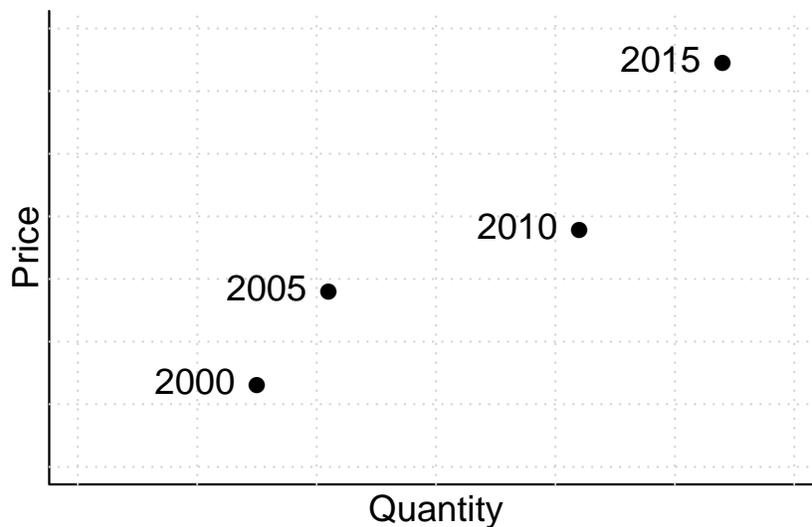


1. Show how demand for and supply of car tires changes in response to each of the following scenarios and what happens to equilibrium price, quantity demanded, and quantity supplied:
 - (a) Recovery from the recession means people have higher incomes
 - (b) Gas gets cheaper
 - (c) Hoverboards actually start hovering
 - (d) We start taxing gasoline more
 - (e) The toll to cross Grand Island doubles
 - (f) Ecoterrorists threaten to burn down all the tire shops in one month if we do not do something (I am leaving out the "something" so you will focus on the threat)
 - (g) Hipster culture spreads, and the pennyfarthing bicycle gains popularity
 - (h) The price of tires decreases (does this question even make sense?)
 - (i) Rubber gets more expensive
 - (j) Improvements in electronic record-keeping make tire distribution networks more efficient (lower delivery time, fewer losses from theft and mismanagement, etc.)

2. The plot below shows price and quantity combinations observed at different times in a particular market.



- Which of the following statements is definitely true?
- (a) We can get a supply curve by connecting the points.
 - (b) Supply increased over the 15-year period
 - (c) Demand increased over the 15-year period
 - (d) None of the above
3. If price increases and quantity traded decreases, which of the following statements is true?
 - (a) Supply definitely decreased
 - (b) Demand definitely did not increase
 - (c) Demand definitely did not decrease
 - (d) Demand definitely increased
 - (e) Supply definitely increased

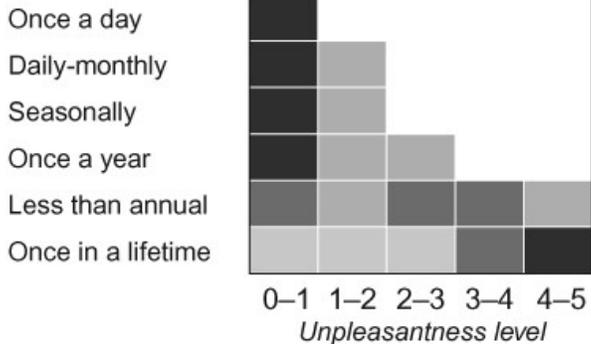
1. **Figure: Religion**

How much does it hurt?

