- c. increase in technology that makes pie bakers more efficient.
- d. new regulation that makes pie baking more costly.
- e. increase in the monetary price of blueberry pie.

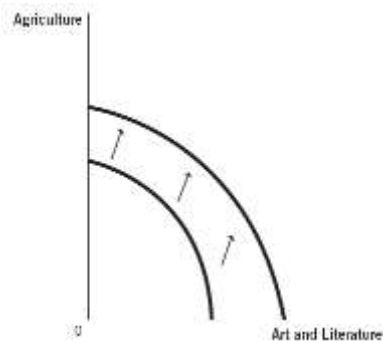
ANS: CDIF: Medium TOP: II.C.

REF: The Production Possibilities Frontier and Economic Growth

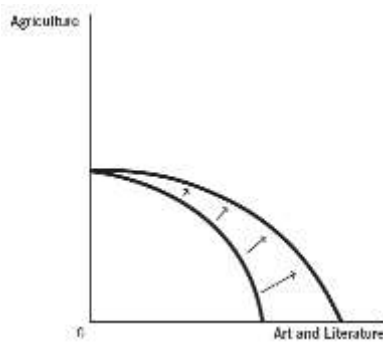
MSC: Applying

Use these production possibilities frontier (PPF) curves, which compare the ancient production of agricultural products to art and literature, to answer the next four questions.

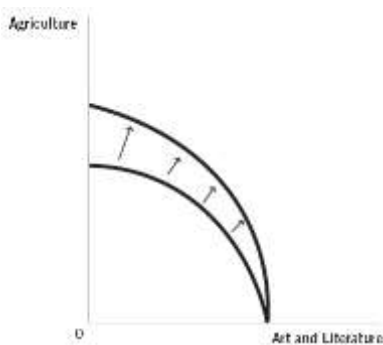
a. Graph A



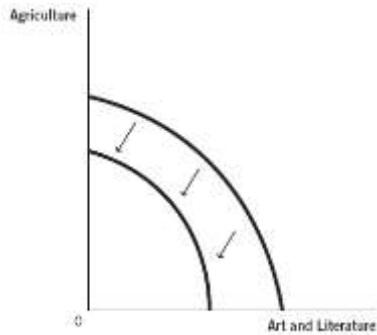
b. Graph B



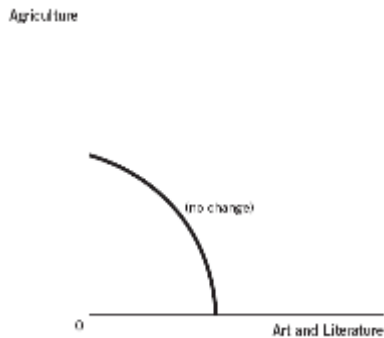
c. Graph C



d. Graph D



e. Graph E



83. Suppose a great plague wipes out half of the society's population. Which of the following graphs best depicts how this would affect the PPF?

- a. Graph A
- b. Graph B
- c. Graph C
- d. Graph D
- e. Graph E

ANS: D      DIF: Difficult      TOP: II.C.

REF: The Production Possibilities Frontier and Economic Growth

MSC: Analyzing

84. Suppose the plow is invented and agricultural productivity greatly increases. Which of the following graphs best depicts how this would affect the PPF?

- a. Graph A
- b. Graph B
- c. Graph C
- d. Graph D
- e. Graph E

ANS: C      DIF: Medium      TOP: II.C.

REF: The Production Possibilities Frontier and Economic Growth

MSC: Analyzing

85. Suppose the printing press is invented. Which graph best depicts how this would affect the PPF?

- a. Graph A
- b. Graph B
- c. Graph C
- d. Graph D
- e. Graph E

ANS: B      DIF: Medium      TOP: II.C.

REF: The Production Possibilities Frontier and Economic Growth

MSC: Analyzing

86. Suppose a new generation of baby boomers is entering the workforce. Which graph best depicts how this would affect the PPF?
- Graph A
  - Graph B
  - Graph C
  - Graph D
  - Graph E

ANS: A      DIF: Medium      TOP: II.C.

REF: The Production Possibilities Frontier and Economic Growth

MSC: Analyzing

*Consider the following scenario to answer the next four questions: Two friends, Rachel and Joey, enjoy baking bread and making apple pies. Rachel takes two hours to bake 1 loaf of bread and one hour to make 1 pie. Joey takes four hours to bake 1 loaf of bread and four hours to make 1 pie.*

87. What is Joey's opportunity cost of baking 1 loaf of bread?
- 4 pies
  - 2 pies
  - 1 pie
  - 1 loaf of bread
  - 1/2 loaf of bread

ANS: CDIF: Medium      TOP: II.B.

REF: Gains from Trade MSC: Applying

88. What is Rachel's opportunity cost of baking 1 loaf of bread?
- 4 pies
  - 2 pies
  - 1 pie
  - 1 loaf of bread
  - 1/2 loaf of bread

ANS: BDIF: Medium      TOP: II.B.

REF: Gains from Trade MSC: Applying

89. What is Joey's opportunity cost of baking 1 pie?
- 4 pies
  - 2 pies
  - 1 pie
  - 1 loaf of bread
  - 1/2 loaf of bread

ANS: D      DIF: Medium      TOP: II.B.

REF: Gains from Trade MSC: Applying

90. What is Rachel's opportunity cost of baking 1 pie?
- 2 pies
  - 1 pie
  - 1 loaf of bread
  - 1/2 loaf of bread
  - 2 loaves of bread

ANS: D      DIF: Medium      TOP: III.B.

REF: Gains from Trade MSC: Applying

91. Specialization and trade allow individuals to:
- consume outside their own production possibilities frontier (PPF).

- b. shift their PPF outward.
- c. produce more goods with less technology.
- d. eliminate scarcity.
- e. produce fewer goods with less technology.

ANS: A      DIF: Easy      TOP: III.  
REF: Gains from Trade MSC: Understanding

92. You have an absolute advantage in producing something whenever:
- a. you enjoy producing that good.
  - b. you can produce more of it than someone else can using the same quantity of resources.
  - c. your opportunity cost is constant.
  - d. your opportunity cost is lower than that of other producers.
  - e. you have specific training in the production of that good.

