

Chapter 1—Supply, Demand, and Equilibrium

TRUE/FALSE

1. If the price of a good changes, the demand for the good changes.
ANS: F PTS: 1
2. When the quantity demanded by consumers goes up, we can be sure that there has been a rise in demand.
ANS: F PTS: 1
3. A demand curve is drawn downward sloping to show that price and quantity demanded will move in opposite directions as long as other relevant factors remain unchanged.
ANS: T PTS: 1
4. An increase in the price of compact discs would shift the demand curve for DVD players to the left.
ANS: T PTS: 1
5. An increase in the price of gasoline would shift the demand curve for gasoline to the left.
ANS: F PTS: 1
6. If the demand curve for a good is relatively flat, a small change in price results in a relatively large change in quantity demanded.
ANS: T PTS: 1
7. If safer cars reduce a driver's chance of dying in an accident, then there will be fewer driver fatalities.
ANS: F PTS: 1
8. If one wants to apply the theoretical side of economics by examining data, they use a family of statistical techniques called econometrics.
ANS: T PTS: 1
9. A sales tax causes the demand curve to shift upwards by the amount of the tax.
ANS: F PTS: 1
10. As defined by economists, the supply of corn refers to the number of bushels of corn that farmers bring to the market.
ANS: F PTS: 1
11. When the law of supply holds, an increase in the price of a product will cause producers to increase the quantity they wish to sell.

ANS: T PTS: 1

12. A rise in supply is illustrated by a rightward shift in the supply curve.

ANS: T PTS: 1

13. The supply curve for a commodity will shift downward when an excise tax is imposed.

ANS: T PTS: 1

14. An increase in the price of wheat will cause a rise in the supply of wheat.

ANS: F PTS: 1

15. When the actual market price is below its equilibrium level, suppliers are satisfied but demanders are not.

ANS: T PTS: 1

16. When suppliers are not satisfied, they lower their prices to attract more demanders.

ANS: T PTS: 1

17. If the demand for a good is high, then there will be a shortage of that good.

ANS: F PTS: 1

18. The equilibrium price of a good will rise in response to either a rise in demand or a fall in supply.

ANS: T PTS: 1

19. When a sales tax of 50¢ per carton is imposed on cigarettes, the equilibrium price drops by precisely 50¢ per carton.

ANS: F PTS: 1

20. Suppliers of a commodity are better off whenever the legal incidence of a tax is shifted away from the suppliers to the demanders.

ANS: F PTS: 1

21. If the legal incidence of a tax is entirely on suppliers, then the tax will have no economic effect on demanders.

ANS: F PTS: 1

22. An excise tax of 20 cents on gasoline shifts demand down by exactly 20 cents.

ANS: F PTS: 1

23. When a sales tax of 20¢ per soda is imposed on soda consumption, the supply curve for soda shifts down by precisely 20¢ per soda.

ANS: F PTS: 1

24. If a rise in supply and a rise in demand occur at the same time, then we know that the price must also rise.

ANS: F PTS: 1

25. If a fall in supply and a rise in demand occur at the same time, then we know that the price must also rise.

ANS: T PTS: 1

MULTIPLE CHOICE

1. When the price of a barrel of crude oil rises, what will be the immediate effect on the market for home heating fuel produced from crude oil?
- The demand for the fuel will fall.
 - The quantity demanded of fuel will rise.
 - The supply of fuel will fall.
 - The quantity supplied of fuel will fall.

ANS: C PTS: 1

2. If the supply of hotel rooms falls and all other relevant factors remain unchanged, then,
- the demand for hotel rooms will fall.
 - the quantity demanded of hotel rooms will fall.
 - the demand for hotel rooms will rise.
 - the quantity demanded of hotel rooms will rise.

ANS: B PTS: 1

3. According to the law of demand, if other relevant factors remain unchanged, then a rise in the price of a commodity will cause
- a reduction in the equilibrium quantity.
 - excess supply.
 - suppliers to reduce their production in reaction to the lower demand.
 - a fall in the quantity demanded.

ANS: D PTS: 1

4. The observation that consumer purchases of walnuts decline as the price rises reflects:
- a decrease in demand.
 - the law of demand.
 - an increase in demand.
 - the law of supply.

ANS: B PTS: 1

5. The term *demand* refers to
- a collection of numbers, listing the quantities demanded at a variety of hypothetical prices.
 - the information on tastes, incomes, and prices needed to determine people's desired purchases of a commodity.
 - the amount of a commodity that is being purchased under current market conditions.
 - the quantity purchased at each and every possible level of income.

ANS: A PTS: 1

6. Which of the following would cause the demand curve for rice to shift to the left?
- A rise in the price of rice.
 - A blight that destroyed 75% of the rice harvest.
 - A report claiming that the starch in rice causes heart disease.
 - A tariff that doubles the price of imported spaghetti.