% of religious rituals at each of five levels of unpleasantness



Ritual frequency



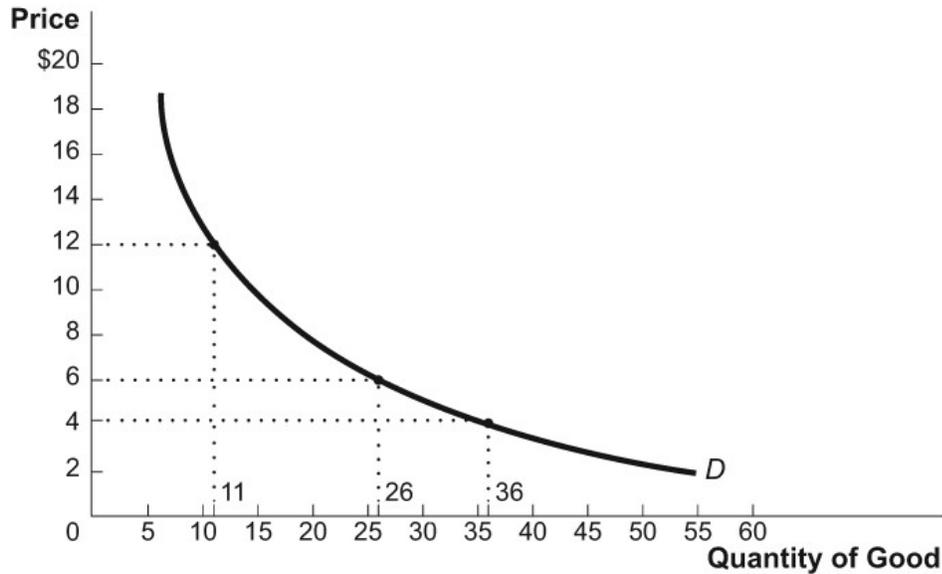
Source: *Evolution and Human Behavior*

This graph illustrates the work of psychologists Harvey Whitehouse and Quentin Atkinson, as published in the April 23–29, 2011 issue of *The Economist*. The “unpleasantness” of religious rituals (0 is low, 5 is high) is along the *x*-axis. How often the religion requires the ritual to be performed is along the *y*-axis. What economic concept does this diagram represent?

- A) opportunity cost
- B) consumer surplus
- C) a demand curve
- D) an inferior good

Use the following to answer questions 2-3:

Figure: Good X



2. (Figure: Good X) From the figure, which statement is TRUE?
 - A) At a price of \$12 per unit, consumers are willing and able to purchase between 11 and 26 units of Good X.
 - B) 36 units of Good X can be purchased by spending a total of \$4.
 - C) At a price of \$6 per unit, consumers are willing and able to purchase 26 units of Good X.
 - D) At a price of \$4 per unit, consumers are willing and able to purchase 11 units of Good X.

3. (Figure: Good X) From the figure, the maximum price that consumers are willing to pay for _____ units of Good X is _____ per unit.
 - A) 36; \$4
 - B) 11; \$4
 - C) 36; \$12
 - D) 26; \$4

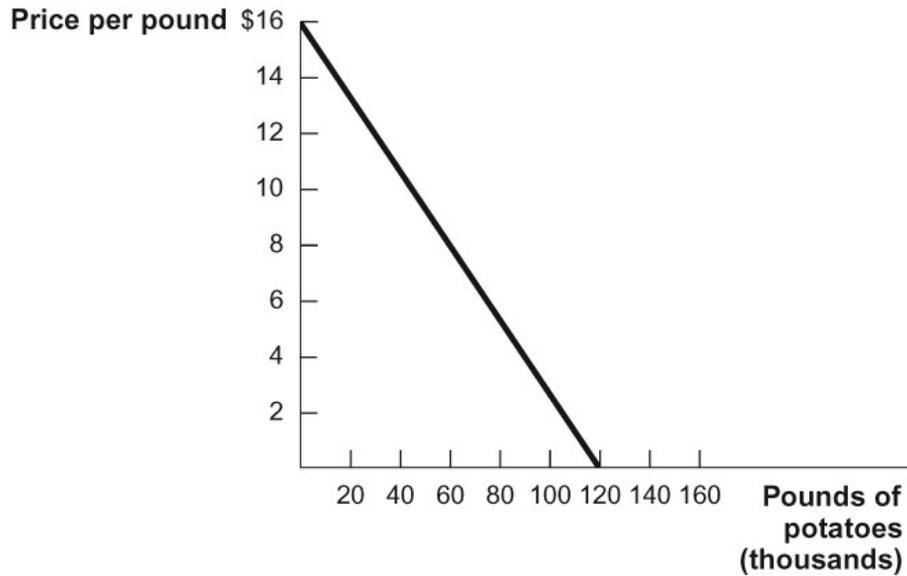
4. A demand curve indicates that:
 - A) the quantity demanded of a good is higher when its price is higher.
 - B) the quantity demanded of a good is higher when its price is lower.
 - C) the demand for a good is higher when its price is lower.
 - D) the demand for a good is higher when its price is higher.

