1. C Scarcity is a result of limited resources paired with unlimited desires. Resources can include time, land, food, and savings. [6,2,1]
2. C Positive economics focuses solely on analyzing cause and effect in the economy while normative economics adds subjective value judgments to recommend specific courses of action. [8,1,1-2]
3. B People demonstrate rationality by using cost-benefit analyses to determine which trade-offs to make. These analyses often take place subconsciously. [7,1,4]
4. A Scarcity is the combination of unlimited desires and limited resources. The existence of scarcity creates the necessity for tradeoffs. [6,2,1]
5. D Opportunity cost is the benefit derived from the next best action. For instance, the opportunity cost of going to a movie might be the benefit derived from using that time to study. [7,1,2]
6. E The law of supply states that as price increases, quantity supplied increases. Therefore, the supply curve's slope is positive. [15,1,1]
7. D Pareto efficiency maximizes total surplus or overall-well being. Total surplus is the sum of consumer and producer surplus. [8,2,1]
8. D The market demand schedule lists how much of a good all buyers of the good will buy at each price. The graph of the market demand schedule is the market demand curve. [13,1,5]
9. B Perfectly elastic demand means that any change in the market price leads to an infinite change in the quantity demanded, a phenomenon graphically represented by a horizontal line (slope = 0). [26,1,2]
10. D A production possibility frontier curve is always negative, reflecting the reality of tradeoffs. Because time and resources are limited, you must give up producing one thing in order to produce another. [36,1,0-2]
11. B When analyzing the behavior of a firm, economists assume the firm's objective is to maximize profits. Profits are defined as total revenue minus total cost. [40,2,3]
12. B In a perfectly competitive market, firms earn zero economic profit. If firms are earning positive economic profit in the market, other suppliers will enter the market until economic profits decrease to zero. [43,1,3]
13. E A market with one supplier is a monopoly. The monopoly possesses market power, or control over the market price. [43,2,3]
14. D Cartels occur when various suppliers in an oligopoly agree to restrict supply to regulate the market price. By making cartels illegal, the government increases market competition. [48,1,1]
15. C Creative destruction occurs when markets for newer goods replace older markets. Creative destruction therefore describes the contributions of entrepreneurs. [49,2,1]
16. D When a monopoly implements perfect price discrimination, it charges each consumer the most the consumer is willing to pay for the good. Therefore, perfect price discrimination eliminates consumer surplus. [47,1,1]
17. A Pollution is a negative externality. The producers of pollution, e.g. factories, often do not have to suffer the costs of pollution and therefore more pollution is produced than is socially optimal. [50,1,4]
18. E The tragedy of the commons can be resolved by establishing property rights. After the common resources become privately owned, the private parties can resolve the externality using negotiation. [55,1,2]
19. A The government has a monopoly on the use of force. It uses force to compel people to go against their own self-interest. [58,1,2]
20. E The area below the market price and above the supply curve is producer surplus while the area above the market price and below the demand curve is consumer surplus. The areas combined make up total surplus. [20,2,2]
21. B When the price of an input rises, supply shifts inward. This shift increases the market price and reduces quantity supplied. [20,1-2]
22. A When income increases, the demand for a normal good shifts outward. When income decreases, the demand for an inferior good shifts outward. [13,2,3]
23. E In an informal market, the market price is set by the natural forces of equilibrium, which guarantee that goods go to the consumers who value them the most. [10,2,2]
24. C A perfectly competitive market has a large number of buyers and sellers, none of whom can control the market price. The market also comprises a highly standardized good and no barriers to entry and exit. [21,1,1]
25. D Fixed costs include rent and equipment. In the short-run, these fixed costs are difficult to change and therefore stay fixed. [42,1,3]
26. B A central bank regulates the supply of money. The Federal Reserve is an example of a central bank. [89,1,2]
27. A The nominal interest rate is the real interest rate plus the rate of inflation. High inflation rates therefore cause confusion about the real interest rate. [84,2,4]
28. A The equation MV = PY relates money supply (M), the velocity of money (V), the price level (P) and real Gross Domestic Product (Y). [102,1,3]