ANS: BDIF: Easy      TOP: III.A.  
REF: Gains from Trade MSC: Remembering

93. When one producer can create more of a good than another producer using the same quantity of resources, the first producer has:
- a. a zero-sum game.
  - b. gains from trade.
  - c. an absolute advantage.
  - d. a comparative advantage.
  - e. increasing relative costs.

ANS: CDIF: Easy      TOP: III.A.  
REF: Gains from Trade MSC: Remembering

94. The ability of one producer to create more of a good than another producer using the same quantity of resources is called:
- a. comparative advantage.
  - b. absolute advantage.
  - c. a positive-sum game.
  - d. gains from trade.
  - e. the law of increasing relative cost.

ANS: BDIF: Easy      TOP: III.A.  
REF: Gains from Trade MSC: Remembering

95. Michael and Angelo are both artists who can create sculptures or paint paintings each day. The following table describes their maximum outputs per day. Does either person have an absolute advantage?

	<b>Sculptures</b>	<b>Paintings</b>
Michael	10	5
Angelo	6	2

- a. Yes, Michael has an absolute advantage in both sculptures and paintings.
- b. Yes, Angelo has an absolute advantage in both sculptures and paintings.
- c. Yes, Michael has an absolute advantage in paintings, and Angelo has an absolute advantage in sculptures.
- d. Yes, Michael has an absolute advantage in sculptures, and Angelo has an absolute advantage in paintings.
- e. No, neither has an absolute advantage.

ANS: A      DIF: Medium    TOP: III.A.  
REF: Gains from Trade MSC: Applying

*Refer to the following table to answer the next three questions.*

	<b>New York Pizzas</b>	<b>Philly Cheesesteaks</b>
Jay-Z	40	120
Alicia Keys	50	125

96. Given an eight-hour workday, which statement best describes the absolute advantage evident in the table?
- Jay-Z has an absolute advantage in making pizzas, and Alicia Keys has an absolute advantage in making cheesesteaks.
  - Alicia Keys has an absolute advantage in making pizzas, and Jay-Z has an absolute advantage in making cheesesteaks.
  - Jay-Z has an absolute advantage in the production of both foods.
  - Alicia Keys has an absolute advantage in the production of both foods.
  - Neither party has an absolute advantage.

ANS: D      DIF: Medium    TOP: III.A.  
REF: Gains from Trade MSC: Applying

97. Given an eight-hour workday, and to experience gains from trade,
- Alicia should make pizzas and Jay-Z should make cheesesteaks.
  - Alicia should make cheesesteaks and Jay-Z should make pizzas.
  - each should make their own cheesesteaks and pizzas.
  - Alicia should produce both pizzas and cheesesteaks.
  - Jay-Z should produce both pizzas and cheesesteaks.

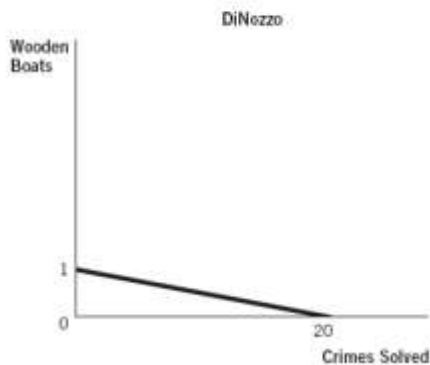
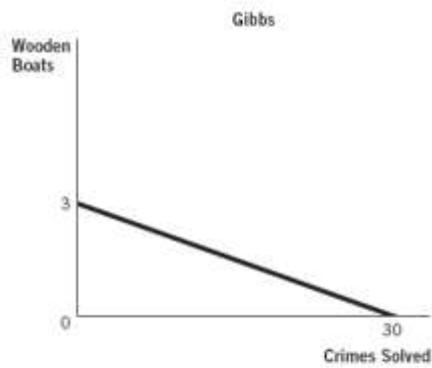
ANS: A      DIF: Medium    TOP: III.A.  
REF: Gains from Trade MSC: Analyzing

98. Suppose that Alicia Keys and Jay-Z could each make either New York–style pizza or Philly cheesesteaks. Given an eight-hour workday, which of the following would permit them to consume outside their respective production possibilities frontiers (PPFs)?
- a decrease in technology
  - a decrease in resources
  - specialization and trade
  - efficient use of all their productive resources
  - an “Empire State” of mind

ANS: C      DIF: Medium    TOP: III.A.  
REF: Gains from Trade MSC: Applying

*The figures below depict the production possibilities frontiers (PPFs) for two people who can allocate the same amount of time between building wooden boats and solving crimes. Refer to these figures to answer the next two questions.*





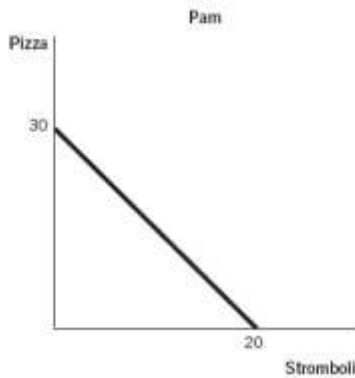
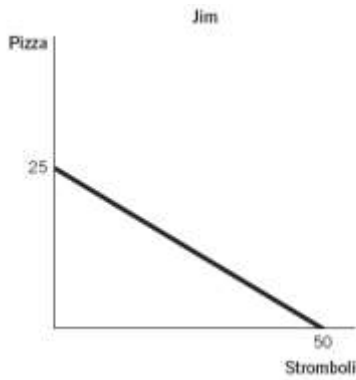
99. Which statement best describes absolute advantage?
- DiNozzo has an absolute advantage in the production of wooden boats.
  - DiNozzo has an absolute advantage in both.
  - Gibbs has an absolute advantage in solving crimes, whereas DiNozzo has an absolute advantage in making wooden boats.
  - Gibbs has an absolute advantage in both.
  - Gibbs has an absolute advantage in making wooden boats, whereas DiNozzo has an absolute advantage in solving crimes.