5. When the price of wood is high:
 - A) consumers will be more likely to use wood in its least valuable uses.
 - B) consumers will be more likely to use wood in its most valuable uses.
 - C) the quantity demanded of wood will also rise.
 - D) the quantity demanded of wood will be unaffected.

6. Demand slopes down because:
- A) supply slopes up, and supply and demand must intersect.
 - B) consumers focus too much on the price of goods when they choose the quantity to demand.
 - C) goods usually only have a single use.
 - D) consumers will choose to use goods only in their most valuable uses when prices are high.

Use the following to answer questions 7-8:

Figure: Potatoes



7. (Figure: Potatoes) Refer to the figure. According to the demand curve, if the price of potatoes is \$8 a pound, how many pounds are demanded?
 A) 5 B) 50 C) 60,000 D) 80,000
8. (Figure: Potatoes) Refer to the figure. If the price of potatoes is \$8 a pound, what is the consumer surplus received?
 A) \$30,000 B) \$60,000 C) \$240,000 D) \$360,000

Use the following to answer question 9:

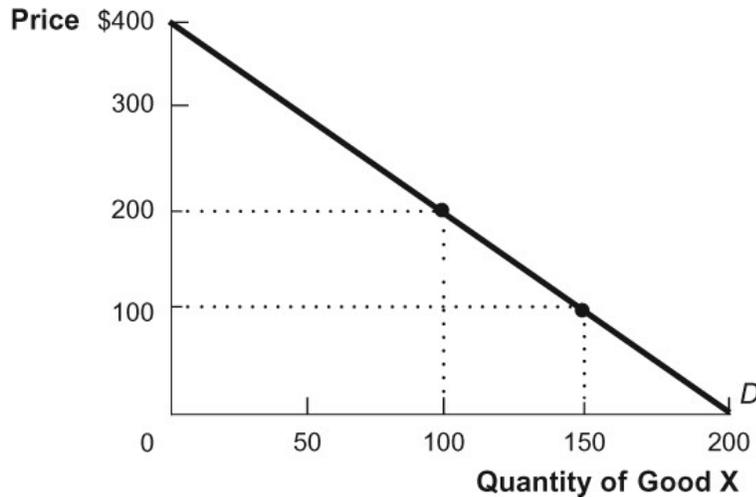
Table: Excel Company Survey

Consumer	Maximum willingness to pay for Excel personal computers (\$)
Adam	1,459
Sheera	1,320
Orko	1,201
Juliet	1,165

9. (Table: Excel Company Survey) The table shows the results of Excel Company's market survey. If the market price of Excel computers is \$1,200 each, how much total consumer surplus (in \$) are the four consumers earning?
A) \$380 B) \$415 C) \$345 D) \$5,145
10. If the university president valued a parking space close to the administration building at \$500 and paid \$30 for a parking permit, he would receive consumer surplus equal to:
A) \$30. B) \$470. C) \$500. D) \$530.
11. Alex and Tyler enjoy the food at a restaurant named China Star. Alex values a meal there at \$15 and Tyler values it at \$26. If the restaurant charges only \$10 a meal, what is Alex and Tyler's joint consumer surplus from a meal at China Star?
A) \$41 B) \$31 C) \$21 D) \$16
12. The market price of a good is \$5 and 40 units of the good sell at this price. Its demand curve intersects the vertical axis at a price of \$10 and has a constant slope. What is the approximate value of consumer surplus in this market?
A) \$100 B) \$50 C) \$200 D) \$75