29. E A trade surplus occurs when exports exceed imports. A trade deficit occurs when imports exceed exports. [40,1,3]
30. D The Circular Flow Model of the economy contains two major markets: factors of production and goods and services. Firms are the suppliers and households are the buyers in the goods and services market while firms are the buyers and households are the suppliers in the factors of production market. [77,2,3]
31. D Gross Domestic Product includes the market value of all final goods and services. Therefore, intermediate goods, or goods which are used to produce final goods, are not included in the GDP. [68,1,1]
32. D The level of income in a closed economy is equal to the level of expenditures. The circular flow model demonstrates this equality. [72,1,1]
33. D The Consumer Price Index is measured by the Bureau of Labor Statistics, which is a part of the Department of Labor. [72,2,2]
34. A People who purchase stock receive dividends. People who purchase bonds receive interest payments. [82,1,0]
35. B Inflation reflects a devaluation of money and manifests itself as an increase in the price level. The value of money is the reciprocal of the price level so an increase in inflation reduces the value of money. [87,2,0]
36. E Transfer payments, in which wealth is simply moved from one place to another, such as Social Security payments, are not counted in real Gross Domestic Product since they do not represent the creation of wealth. [67,2,2]
37. A A consumer nondurable is used up quickly. Consumer nondurables include clothing and food. [71,1,1]
38. C Mutual funds and banks are types of financial intermediaries. Financial intermediaries connect savings to investment. [82,2,3-5]
39. A In a closed economy, savings always equals investment since Y – C – G = I. Y – C – G equals income minus consumption and government spending, which is equivalent to total savings. [84,2,2]
40. E The Federal Reserve conducts open market operations by buying and selling government bonds. The Federal Reserve increases the money supply by buying government bonds and reduces the money supply by selling government bonds. [89,2,1]
41. C Water provides an ecosystem service when it provides a service that would otherwise cost something. For example, providing a home to spawning salmon in an ecosystem service. [111,2,3]
42. C A common-pool resource is one from which users cannot easily be excluded. It would be very difficult, for example, to prevent people from taking water from a large lake or underground aquifer. [113,1,1]
43. C Pricing water more per unit as more is used is a method called increasing block rate. It encourages conservation by making high water use more costly. [115,2,5]
44. D Private canals owners could end up in a standoff with farmers, if each withheld. This situation is called a bilateral monopoly. [118,1,2]
45. C The Hohokam people of the American southwest built an extensive system of canals, some of which survive today. [117,1,1]
46. D If water can be transferred to a new market, sellers can often charge a higher price. [122,1,1]
47. E Chile is home to some of the world's largest copper mines. Mining accounts for more than half of freshwater consumption in the dry Antofagasta Region. [123,1,2]
48. B Dominion Energy has estimated that cleaning up coal ash waste in Virginia [124,1,1]
49. D Industrial waste caused the Cuyahoga River to catch fire multiple times in the middle of the twentieth century. After the 1968 fire, environmental reforms reduced the river's pollution. [125,1,image]
50. E Flint, Michigan drinking water was polluted by lead after the city switched their source of water to save money.