ANS: D      DIF: Easy      TOP: III.A.  
 REF: Gains from Trade MSC: Analyzing

100. What is DiNozzo's opportunity cost for solving a crime?
- 20 solved crimes
  - 30 solved crimes
  - 5 solved crimes
  - 1/20 of a boat
  - 1/10 of a boat

ANS: D      DIF: Medium      TOP: III.  
 REF: Gains from Trade MSC: Analyzing

101. Which statement best describes the absolute advantage as shown in the graphs?



- Pam has an absolute advantage in the production of both.
- Jim has an absolute advantage in the production of both.
- Jim has an absolute advantage in the production of pizzas, and Pam has an absolute advantage in the production of stromboli.
- Pam has an absolute advantage in the production of pizzas, and Jim has an absolute advantage in the production of stromboli.
- They both have an absolute advantage in the production of stromboli.

ANS: D      DIF: Medium      TOP: III.A.  
 REF: Gains from Trade MSC: Analyzing

102. Suppose that, on a particular Saturday, Mark Zuckerberg and Bill Gates can either plant trees or spread mulch in their gardens. Their maximum output per day is listed in the following table, along with spaces where you can calculate the opportunity cost. Who has an absolute advantage in spreading mulch?

	Trees Planted	Opportunity Cost of 1 Tree	Amount of Mulch Spread (in cubic yards)	Opportunity Cost of Spreading 1 Cubic Yard of Mulch
Zuckerberg	20		30	
Gates	15		30	

- Zuckerberg has the advantage because he gives up fewer trees each time he spreads 1 cubic yard of mulch.
- Gates has the advantage because he gives up fewer trees each time he spreads 1 cubic yard of mulch.
- Zuckerberg has the advantage because he gives up more trees each time he spreads 1 cubic yard of mulch.
- Neither has an absolute advantage in spreading mulch.
- Both parties have an absolute advantage in planting trees.

ANS: D      DIF: Medium      TOP: III.A.  
 REF: Gains from Trade MSC: Analyzing

103. If Elaine can produce more output from a set amount of resources than Jerry can, you know that:

- a. Elaine has a comparative advantage.
- b. Jerry has a comparative advantage.
- c. Elaine has an absolute advantage.
- d. Jerry has an absolute advantage.
- e. Elaine has a normative advantage.

ANS: CDIF: Easy TOP: III.A.

REF: Comparative Advantage

MSC: Applying

104. When one producer has a comparative advantage in production, she:

- a. can produce more output than someone else using the same quantity of resources.
- b. can produce a good at a lower opportunity cost than someone else.
- c. does not benefit from trade with other producers.
- d. is unable to reach her production possibilities frontier (PPF).
- e. trades only with others who have the same comparative advantage.

ANS: BDIF: Easy TOP: III.B.

REF: Comparative Advantage

MSC: Remembering

105. The ability of one producer to produce a good at a lower opportunity cost than another producer is called:

- a. a normative statement.
- b. a zero-sum game.
- c. absolute advantage.
- d. comparative advantage.
- e. the law of increasing relative cost.

ANS: D DIF: Easy TOP: III.B.

REF: Comparative Advantage

MSC: Remembering

106. To determine which of two producers has a comparative advantage, you would need to know their:

- a. increasing relative costs.
- b. opportunity costs of production for both goods.
- c. normative beliefs.
- d. zero-sum games.
- e. level of investment.

ANS: BDIF: Easy TOP: III.B.

REF: Comparative Advantage

MSC: Remembering

107. You have a comparative advantage in producing a good whenever:

- a. you enjoy producing that good.
- b. you can produce more of the good than someone else can using the same resources.
- c. your opportunity cost is constant.
- d. your opportunity cost of producing that good is lower than that of other producers.
- e. you have specific training in the production of that good.

ANS: D DIF: Easy TOP: III.B.

REF: Comparative Advantage

MSC: Remembering

108. Mrs. Abel has a comparative advantage in producing cabbage if, in comparison to Mrs. Bee, Mrs. Abel can grow cabbage:
- with less labor.
  - with fewer inputs.
  - at a lower equilibrium.
  - at a lower opportunity cost.
  - with less technology.

ANS: D      DIF: Easy      TOP: III.B.

REF: Comparative Advantage

MSC: Applying

109. If Jim can sell paper at a lower opportunity cost than Dwight can, then:
- Jim has an absolute advantage in paper sales.
  - Dwight has an absolute advantage in paper sales.
  - Jim has a positive advantage in paper sales.
  - Jim has a comparative advantage in paper sales.
  - Dwight has a comparative advantage in paper sales.

ANS: D      DIF: Easy      TOP: III.B.

REF: Comparative Advantage

MSC: Applying

110. Michael and Angelo are both artists who can create sculptures or paintings each day. The following table describes their maximum outputs per day. Does either one have a comparative advantage?

	<b>Sculptures</b>	<b>Paintings</b>
Michael	10	5
Angelo	6	2

- Yes, Michael has a comparative advantage in both sculptures and paintings.
- Yes, Angelo has a comparative advantage in both sculptures and paintings.
- Yes, Michael has a comparative advantage in paintings, and Angelo has a comparative advantage in sculptures.
- Yes, Michael has a comparative advantage in sculptures, and Angelo has a comparative advantage in paintings.
- No, neither has a comparative advantage.

ANS: C      DIF: Medium      TOP: III.B.

REF: Comparative Advantage

MSC: Applying

111. Consider the following scenario. Two friends, Rachel and Joey, enjoy baking bread and making apple pies. Rachel takes two hours to bake one loaf of bread and one hour to make one pie. Joey takes four hours to bake one loaf of bread and four hours to make one pie. If Rachel and Joey decide to specialize in order to maximize their combined output, who should produce what?
- Joey should specialize in making pies because he has an absolute advantage.
  - Rachel should specialize in making pies and Joey should specialize in making bread.
  - Joey should specialize in making pies and Rachel should specialize in making bread.
  - Rachel should specialize in making bread and pies because she has a comparative advantage in both.

e. Rachel should not specialize because she is better at producing both.

ANS: BDIF: Difficult TOP: III.B.