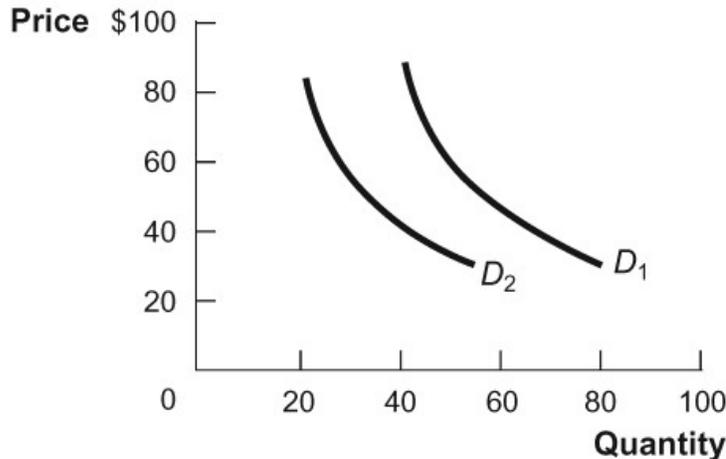
Use the following to answer questions 13-14:

Figure: Quantity of Good X



13. (Figure: Quantity of Good X) Refer to the figure. At a price of \$200, consumer surplus is:
A) \$20,000. B) \$40,000. C) \$10,000. D) \$200.
14. (Figure: Quantity of Good X) Refer to the figure. As the price falls from \$200 to \$100, consumer surplus changes by:
A) \$5,000. B) \$10,000. C) \$12,500. D) -\$25,000.
15. Which variable is NOT a demand shifter?
A) price of complements
B) price of substitutes
C) price of raw materials
D) tastes and preferences
16. In the week before Hurricane Katrina, the price of flashlights rose in New Orleans because of:
A) an increase in supply.
B) an increase in demand.
C) a decrease in supply.
D) a decrease in demand.
17. Which variable does NOT shift the demand curve?
A) population
B) price of complement goods
C) income
D) price of the good itself

18. **Figure: Shifting Demand**



In the diagram, which of the following factors would cause the demand curve to shift from D_1 to D_2 ?

- A) an increase in the price of a substitute good
 - B) a decrease in the price of a complement good
 - C) an increase in the population
 - D) an increase in income if this is an inferior good
19. The average age in the United States is _____, causing the demand for prescription drugs to _____.
- A) increasing; decrease
 - B) increasing; increase
 - C) decreasing; increase
 - D) decreasing; decrease
20. The current demand for parking in a city's downtown district is such that all the parking garages are full. If there is an increase in the city's population, there will be:
- A) an increase in the willingness to pay for parking.
 - B) a decrease in the quantity of parking spaces demanded across all prices.
 - C) a decrease in demand for parking.
 - D) no increase in demand since the parking garages are already at capacity.
21. The quantity of DVDs that people plan to buy this month will increase when:
- A) movie theater ticket prices increase.
 - B) the price of movies for download decreases.
 - C) the price of DVD players increases.
 - D) cable television prices decrease.
22. Coke and Pepsi are substitute soft drinks. Which of the following would cause the demand curve for Pepsi to shift to the left?
- A) a new Pepsi ad campaign that increases the popularity of Pepsi
 - B) the price of Coke decreases
 - C) the price of Pepsi decreases
 - D) the cost of making Pepsi rises

Use the following to answer questions 23-27:

Table: Equilibrium Price, Quantity

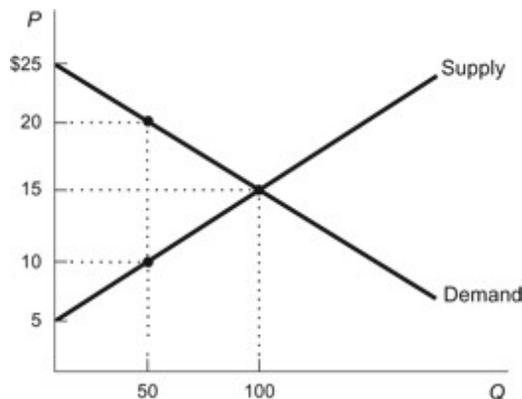
<i>P</i>	<i>Q_d</i>	<i>Q_s</i>
\$10	50	30
12	45	35
14	40	40
16	35	45
18	30	50