1. B A key economic concept is rationality, which presumes that people make choices that will offer them the greatest overall benefit. [7,2,0]
2. A Another foundational concept of economics is the assumption that everything except desire is scarce. [40,2,3]
3. A An economic model presents a simplified view of the situation and eliminates unnecessary or confusing details. Examples of economic models include the supply and demand curves or the circular flow model. [7,2,3]
4. B Normative economics makes arguments from what should or ought to be. Thus, the claim that workers should be able to support their families on their income is a normative claim. [8,1,3]
5. B Gains from trade will arise when the benefits of trade outweigh the trade-offs, or costs. [7,2,2]
6. E A perfectly competitive market contains a highly standardized good, no barriers to entry or exit, and a large number of buyers and sellers, all of whom are well informed about the market price, [11,1,1]
7. C According to the law of demand, the higher the price, the lower quantity demanded. Therefore, the demand curve is downward sloping. [12,2,1]
8. B If the price of a complement increases, the demand curve will shift inward. If the price of a complement decreases, the demand curve will shift outward. [14,1,0]
9. C When the price of a substitute rises, demand shifts outward. This shift increases both equilibrium price and equilibrium quantity. [13,2,6]
10. D The price elasticity of supply is the percent change in quantity supplied divided by the percent change in price. When the price elasticity of supply is 1, supply is unit elastic. [14,2,2]
11. C Public goods, like national defense and radio broadcasts, have low levels of excludability and rivalry. Consumption is not restricted and that one person's consumption does not affect another person's. [56,2,5]
12. E The tragedy of the commons arises with public goods because no one firmly owns negative market externalities that may arise. [55,2,0]
13. D Substitute goods are those that can be replaced for each other, such as paper books and e-books. If the price of one substitute good rises, demand for the other good will also rise. [25,2,4]
14. E Marginal cost refers to the cost of producing one more unit of a product or service. For example, the marginal cost in a shoe factor refers to the cost to produce 27 shoes instead of 26. [42,1,5]
15. A The Ronald Coase theorem states that decisions will be optimal in a competitive market with no transaction costs. This type of market will resolve externalities. [51,1,4]
16. C Inferior goods are those for which demand will fall when incomes rise. When incomes rise, people tend to drive their cars (or use car services) rather than take buses; thus, a bus is an inferior good. [13,2,4]
17. E Deadweight loss is the cost of market inefficiency. It can occur in different contexts; one such context is the loss efficiency that occurs when a tax is levied. It means that the socially optimal quantity of a good is not produced. [33.2.4]
18. E Firms with market power have the ability to set prices in a market, thus engaging in anti-competitive behavior. [43,2,2]
19. A If the world price is greater than the market equilibrium price in a nation, then the price in that nation rises to the global equilibrium. This relatively higher price decreases domestic consumption of the good. [40,1,4]
20. C The consumer surplus of a good is the total cost above the price that consumers are willing to pay. Snigdha's extra is $10 and Arjun's is $90, meaning that the consumer surplus is $40. [20,2,0]
21. E Making it easier for firms to enter the marketplace will increase the possible quantity supplied, thus making supply more elastic. [26,1,4]
22. A No more first-edition Dickens novels will ever be printed, meaning that the supply is perfectly inelastic. [26,2,3]
23. C If one production possibility frontier surpasses another on every point, the first producer has an absolute advantage. They will be able to carry out their activity more efficiently at every point. [36,1,3]
24. E Rent control will not change the elasticity of demand in the market for rental apartments. [29,2,4]
25. C When monopolies enact price discrimination, they can create a marginal revenue curve identity to the market demand curve and supply a quantity equivalent to the one that would arise in a competitive market. [45,2,4]
26. D When the money supply increases, the aggregate demand curve shifts outward. However, if people expect the price level to increase, short-run aggregate supply will shift upward so that it intersects aggregate demand at the level of potential output. [101,2,5]
27. E If the Federal Reserve exercises contractionary monetary policy, the money supply will fall, shifting the supply curve of money inward. This shift also increases the value of money. [108,2,4]