REF: Comparative Advantage

MSC: Applying

112. Suppose Jim is a brilliant attorney who can draft especially persuasive legal briefs. He also happens to possess some excellent administrative skills such as typing, filing, assembling binders and notes, and making reservations. Which best describes whether Jim should hire an administrative assistant to help him?

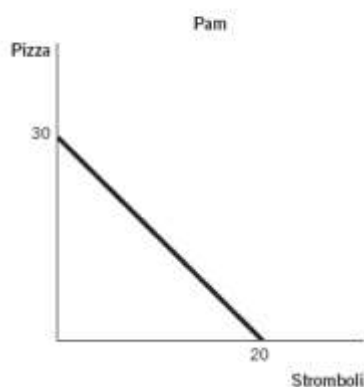
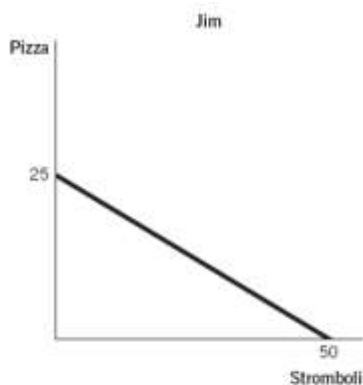
- a. Jim should not hire an administrative assistant because he has an absolute advantage in performing administrative functions.
- b. Jim should not hire an administrative assistant because he likely has a comparative advantage in performing administrative functions.
- c. Jim should hire an administrative assistant because the assistant would likely have an absolute advantage in writing legal briefs.
- d. Jim should hire an administrative assistant because the assistant would likely have a comparative advantage in performing administrative functions.
- e. Jim should hire an administrative assistant because the assistant would likely have a comparative advantage in writing legal briefs.

ANS: D DIF: Difficult TOP: III.B.

REF: Comparative Advantage

MSC: Applying

113. The accompanying figures depict the production possibilities frontiers (PPFs) for two people who can allocate the same amount of time between making pizzas and making stromboli. Which statement about comparative advantage is true?



- a. Jim has a comparative advantage in the production of stromboli because his opportunity cost is lower.

- b. Jim has a comparative advantage in the production of stromboli because his opportunity cost is higher.
- c. Jim has a comparative advantage in the production of pizzas because his opportunity cost is lower.
- d. Jim has a comparative advantage in the production of pizzas because his opportunity cost is higher.
- e. Jim has a comparative advantage in the production of both pizzas and stromboli.

ANS: A      DIF: Medium      TOP: III.B.  
 REF: Comparative Advantage  
 MSC: Analyzing

114. For both parties to benefit from specialization and trade, the trading parties must agree on:
- a. a price somewhere between their opportunity costs of production.
  - b. a plan not to trade with other parties.
  - c. who has the absolute advantage in production.
  - d. the appropriate level of investment for the future.
  - e. the source of comparative advantage.

ANS: A      DIF: Medium      TOP: III.C.  
 REF: Finding the Right Price to Facilitate Trade      MSC: Understanding

115. Suppose that Sheldon and Leonard can either run errands or wash dishes. Their maximum output per hour is listed in the following table. Given the same quantity of resources, at what terms of trade (relative price ratio) could they specialize and trade so that both consume outside their own production possibilities frontier (PPF)?

	<b>Errands Run</b>	<b>Opportunity Cost of 1 Errand</b>	<b>Dishes Washed</b>	<b>Opportunity Cost of 1 Dish Washed</b>
Sheldon	1	60 dishes	60	1/60 errand
Leonard	3	15 dishes	45	1/15 errand

- a. 1 errand run per 75 dishes washed
- b. 1 errand run per 30 dishes washed
- c. 1 errand run per 12 dishes washed
- d. 1 errand run per 10 dishes washed
- e. 1 errand run per 6 dishes washed

ANS: BDIF: Medium      TOP: III.C.  
 REF: Finding the Right Price to Facilitate Trade      MSC: Applying

116. Suppose that Dwight and Jim can either make salads or grill steaks. Their maximum output per hour is listed in the following table. Given the same quantity of resources, at what terms of trade (relative price ratio) could they specialize and trade so that both consume outside their own production possibilities frontier (PPF)?

	<b>Maximum Number of Salads</b>	<b>Opportunity Cost of 1 Salad</b>	<b>Maximum Number of Steaks</b>	<b>Opportunity Cost of 1 Steak</b>
Dwight	9	1/3 steak	3	3 salads
Jim	12	1/2 steak	6	2 salads

- a. 1 salad per 1 steak
- b. 2 salads per 1 steak
- c. 2.5 salads per 1 steak
- d. 3 salads per 1 steak
- e. 3.5 salads per 1 steak

ANS: CDIF: Difficult TOP: III.C.

REF: Finding the Right Price to Facilitate Trade MSC: Analyzing

117. Suppose that, on a particular Saturday, Mark Zuckerberg and Bill Gates can either plant trees or spread mulch in their gardens. Their maximum output per day is listed in the following table, along with blanks where you can calculate the opportunity cost. At what terms of trade (relative price ratio) could they specialize and trade with one another so that both have more trees planted and mulch spread than they could accomplish on their own?

	Trees Planted	Opportunity Cost of 1 Tree	Amount of Mulch Spread (in cubic yards)	Opportunity Cost of Spreading 1 Cubic Yard of Mulch
Zuckerberg	20		30	
Gates	15		30	

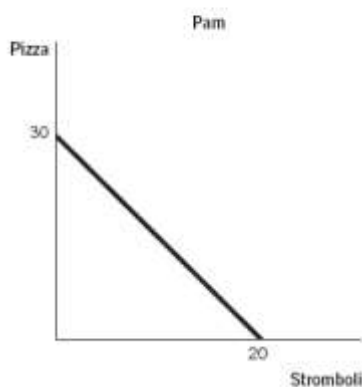
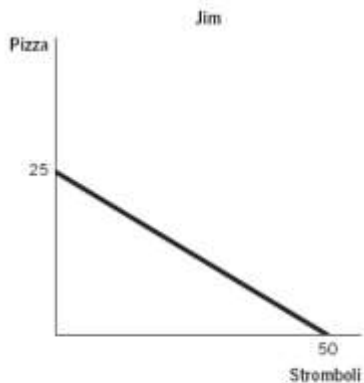
- 12 trees planted per 12 cubic yards of mulch spread
- 10 trees planted per 12 cubic yards of mulch spread
- 9 trees planted per 12 cubic yards of mulch spread
- 7 trees planted per 12 cubic yards of mulch spread
- 5 trees planted per 12 cubic yards of mulch spread

ANS: D DIF: Difficult TOP: III.C.