23. (Table: Equilibrium Price, Quantity) Refer to the table. The equilibrium *P* and *Q* are:
A) \$10 and 50. B) \$12 and 35. C) \$40 and 14. D) \$14 and 40.
24. (Table: Equilibrium Price, Quantity) Refer to the table. If the price in the market was \$16, there would be a:
A) shortage of 10 units. C) surplus of 10 units.
B) shortage of 35 units. D) surplus of 45 units.
25. (Table: Equilibrium Price, Quantity) Refer to the table. If the price in the market was \$12, there would be a:
A) shortage of 10 units. C) surplus of 10 units.
B) shortage of 45 units. D) surplus of 35 units.
26. (Table: Equilibrium Price, Quantity) Refer to the table. If the demand curve for the product shifted to the right such that 10 more units of the good are demanded at every price, what is the new equilibrium price?
A) \$12 B) \$14 C) \$16 D) \$18
27. (Table: Equilibrium Price, Quantity) Refer to the table (and ignore previous questions). If the supply curve for the product shifted to the right such that 10 more units of the good are supplied at every price, what is the new equilibrium price?
A) \$12 B) \$14 C) \$16 D) \$18
28. When a surplus exists in a market, we know that the actual price is:
A) above equilibrium price, and quantity supplied is greater than quantity demanded.
B) above equilibrium price, and quantity demanded is greater than quantity supplied.
C) below equilibrium price, and quantity demanded is greater than quantity supplied.
D) below equilibrium price, and quantity supplied is greater than quantity demanded.
29. If the market for iPads experiences a surplus, then the:
A) supply of iPads will fall. C) price of iPads will rise.
B) demand for iPads will rise. D) price of iPads will fall.

30. When there is a shortage, sellers have an incentive to _____ their price and buyers have an incentive to offer a _____ price.
 A) increase; lower B) decrease; lower C) decrease; higher D) increase; higher
31. Imagine a free market in which at a price of \$10, quantity supplied is 50 units and quantity demanded is 40 units. Equilibrium price in this market:
 A) is equal to \$10.
 B) is less than \$10.
 C) is greater than \$10.
 D) differs from \$10 in an indeterminate direction.
32. In a free market setting where quantity supplied is 40 units and quantity demanded is 50 units, price will:
 A) rise. B) fall. C) remain the same. D) move in an indeterminate direction.

Use the following to answer questions 33-34:

Figure: Gains from Trade



33. (Figure: Gains from Trade) Refer to the figure. What are the unexploited gains from trade at the free market equilibrium?
 A) \$1,000 B) \$500 C) \$0 D) \$1,500
34. (Figure: Gains from Trade) Refer to the figure. What are the total gains from trade at the free market equilibrium?
 A) \$1,000 B) \$500 C) \$0 D) \$1,500
35. Why did Vernon Smith win the Nobel Prize in Economics in 2002?
 A) He created the theory of supply and demand.
 B) He used laboratory experiments as a tool to confirm the theory of supply and demand.
 C) He was able to disprove the theory of supply and demand.
 D) This is a trick question, because Vernon Smith did not win the Nobel Prize.