28. E The purchase of stocks and bonds is not counted in Gross Domestic Product as investment spending. Investment spending occurs when businesses purchase new equipment or people purchase new houses. [101,1,3]
29. D If consumers suddenly want to carry more money, the demand curve for money will shift outward, lowering the value of money. However, the quantity supplied of money is fixed by the Federal Reserve and therefore does not change. [108,2,3]
30. A According to the neutrality of money, prices will adjust in the long run. Therefore, an increase in oil prices does not affect potential output (i.e. long-run aggregate supply). [102,1,3]
31. E In the long-run, the Federal Reserve fixes the supply of money, irrespective of the value of money; a vertical line represents this relationship graphically. When the Federal Reserve changes the money supply, the value of money may also change. [92,2,4]
32. C The natural rate of unemployment includes frictional unemployment, which is unemployment that arises when workers are searching for jobs suited to their tastes and skills. [99,2,1]
33. B A loan from a bank to the Federal Reserve is set at the discount rate. These types of loans usually occur only when the bank is in financial trouble. [91,1,3]
34. A Crowding out arises when the government runs a deficit, leading to a reduction in the supply of saving at every interest rate. [87,1,2]
35. D An overall increase in household incomes would be unlikely to affect the aggregate supply curve, because it would affect all curves equally. [104,1,0-2]
36. B The Consumer Price Index measures the cost of a representative selection of consumer goods. It is set by the U.S. Bureau of Labor Statistics. [72,2,2]
37. E New technological developments in the United States have enabled the average American to enjoy a far higher standard of living today than the average standard of living of an American in 1900. The average labor productivity in the United States economy has grown by a factor of eight since 1900. [80,2,5]
38. A According to the neutrality of money, prices will adjust in the long run. Therefore, an increase in oil prices does not affect potential output (i.e. long-run aggregate supply). [102,1,3]
39. D When the economy is in a recession, cyclical unemployment rises. On the other hand, structural and frictional unemployment exist even in an expansion. [98,1,1]
40. D According to Okun's law, an 8% increase in the output gap when the output is above potential output (meaning the economy is growing) should lead to a 4% decrease in the rate of cyclical unemployment. The change in the output gap is double the change in cyclical unemployment. [100,1,0]
41. C Mutual ditch companies were formed in the American West when farmers joined together to dig and maintain ditches in exchange for a share of the water. [118,1,2]
42. E The 98th meridian runs through North and South Dakota, Nebraska, Kansas, Oklahoma, and Texas. It forms an imaginary separation between the eastern and the western United States. [118,3,1]
43. D Appropriative rights give users rights to water, but they do not require ownership of land abutting the water, or of water itself. [120,2,1]
44. C Sprinklers are more efficient irrigation systems than the alternative of flood irrigation. [119,2,1]
45. C The Aral Sea watershed lies between Uzbekistan and Azerbaijan. Irrigation diversions have shrunk it dramatically over the last decades. [120,3,2]
46. D Diversions have reduced inflow into California's Owens Lake to zero, causing it to dry up and release toxic dust into the air. [121,1,0]
47. C Elinor Ostrom won a Nobel Prize for her work on common-pool resources, such as an aquifer lying below several countries. [122,2,1]
48. D An externality is a situation in which one party's actions affect the well-being on another without monetary consequence. An example of a negative externality is the pollution caused by gas cars; in most cases, no one pays for the negative effects of that pollution. [123,2,1]
49. D Although buying and selling pollution credits is one way to bring market forces to bear on negative externalities, pollution hot spots can arise when many firms in the same area purchase pollution credits. [127,2,0]
50. C Private mitigation banks restore environments and then sell their credits to firms, most often those engaged in urban developments. [128,1,3]