REF: Finding the Right Price to Facilitate Trade

MSC: Analyzing

118. The accompanying figures depict the production possibilities frontiers (PPFs) for two people who can allocate the same amount of time between making pizzas and making stromboli. If Jim and Pam were to specialize and trade, at what exchange rate would they find some quantity of trade to be mutually beneficial?



- 3 pizzas for 1 stromboli
- 1 pizza for 1 stromboli

- c. 10 pizzas for 2 stromboli
- d. 1 pizza for 1/2 stromboli
- e. 1 pizza for 1/4 stromboli

ANS: BDIF: Difficult TOP: III.C.

REF: Finding the Right Price to Facilitate Trade MSC: Analyzing

119. Consumer goods:

- a. are produced today to be used to produce more goods in the future.
- b. are produced today to be consumed at some point in the future.
- c. are invested today in order to consume more today.
- d. are produced today to be consumed today.
- e. generate economic growth.

ANS: D DIF: Easy TOP: IV.A.

REF: Consumer Goods, Capital Goods, and Investment MSC: Remembering

120. Goods that are produced now so that they can be used to produce other goods in the future are called:

- a. capital goods.
- b. consumer goods.
- c. investment goods.
- d. normal goods.
- e. opportunity goods.

ANS: A DIF: Easy TOP: IV.A.

REF: Consumer Goods, Capital Goods, and Investment MSC: Remembering

121. Goods that are produced for current consumption are called:

- a. capital goods.
- b. consumer goods.
- c. investment goods.
- d. normal goods.
- e. opportunity goods.

ANS: BDIF: Easy TOP: IV.A.

REF: Consumer Goods, Capital Goods, and Investment MSC: Remembering

122. Goods that are produced today in order to make other valuable goods and services in the future are called:

- a. normal goods.
- b. inferior goods.
- c. consumer goods.
- d. capital goods.
- e. personal goods.

ANS: D DIF: Easy TOP: IV.A.

REF: Consumer Goods, Capital Goods, and Investment MSC: Remembering

123. Forgoing current consumption so that those resources can be used to produce new capital is called:

- a. absolute advantage.
- b. comparative advantage.
- c. investment.
- d. scarcity.
- e. saving.



ANS: CDIF: Easy TOP: IV.B.

REF: Consumer Goods, Capital Goods, and Investment MSC: Remembering

124. The process of using current resources to create or buy new capital is called:
- absolute advantage.
  - comparative advantage.
  - investment.
  - the law of increasing relative cost.
  - economic growth.

ANS: CDIF: Easy TOP: IV.B.

REF: Consumer Goods, Capital Goods, and Investment MSC: Remembering

125. The process of using current resources to create new capital is:
- absolute advantage.
  - comparative advantage.
  - specialization.
  - investment.
  - free.

ANS: D DIF: Easy TOP: IV.B.

REF: Consumer Goods, Capital Goods, and Investment MSC: Remembering

126. The opportunity cost of every investment in capital goods is:
- current consumption (consumer goods).
  - future consumption (capital goods today).
  - absolute advantage.
  - comparative advantage.
  - scarcity.

ANS: A DIF: Medium TOP: IV.B.

REF: Consumer Goods, Capital Goods, and Investment MSC: Remembering

127. Over the last 20 years, countries such as India and China have:
- consumed heavily with little regard for the future.
  - invested heavily and enjoyed significant economic growth.
  - eliminated the problem of scarcity.
  - produced outside their production possibilities frontier (PPF).
  - produced wholly for current consumption.

ANS: BDIF: Medium TOP: IV.C.

REF: Consumer Goods, Capital Goods, and Investment MSC: Remembering

128. Is there an opportunity cost to increased investment in capital goods today?
- Yes, increased production of capital goods means fewer consumer goods today.
  - Yes, increased production of capital goods today means less economic growth in the future.
  - No, increased production of capital goods today does not mean fewer consumer goods today.
  - No, increased production of capital goods today guarantees more consumption today.
  - No, if society is producing at an efficient point on the production possibilities frontier (PPF), then there is no opportunity cost to investment in capital goods.

ANS: A DIF: Medium TOP: IV.C.

REF: Consumer Goods, Capital Goods, and Investment MSC: Understanding

129. Greater investment in capital goods today leads to:

- a. greater growth in the production possibilities frontier (PPF) in the future.
- b. greater consumption today.
- c. the end of scarcity.
- d. less opportunity cost.
- e. scarcity.

ANS: A      DIF: Medium      TOP: IV.C.

REF: Consumer Goods, Capital Goods, and Investment      MSC: Understanding

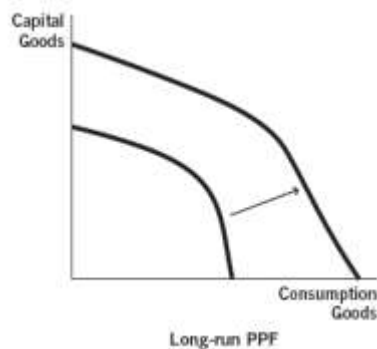
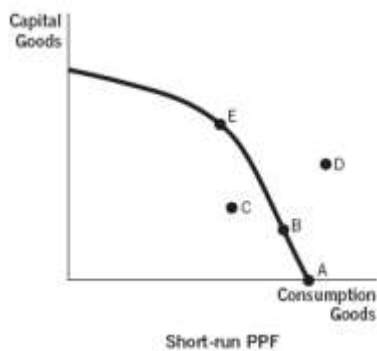
130. Which of the following would NOT lead to an outward shift of a future production possibilities frontier (PPF)?