ANS: C PTS: 1

7. Surveys show that a small increase in the price of organic potatoes will cause most people to switch to other alternatives such as packaged mashed potatoes. This finding suggests that the demand curve for organic potatoes is
- relatively steep.
 - relatively flat.
 - upward sloping.
 - vertical.

ANS: B PTS: 1

8. If the demand curve for gasoline is relatively steep, then
- higher gasoline prices would cause a large number of people to stop driving.
 - the law of demand does not hold for gasoline.
 - shifts in the supply curve for gasoline will have relatively little effect on the price of gasoline.
 - the price of gasoline has relatively little effect on drivers' decision to buy gasoline.

ANS: D PTS: 1

9. Consider a demand curve for reckless driving, for which the "price of reckless driving" is interpreted as the probability of having a fatal accident. When could safer cars lead to an *increase* in total number of driver fatalities?
- Always.
 - Never.
 - When the demand curve is relatively flat.
 - When the demand curve is relatively steep.

ANS: C PTS: 1

10. Techniques for estimating demand curves using direct observations from the marketplace are part of a family of statistical techniques referred to as:
- legal studies.

- b. Econometrics.
- c. policy analysis.
- d. Economic expansion.

ANS: B PTS: 1

11. In a supply-demand diagram, the law of supply is illustrated by
- a. shifting the supply curve to the right as suppliers expand production and to the left as they contract production.
 - b. drawing the supply curve so that it slopes upward.
 - c. showing how the equilibrium point changes as the supply curve shifts.
 - d. drawing a vertical line at the quantity that producers choose to supply.

ANS: B PTS: 1

12. Which of the following would shift the supply curve for coffee to the right?
- a. An innovation in agricultural techniques that allows growers to produce coffee less expensively.
 - b. A late frost in Brazil that destroys 75% of its coffee bean crop.
 - c. An increase in the wages paid to coffee bean pickers.
 - d. A rise in the popularity of espresso, cappuccino, and other exotic coffee drinks.

ANS: A PTS: 1

13. A fall in supply is illustrated by
- a. a downward shift in the supply curve.
 - b. moving the equilibrium point down and to the left along the supply curve.
 - c. drawing the supply curve flatter.
 - d. shifting the supply curve to the left.

ANS: D PTS: 1

14. At the equilibrium point of a market,
- a. supply equals demand.
 - b. neither demanders nor suppliers are satisfied.
 - c. the quantities supplied and demanded are equal.
 - d. suppliers will refuse any price increases offered by demanders.

ANS: C PTS: 1

15. Suppose the price of a DVD is \$15 per unit. At that price, consumers wish to purchase 6,000 units weekly and producers wish to sell 4,000 units weekly. In this situation,
- a. unsatisfied consumers will bid up the market price.
 - b. the market price will fall because producers are unsatisfied.
 - c. the price will rise and the demand will fall to bring the market to equilibrium.
 - d. supply will increase by 2,000 units in order to satisfy consumers.

ANS: A PTS: 1

16. When are demanders satisfied and suppliers unsatisfied?
- a. Never-neither suppliers nor demanders are ever completely happy with the market price.
 - b. Whenever the market price is above its equilibrium level.

- c. When the market price is relatively low, because then demanders can buy all they want but suppliers cannot make a profit.
- d. When rises in supply cause a fall in the equilibrium price of the good.

ANS: B PTS: 1

17. Which of the following would cause a fall in the price of video tape rentals?
- a. A new nationwide video rental chain opens.
 - b. Movie theaters raise their prices.
 - c. The royalties paid to movie actors increase.
 - d. The price of video cassette recorders (VCRs) falls.

ANS: A PTS: 1

18. A fear that consumption of ice cream may be related to a life threatening disease spreads rapidly through France. The market result will be:
- a. the demand falls, price decreases and therefore French consumers buy more ice cream.
 - b. the demand falls, price decreases and the quantity supplied therefore falls.
 - c. a fall in demand followed by a fall in supply.
 - d. the equilibrium quantity falls, but the price does not change.

ANS: B PTS: 1

19. New safety regulations increase manufacturers' costs of producing insulation. What happens in the market for insulation?
- a. The demand falls as buyers refuse to bear the higher production costs.
 - b. The supply falls, resulting in a higher equilibrium price and lower equilibrium quantity.
 - c. Both supply and demand fall, resulting in less insulation being bought and sold.
 - d. The supply rises as manufacturers attempt to use higher sales to offset their lower profit margins.