1. B Opportunity cost is the benefit derived from the next best action. Trade-offs imply that there is always a next best action, so opportunity costs always exist. [7, 1, 2-3]
2. E Rationality states that people weigh the costs and benefits of actions and select the action perceived to produce the greatest benefit at the least cost. [7,1,4]
3. B A situation is Pareto efficient as long as no resources are wasted. However, the situation can be Pareto efficient and fail to maximize total welfare if the resources are given, for instance, to the person who values them the least. [8,2,3]
4. E Gains from trade exist because people have different skill sets and can therefore specialize in the production of different goods. However, if everyone had the same skills, gains from trade would not exist. [7,2,1]
5. E According to the law of supply, as the price of a good increases, quantity supplied will increase. Therefore, the supply curve is upward-sloping. [15,1,2]
6. B As income decreases, the demand for an inferior good shifts outward, which means that people will buy more of the good at every price. As income increases, the demand for a normal good shifts outward. [11,2,4]
7. D The supply curve graphs price versus quantity supplied. Therefore, a change in the price of toothpaste translates to a movement along the curve and does not actually change the curve itself. [13,2,1]
8. B As income increases, the demand for a normal good shifts outward. This shift increases both market price and quantity demanded. [13,2,3]
9. D The price elasticity of supply is the percent change in quantity supplied divided by the percent change in price. When quantity supplied changes from some positive number to 0 with only a minimal change in price, supply is perfectly elastic. [26,1,2]
10. C Marginal cost increases with output, and firms produce at a quantity such that marginal revenue equals marginal cost. [42,2,2]
11. A A monopoly refers to a firm being the sole supplier of a good, not the sole buyer. A sole buyer is a rare type of market called a monopsony. [43,2,3]
12. B Accounting profit is calculated by subtracting accounting cost from total revenue. Accounting cost is the total fixed cost plus the total variable cost. [42,1,1]
13. C In a perfectly competitive market, a firm cannot affect the market price. Therefore, each unit of the good it sells brings in the same revenue, no matter how many units it sells. Therefore, marginal revenue for this firm is horizontal. [43,2,1]
14. C The existence of differentiated products increases the variety of goods buyers can choose from, therefore increasing consumer surplus. [48,2,0]
15. E A monopoly restricts quantity supplied in order to drive up the market price. As a result, the quantity supplied is below the socially optimal amount. [45,1,3]
16. E If producers expect a lower future price, supply will shift outward. If consumers expect a lower future price, demand will shift inward. These shifts will always lead to a decrease in equilibrium price, but the change in equilibrium quantity cannot be determined from the given information.
17. C A firm's economic cost is its accounting cost, which is the sum of its fixed and variable costs, plus its opportunity cost, which is the benefit derived from the next best action. [40,2,3]
18. B A producer has an absolute advantage when it can produce more of the good given the same resources as another. Better equipment helps gain such advantage, but it does not reduce the magnitude of the producer's opportunity cost, which determines comparative advantage. [36,2,3]
19. A If demand is more elastic than supply, a tax will burden producers more than consumers. If supply is more elastic than demand, a tax will burden consumers more than producers. [34,2,0]
20. C Cartels exist in oligopolies when producers agree to restrict production in order to set the market price. However, cartels are vulnerable because each producer is tempted to lower his or her prices to increase profits. [48,1,1]
21. D The government allows entrepreneurs to hold a monopoly over the markets they create. Since they have monopolies, they make positive economic profits. [49,1,4]
22. E When a closed economy opens to trade and the market price is higher than the world price, consumer surplus increases and producer surplus decreases. [40,1,3]
23. E Government revenue from the tax is the value of the tax multiplied by the new market quantity. Graphically, tax revenue is the rectangle bounded by the price consumers pay, the price producers receive, and the new market quantity. [33,2,1]
24. B Price discrimination occurs when a firm charges different customers different prices. Customers who value a good more highly are charged a higher price. [45,2,4]

25. A If everyone suddenly wants to purchase more, the demand for money will rise, shifting the demand curve for money outward. This shift increases the value of money but the supply of money does not change since it is fixed by the Federal Reserve. [89,2,1]

26. E Expenditures do not include a firm buying stock in another firm, because buying stock does not contribute to the essential business of a firm. [101,1,3]

27. A Gross Domestic Product is the total market value of all final goods and services produced within a country during a specified period of time. This total is measured in goods and services to calculate real Gross Domestic Product. [61,2,3]

28. B As the price level increases, people have less purchasing power, reducing consumption spending and therefore lowering real Gross Domestic Product. [102,1,3]

29. A Fiat money is currency that is not backed by a commodity. It can refer to currency established by the government or by another authority, such as a classroom teacher. [88,1,2]

30. B Intermediates goods already appear in GDP as revenue for the originating firm, so they are not calculated in GDP. If a clothing company uses a textile to create a dress, only the dress counts, because the textile has already been counted for the textile firm. [70,2,2]