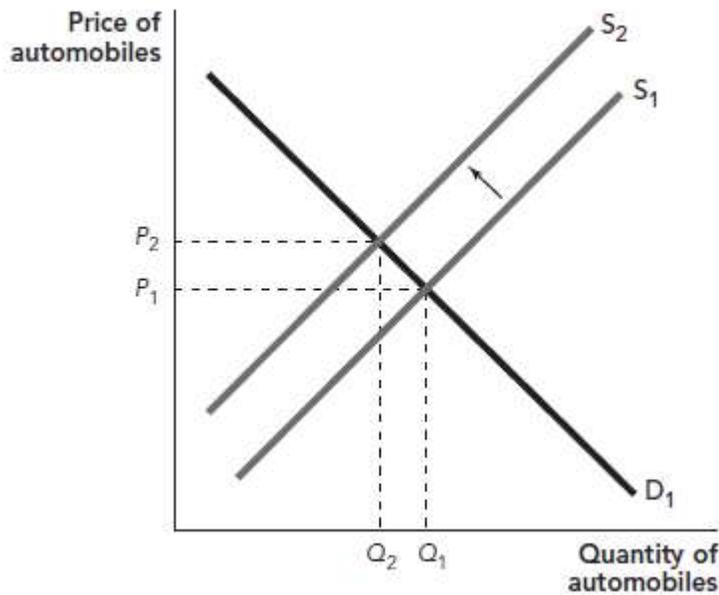
36. In markets for manufactured goods, a new form of 3-D printing that lowers production costs will lead to:
- an increase in demand, a decrease in quantity demanded, and an increase in price.
 - an increase in supply, an increase in quantity demanded, and a decrease in price.
 - a decrease in demand, an increase in quantity supplied, and a decrease in price.
 - an increase in supply, a increase in quantity demanded, and an increase in price.
37. The quantity demanded for wireless computer mice is $Q_d = 500 - 1.75P$, and the quantity supplied is $Q_s = 450 + 0.25P$.
- Calculate the equilibrium price and quantity.
 - Is total surplus maximized at 440 mice? Explain.
 - If the market price is currently \$10, is there a shortage or surplus of mice? How do you know?
 - If the market price is \$40, is there a shortage or surplus of mice? How do you know?
38. In the long run, will the market price for a good/service always equals the equilibrium price? Explain why or why not.
39. Draw a market demand curve and market supply curve for automobiles and label these curves D_1 and S_1 , respectively. (Be sure to label all axes!) On the same graph, show what would happen if the auto workers union required all manufacturers of automobiles to now provide health insurance for ALL workers and their dependents. (Note: Assume that prior to this change, manufacturers of automobiles do NOT provide health insurance coverage to 100 percent of their employees and/or their dependents.) What do you expect to happen to the price of automobiles as a result of this change in union policy?
40. If romaine lettuce and iceberg lettuce are substitutes, a(n) _____ in the price of romaine lettuce will _____ the demand for iceberg lettuce.
- increase; decrease
 - increase; increase
 - decrease; increase
 - decrease; not change
41. If the price of swimming pools decreases, we would expect the demand for:
- tennis courts, a substitute good, to increase.
 - chlorine, a complement good, to increase.
 - swimming pools to increase.
 - swimming pools to decrease.
42. Which of the following could cause an increase in the demand for gasoline?
- the resolution of a civil war in one of the world's biggest oil-producing nations
 - the expectation that the price of gasoline will decrease in the future
 - a new technology that makes the production of gasoline significantly less expensive
 - an approaching hurricane that threatens a major oil refinery in Texas

43. A market has a demand equation as follows: $Q_d = 60 - 4P$. The market price of the product is \$5. Calculate the dollar amount of consumer surplus in this market, and illustrate your answer graphically.
44. A market has a supply equation as follows: $Q_s = -20 + 2P$. The market price for the product is \$20. Calculate the dollar amount of producer surplus in this market and illustrate your answer graphically.
45. *Bloomberg News* reports that OPEC (a group of countries that together form the world's leading supplier of oil) will increase their supply of oil. This is expected to bring future oil prices down. How will this move by OPEC affect the demand for oil today? Explain your reasoning.
46. It is widely known that the rapidly expanding corn-ethanol industry is quickly increasing the price of corn on world markets. Given this, many farmers have begun to grow corn more intensively. For instance, some producers who currently pursue a corn-soybean rotation (planting corn one year and soybeans the next) might shift to a corn-corn-soybean rotation (planting corn two years in a row and then planting soybeans in the third). Continuous production of corn (planting corn every year on the same plot of land) is another possibility. Explain what impact this explosion in the market for corn may have on the market for soybeans. In particular, will those who produce soybeans exclusively be better off, worse off, or unaffected as a result of the increase in corn prices?
47. A recent explosion in the demand for (and price of) organically produced foods has caused many farmers to convert from traditional farming methods to higher-cost organic farming methods. Explain what has happened to the opportunity cost of traditional farming and why. Based on your explanation, does it make sense to see so many farmers moving to organic farming? Explain.

Answer Key

1. C
2. C
3. A
4. B
5. B
6. D
7. C
8. C
9. A
10. B
11. C
12. A
13. C
14. C
15. C
16. B
17. D
18. D
19. B
20. A
21. A
22. B
23. D
24. C
25. A
26. C
27. A
28. A
29. D
30. D
31. B
32. A
33. C
34. A
35. B
36. B