- a. population growth
- b. increased investment today
- c. an increase in technology
- d. the discovery of new resources
- e. a decline in life expectancy

ANS: EDIF: Medium      TOP: IV.C.

REF: Consumer Goods, Capital Goods, and Investment      MSC: Applying

Refer to the following figures to answer the next two questions.



131. Which allocation point in the short-run production possibilities frontier (PPF) will lead to NO GROWTH in the long-run PPF?

- a. point A
- b. point B
- c. point C
- d. point D
- e. point E

ANS: A      DIF: Medium      TOP: IV.C.

REF: Consumer Goods, Capital Goods, and Investment      MSC: Analyzing

132. Which allocation point in the short-run production possibilities frontier (PPF) will lead to the most significant growth in the long-run PPF?
- point A
  - point B
  - point C
  - point D
  - point E

ANS: EDIF: Medium TOP: IV.C.

REF: Consumer Goods, Capital Goods, and Investment MSC: Analyzing

### SHORT-ANSWER QUESTIONS

1. Comment on the role of models in economics. What are the strengths and weaknesses of using them to explore the world around us?

ANS:

Models are important because they simplify a complex world to a level where we can consider a limited number of factors and identify important relationships between them. This simplified view of reality can give us a better understanding of the component parts. To keep models simple and understandable, we need to exclude many outside (exogenous) factors. If we exclude something that is highly important to the outcome, however, our model will not have good predictive power and won't help our understanding of the real world. A good model carefully excludes or filters out factors that will have little impact on the end result in an effort to better understand the main causal factors.

DIF: Medium TOP: I.C. REF: Economic Models MSC: Understanding

2. How will a reduction in the national unemployment rate affect a nation's production possibilities frontier (PPF)?

ANS:

Unemployed labor resources mean that, as a society, we are not producing on our production possibilities frontier (PPF). A reduction in the unemployment rate generally means that more people are working. As these labor resources are being utilized, we can move from farther inside the PPF (in the inefficient range) toward the efficient points on the frontier itself. It does not cause the actual PPF to shift. To do that there would need to be an actual increase in resources, not just more use of existing resources. (A new baby boom generation or an increase in immigration is the kind of thing that could actually increase labor resources and shift the PPF outward.)

DIF: Medium TOP: II.A. REF: What Is a Production Possibilities Frontier?

MSC: Understanding

3. What assumptions do economists make when developing a production possibilities frontier (PPF)?

ANS:

To simplify the complexity of the real world, economists assume that there are only two goods that society can produce and that there are no changes in the amount of resources and technology. Also, time is fixed and all resources are used fully and efficiently. None of these assumptions are actually true; we can discover new resources or see nature destroy existing ones, we invent new technologies, and (most important) we live in a world where there are more than two things that we can produce and consume. Nevertheless, the PPF gives us important insights into the trade-offs we face as we make production decisions and provides

insights into the concepts of comparative advantage, specialization, efficiency, scarcity, and trade.

DIF: Medium TOP: II.A. REF: What Is a Production Possibilities Frontier?

MSC: Understanding

4. What does it mean when society is operating inside the production possibilities frontier (PPF)?

ANS: The society is not fully utilizing all of its resources; it is operating in the inefficient range of the PPF. This could be caused by unemployed workers, unused productive capacity, or unmotivated workers. Anything that prevents productive resources from being fully or efficiently employed in making goods and services pushes society inside its PPF. With better management, the society can have more of both goods without having to give up any current production of either.

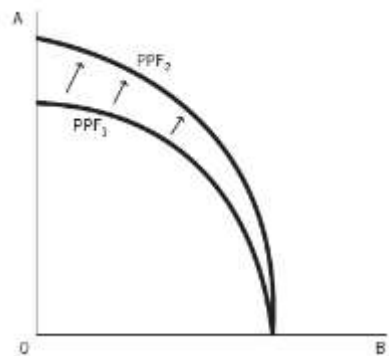
DIF: Medium TOP: II.A. REF: What Is a Production Possibilities Frontier?

MSC: Understanding

5. Draw a production possibilities frontier (PPF) for Good A and Good B. Suppose that these goods are subject to increasing relative costs in production, and be sure that your graph reflects this fact.

Now suppose that a new and innovative technology enhances the production of Good A but not Good B. Illustrate how this new innovation changes the production possibilities frontier (PPF).

ANS:



DIF: Medium TOP: II.A. REF: The Production Possibilities Frontier and Opportunity Cost

MSC: Analyzing

6. Explain how scarcity is the root cause of the trade-offs and opportunity cost illustrated in the production possibilities frontier (PPF).

ANS:

The PPF shows the maximum attainable combinations of two goods given efficient use of fixed resources and technology. Without scarcity, we can all have as much of everything as we want; there is no need to choose (illustrated as a point beyond the PPF). There are no trade-offs, no constraints, no frontiers. It is only because of the economic condition of scarcity that we are forced to choose how to allocate our resources to produce at a specific point on the PPF. Opportunity cost, the giving up of one thing to get more of another, is a direct result of the need to choose, which is created by scarcity.

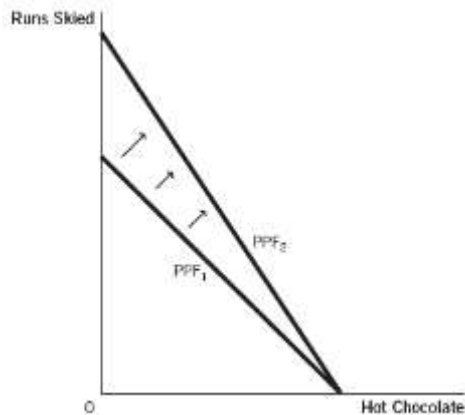
DIF: Difficult TOP: II.B. REF: The Production Possibilities Frontier and Opportunity Cost

MSC: Understanding

7. Suppose that, during an afternoon at your favorite ski resort, you could either make additional runs down the slopes or produce and sip hot chocolate by the fire in the lodge. Draw a production possibilities frontier (PPF) that describes your production trade-offs between runs skied (by riding the chairlift to the top and skiing down the slope) versus cups of hot chocolate produced and sipped. Your production of each of these goods is subject to constant marginal opportunity costs in production, so be sure that in your graph, the opportunity cost of one activity in terms of the other is the same at any point on the PPF.