31. A The Consumer Price Index for 2012 is 100 multiplied by the cost of the market basket in 2012 divided by the cost of the market basket in the base year. Therefore, the cost of the market basket in the base year is 100 multiplied by the cost of the market basket in 2012 divided by the Consumer Price Index. [73,1,1]

32. A When the money supply increases, the aggregate demand curve shifts outward. However, if people expect the price level to increase, short-run aggregate supply will shift upward so that it intersects aggregate demand at the level of potential output. [101,2,4]

33. E In transfer payments, money is simply moved from one place to another and does not create any new wealth. They are therefore not counted in real Gross Domestic Product. Social Security payments are an example of transfer payments. [101,1,4]

34. B The Consumer Price Index uses a fixed market basket to calculate the cost of living while the Gross Domestic Product deflator uses a market basket that varies based on levels of production. The Consumer Price Index tends to overstate the cost of living. [72,2,3]

35. C Structural unemployment exists when workers' skill sets are not suited to employers' needs. However, if "unemployed" workers possess skills that make them employable in the black market, the rate of structural unemployment is likely overestimated. [76,2,1]

36. D In a bond market, the real interest rate is positively correlated with both the risk that the borrower will default as well as with the maturity of the bond. The higher the risk of defaulting and maturity, the more risk the buyer of the bond undertakes, so a higher interest rate serves as compensation. [85,1,1]

37. B In the money market, the supply of money is fixed by the Federal Reserve and therefore is perfectly inelastic with respect to the value of money. Therefore, the supply of money is graphically represented as a vertical line. [89,1,2]

38. B M2 is a broader measure of the money supply since it includes M1 in addition to savings deposits. Therefore, the graph of the supply of money measured using M2 is shifted outward compared to the graph of the supply of money measured using M1. [88, Figure 46]

39. C A sharp increase in the price of a widely used good causes a supply shock which leads to an upward shift in the short-run aggregate supply curve. This shift causes a decrease in the Real Gross Domestic Product and an increase in the price level, according to the Keynesian model for short-run fluctuations. [104,1,3]

40. B When the Federal Reserve practices expansionary fiscal policy, it aims to shift aggregate demand outward. This shift raises both real Gross Domestic Product and the price level. [108,2,3]

41. C The Akosombo Dam lies on the Volta River in southeastern Ghana, where it created Lake Volta. [111,2,0]

42. B Common-pool resources are those with high rivalry, meaning one person's use diminishes another's; and low excludability, meaning that it is difficult to prevent people from using them. These type of resources, such as lakes and aquifers, are prone to overuse. [113,1,1]

43. C The large size of water resources mean that economies of scale often come into play, when the marginal cost of production decreases as production increases. A large dam is more efficient than many smaller ones. [114,2,1]

44. E After the fires of the San Francisco Earthquake, many people blamed the local water company for capping the water supply. Eventually, the city took over the water supply and created a public utility that took water from Yosemite. [115,1,2]

45. B Diversions away from the Aral Sea dramatically shrank the sea's volume and led to the collapse of the fishing industry, which had employed 60,000 people. [120,3,2]

46. B The equimarginal principle states that consumers choose between goods to maximize utility. It means that consumers will consider both the price and the marginal utility of goods. [122,3,0]

47. D Instream flow rights recognize the value of water qua water, whether to passively reduce pollution, provide habitats, or allow people to recreate. These rights are more common in western states. [123,1,1]

48. D Zero pollution would be undesirable, because it would means that firms were not producing at an optimal level. Regulators must determine the optimal amount of regulation by finding the point at which the marginal control cost equals the social marginal damage; i.e., where the cost of reducing pollution by one unit is equal to the total cost to society of one additional unit of pollution. [123,2,2]

49. C A cap-and-trade system allows a certain amount of pollution to each firm, which can then trade, sell, or buy them. [127,1,2]

50. B In North Carolina, point source polluters, such as factories, are allowed a certain number of allocations to control the release of nitrogen and phosphorus into the environment. The NCDE allows polluters to trade allocations with each other. [128,1,2]