37. a. $Q_d = Q_s$.
 $500 - 1.75P = 450 + 0.25P$
 $50 = 2P$
 $P = \$25$
 $Q = 450 + 0.25(25) = 456.25$.
- b. No. The quantity that maximizes total surplus is the equilibrium quantity. At 440 mice, there are still gains from trades to be made.
- c. $Q_d = 500 - 1.75(10) = 482.5$.
 $Q_s = 450 + 0.25(10) = 452.5$.
 There is a shortage of 30 mice, since Q_d exceeds Q_s .
- d. $Q_d = 500 - 1.75(40) = 430$.
 $Q_s = 450 + 0.25(40) = 460$.
 There is a surplus of 30 mice, since Q_s exceeds Q_d .
38. Yes, due to the invisible hand. If prices are too high (i.e., above the equilibrium price), excess supply drives the price down. If prices are too low (i.e., below the equilibrium price), excess demand drives price up.
39. The supply curve for automobiles would shift to the left as a result of the increase in costs. As a result, we would expect that the price of automobiles will rise.



40. B
 41. B
 42. D

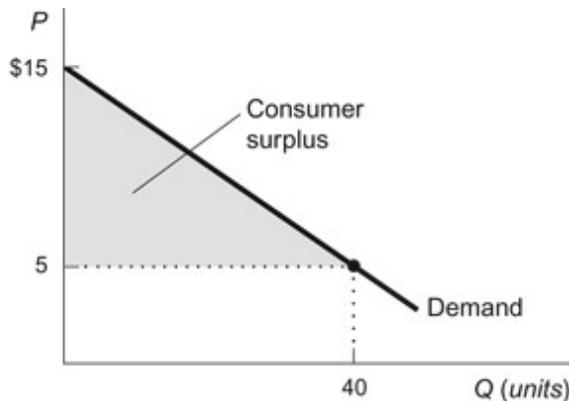
43. The first step is to calculate the intercept of the demand equation on the Price axis, and then to calculate the Q_d at the market price. The P intercept for the demand equation can be found as follows:

$$60 - 4P = 0$$

$60 = 4P$. Therefore, $P = \$15$. Thus this is the price where the demand equation intercepts the price axis.

At the market price of \$5, $Q_d = 60 - 4(5) = 40$.

The graph is as follows:



Total consumer surplus is therefore: $1/2 \times 10 \times 40 = \200 .

44. The first step is to calculate the intercept of the supply equation on the price axis, and then to calculate the Q_s at the market price. The P intercept for the supply equation can be found by setting the supply equation equal to zero and solving for the price.

$$-20 + 2P = 0$$

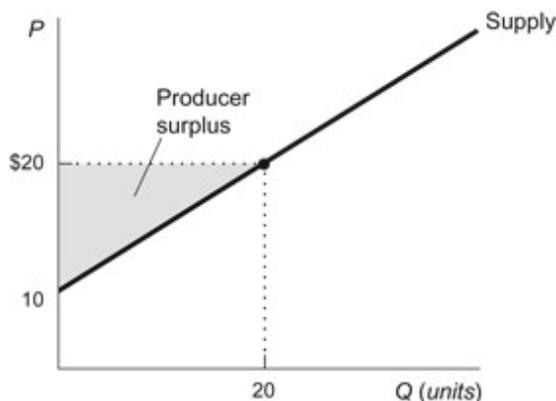
$$-20 = -2P$$

$$P = \$10$$

Thus this is the price where the supply equation intercepts the price axis.

At the market price of \$20, $Q_s = -20 + 2(20) = 20$.

The graph is as follows:



Total producer surplus is therefore: $1/2 \times 10 \times 20 = \100 .

45. It will cause today's demand for oil to decrease. Since people are expecting the future price of oil to be lower, consumers will plan on buying less today. This will decrease the quantity of oil demanded at all prices and shift the current demand for oil to the left.

46. *Given the now relatively high price of corn, the opportunity cost of growing soybeans is now higher and hence in general farmers will move to producing more corn and fewer soybeans. This decrease in the supply of soybeans, however, will lead to an increase in the price of soybeans, and therefore those who produce soybeans exclusively will see higher prices and hence higher profits as a result.*
47. *The opportunity cost of traditional farming has increased because of the increase in the prices of organic products. Farmers who continue to produce their crops using traditional farming methods give up the opportunity to farm organically, which commands a higher price. As a result, we should see less production of crops using traditional farming methods, and an increase in the supply of organic crops. The shift in farming from traditional to organic methods makes perfect sense when looking at changes in supply based on opportunity costs.*