Now suppose that a new superfast ski lift reduces the time it takes to get to the top of the mountain. Show, on the same graph, how this changes the PPF.

ANS:

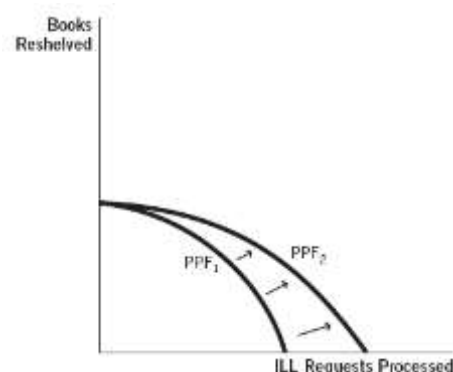


DIF: Medium TOP: II.A. REF: The Production Possibilities Frontier and Economic Growth MSC: Analyzing NOT: Constant opportunity cost equals a straight-line PPF. The trade-off ratio between the two options is the same anywhere along the curve.

8. Suppose that, during your afternoon shift working at the library, you could either reshelve books or process interlibrary loan (ILL) requests. Draw a production possibilities frontier (PPF) that describes your production trade-offs. Your production of each of these goods is subject to increasing relative costs in production, so be sure that your graph reflects this fact.

Now suppose that a new online request system increases your efficiency at processing ILL requests but does not affect your reshelving ability. Show, on the same graph, how this new innovation changes the PPF.

ANS:

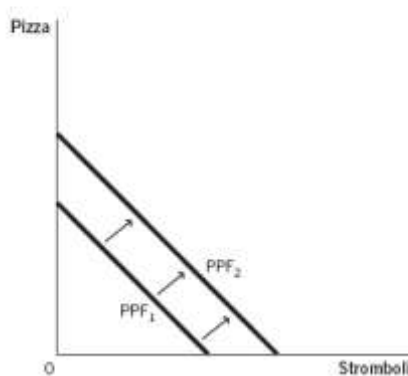
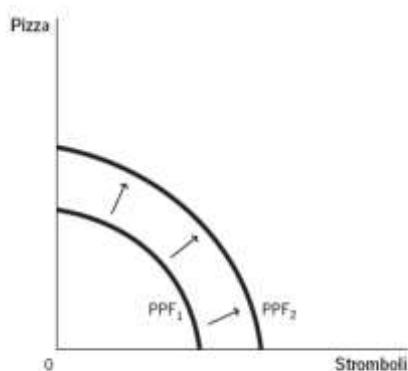


DIF: Medium TOP: II.A. REF: The Production Possibilities Frontier and Economic Growth MSC: Analyzing

9. Draw a production possibilities frontier (PPF) that shows a pizza shop's production trade-offs between producing pizzas and stromboli. Suppose the pizza shop upgrades to a larger, more-

automated oven. On the same graph, show how the PPF changes. (The oven is used to bake both pizzas and stromboli.)

ANS:



DIF: Medium TOP: II.A. REF: The Production Possibilities Frontier and Economic Growth  
 MSC: Analyzing NOT: You could draw the graph with a concave PPF (increasing relative cost) or a straight-line PPF (constant opportunity cost). The important thing is that both ends of the PPF shift out because the new oven enhances the production of both goods.

10. You are planning to add new mulch to all the landscaping beds around your house. You have determined the quantity of mulch you will need and have identified these two options for getting the mulch to your house:
1. You can have all the mulch delivered to your yard in one dump truck for \$450.
  2. You can make four trips to the garden center with your pickup truck and haul it yourself. It will cost you \$75 per load for the mulch, plus \$25 in fuel and truck wear per load. You estimate it will take about five hours to haul and unload all four loads.

What is the full cost of each method? Which method is cheaper? How is opportunity cost relevant?

ANS:

Hauling the mulch yourself would cost \$100 per load times four loads to get \$400 out of pocket. That amount doesn't account, however, for the opportunity cost of your time to haul and unload the mulch yourself. The full cost of self-delivery should account for your time. The difference in the monetary cost of hauling yourself (\$400) versus delivery (\$450) is \$50. If the opportunity cost of your time is greater than \$10 per hour, you should have the mulch delivered. If your time is worth less than \$10 per hour, it is cheaper to haul it yourself.

DIF: Difficult TOP: III. REF: Comparative Advantage MSC: Analyzing

11. How can a person who is "better" or more efficient (in that they have an absolute advantage in the production of various goods on the PPF) at producing several things be made even better off by specialization and trade?

ANS:

It sometimes seems counterintuitive that someone who has an absolute advantage in producing many things could be made better off by trading with less-efficient producers. By producing the good or service in which you have the lowest opportunity cost and by letting others specialize in the things in which they have a lower opportunity cost, societal production can be maximized. Then, with mutually beneficial voluntary trade, market participants can consume a bundle of goods outside their own production possibilities frontier (PPF). In other words, they can consume more goods and services than they could produce and consume on their own. Regardless of each person's level of skill or innovation, people are better off with trade than they would be if they all produced and consumed everything for themselves. Imagine what our standard of living would be like if we each had to grow all our own food, build our own shelter, and make our own clothes.

DIF: Medium TOP: III. REF: Comparative Advantage MSC: Evaluating

12. The existing entries in the following table show the maximum quantities of milk shakes or fruit smoothies the college president and dining hall staffer could make during an afternoon shift, given a fixed amount of resources.
- Fill in the remaining part of the table (be sure to label the units) and answer the questions below.

	Number of Milk Shakes per Shift	Number of Smoothies per Shift	Opportunity Cost of 1 Smoothie	Opportunity Cost of 1 Milk Shake
President	50	25		
Dining Hall Staffer	90	30		

- Who has a comparative advantage in producing smoothies?
- Who has an absolute advantage in producing milk shakes?

ANS:

a.

	Number of Milk Shakes per Shift	Number of Smoothies per Shift	Opportunity Cost of 1 Smoothie	Opportunity Cost of 1 Milk Shake
President	50	25	2 milk shakes	1/2 smoothie
Dining Hall Staffer	90	30	3 milk shakes	1/3 smoothie

- President has a comparative advantage in making smoothies (even though dining hall staffer has an absolute advantage).
- Dining hall staffer has an absolute advantage in producing milk shakes (and smoothies, too, as mentioned in answer B).

DIF: Medium TOP: III.B. REF: Comparative Advantage MSC: Analyzing

13. The table below shows the maximum number of burgers or hot dogs that Vinny and The Situation can cook in 1 hour.
- Fill in the rest of the table with the opportunity cost of burgers and hot dogs for each person. Be sure to include the units.
  - Identify who has a comparative advantage in producing each good.

	Maximum Burgers	Maximum Hot Dogs	Opportunity Cost of 1 Burger	Opportunity Cost of 1 Hot Dog
Vinny	30	60		
The Situation	50	75		

ANS:

a.

	Maximum Burgers	Maximum Hot Dogs	Opportunity Cost of 1 Burger	Opportunity Cost of 1 Hot Dog
Vinny	30	60	2 hot dogs	1/2 burger
The Situation	50	75	3/2 hot dogs	2/3 burger

b. The Situation has a comparative advantage in making burgers, and Vinny has a comparative advantage in making hot dogs.

DIF: Medium TOP: III.B. REF: Comparative Advantage MSC: Analyzing

14. Why might Shaquille O’Neal, a 7'1" former National Basketball Association (NBA) player, hire professional movers to help him move, even though his size and strength likely make him more proficient (better) at furniture moving than the professionals he may hire?

ANS:

Even today, Shaquille O’Neal has certain occupational opportunities, like being a professional basketball analyst, that most movers do not possess. This suggests that Shaq’s opportunity cost may be greater than that of the professional movers, giving the movers a comparative advantage. This was easily apparent when he was still actively playing in the NBA. Moving himself might have meant missing out on practice time, which is important for his continued high-level of performance. Even now that he has retired, the things that he can do with his time (his opportunity cost) may be more valuable than what the movers give up, which still gives the movers a comparative advantage. Because of this, Shaq can be better off hiring movers even if he has an absolute advantage in moving his possessions.

DIF: Medium TOP: III.B. REF: Comparative Advantage MSC: Evaluating

15. Why doesn’t our society invest more resources into the production of capital goods to enhance the level of growth in our future production possibilities frontier (PPF)?

ANS:

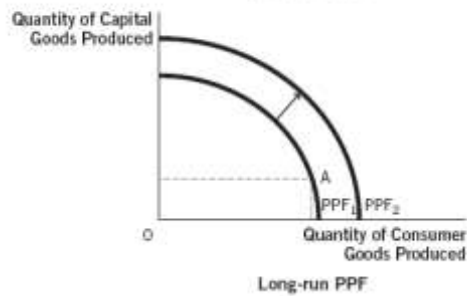
Capital goods are great because they lead to economic growth. Consumer goods are great because we get satisfaction now. Production of either one comes at an opportunity cost; in a world of scarce resources we have to give up current consumption in order to produce capital goods. It may be that the political process or our own biases and time preference sometimes distort the allocation of resources between present consumption and investment in capital for the future—but it is not the case that it is always better to invest more for the future. Consumers also value current consumption. Ultimately, it depends on the marginal benefit versus the marginal cost of the actual capital and consumption production point.

DIF: Medium TOP: IV.C. REF: Consumer Goods, Capital Goods, and Investment  
MSC: Understanding

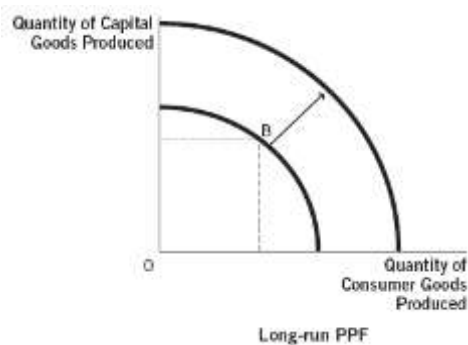
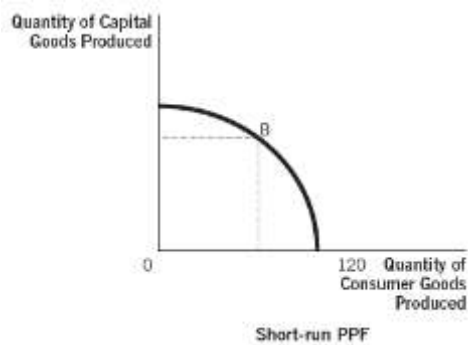
16. In the movie *A Knight’s Tale*, three peasants win a jousting tournament and must decide whether they should enjoy most of their winnings now or use most of it for training to improve their future jousting performance. Use appropriate production possibilities frontiers (PPFs) and words to describe the investment trade-off they face.



ANS:



This is a classic example of the trade-off between the present and the future. If the peasants spend most of their winnings to live well now, they greatly value their current consumption, or consume at point A on the short-run PPF graph above.



If they choose to invest more of their winnings to train to become better joustors in the future, and perhaps win more over the long run, they will consume at point B on the short-run PPF graph. The investment leads to greater growth of the long-run PPF, as seen in the graph above.

DIF: Medium TOP: IV.C. REF: Consumer Goods, Capital Goods, and Investment

MSC: Analyzing

17. Is it always better to forgo current consumption in order to invest more in capital goods that will provide more growth in society's production possibilities frontier (PPF) and make us better off in the future?

ANS:

No, it is not always better to forgo current consumption in order to invest for the future. Economic growth is great; most of us would like to see increases in society's ability to produce and are willing to sacrifice some current consumption in order to make the capital goods today that make future growth possible. However, we also value current consumption. If we produced only capital goods today, there would be no food, clothing, shelter, entertainment, and so forth, being available for current consumption. Because the opportunity cost of producing additional capital goods is current consumption, it is not the case that investing in capital goods is always preferred.

DIF: Medium TOP: IV.C. REF: Consumer Goods, Capital Goods, and Investment

MSC: Evaluating