ANS: B PTS: 1

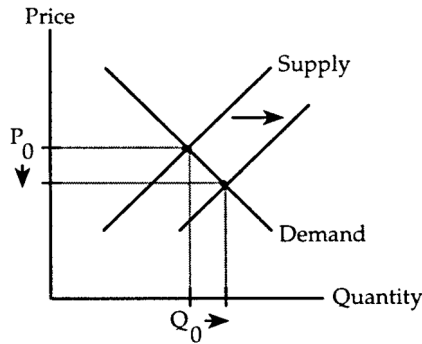
20. Which of the following could decrease the equilibrium price but increase the equilibrium quantity of apples?
- a. Higher wages are paid to the agricultural workers who harvest the apples.
 - b. A rise in the cost of treating pests destroying apples.
 - c. Many new apple orchards are planted.
 - d. An increase in the market supply of grapefruit.

ANS: C PTS: 1

21. Which of the following is the most likely to cause the price of air travel to rise?
- a. Lower prices and improved service in Amtrak (the nation's passenger railroad).
 - b. Improved productive efficiency resulting from airline mergers.
 - c. Higher airplane fuel costs.
 - d. Reports that air travel safety is deteriorating.

ANS: C PTS: 1

22. The accompanying supply-demand diagram shows the market for calculators. The initial price of calculators is P_0 , and the initial quantity exchanged is Q_0 .



Which of the following situations could be correctly illustrated by the diagram?

- Graphing capabilities and other new features lead people to buy more calculators.
- The cost of memory chips used in calculators falls, lowering the price of calculators.
- Personal computerized notepads with substantial computing power are introduced, reducing people's need for calculators.
- A heavy tariff is placed on calculators imported from overseas.

ANS: B PTS: 1

23. Which of the following would lead to a rise in demand for recordable DVDs by students?

- An increase in the number of DVD manufacturers.
- A decrease in the price of DVD recording devices.
- A decrease in the price of the DVD making machinery.
- A cut in the number of student workers hired by the university, lowering student incomes.

ANS: B PTS: 1

24. Consider the market for high-end wine. Statistics show that wealthier families spend a greater proportion of their income on high-end wine than do poorer families. If households' incomes rise substantially during an economic recovery, then we can expect

- an increased demand for high-end wine.
- an increased supply of high-end wine.
- a lower price for high-end wine.
- the demand curve for high-end wine to shift to the left.

ANS: A PTS: 1

25. Suppose we observe that the price of gasoline has been rising, even though the quantity of gasoline sold has been falling. We can conclude that

- the law of supply does not hold for gasoline.
- the law of demand does not hold for gasoline.
- the demand for gasoline must have fallen.
- the supply of gasoline must have fallen.

ANS: D PTS: 1

26. A simultaneous increase in both the demand for computers and the supply of computers must increase

- the number of computers bought and sold.
- the price of computers.

- c. both the equilibrium price and quantity of computers.
- d. the shortage of computers in the market.

ANS: A PTS: 1

27. Assume that the demand curve for oranges is downward-sloping and the supply curve for oranges is upward-sloping. If the government imposes an excise tax of 10¢ per orange, then the total price (including the tax) that demanders must pay for an orange
- a. remains unchanged.
 - b. rises by less than 10¢ per orange.
 - c. rises by exactly 10¢ per orange.
 - d. rises by more than 10¢ per orange.

ANS: B PTS: 1

28. Suppose a sales tax of \$1 is imposed on DVDs. Suppose the tax causes the price received by suppliers of the DVDs to fall by 60 cents. In this situation, the economic incidence of the sales tax
- a. falls more heavily on the demanders of DVDs.
 - b. falls more heavily on the suppliers of DVDs.
 - c. is evenly split between the demanders and suppliers of the DVDs.
 - d. is the same as the legal incidence of the tax.

ANS: B PTS: 1

29. Consider a \$4 excise tax that has been levied on suppliers of automobile tires. Legislators, in the interest of fairness, change the law so that the tax is evenly split between suppliers and demanders, with each group legally required to pay \$2 per tire. In this situation, we can predict that
- a. suppliers will be made better off and demanders will be made worse off.
 - b. the change will have no economic effect on suppliers and demanders.
 - c. demanders will "pass back" their share of the tax to the suppliers, so that suppliers continue to pay \$4 per tire.
 - d. the economic incidence of the tax will be evenly split between suppliers and demanders.

ANS: B PTS: 1

30. To make child daycare more affordable, government advisors are debating two possible options. Plan A is to give daycare centers a \$100 subsidy per month per child. Plan B is to give the parents \$100 reduction in taxes per month per child in daycare. Which plan benefits parents more?
- a. Plan A because it will increase the supply of childcare and decrease the price.
 - b. Plan B because the \$100 goes directly to the parents.
 - c. The plans are equivalent in terms of their impact on the price minus subsidy paid by parents.
 - d. Plan A because the price will fall, while under Plan B the price will rise.

ANS: C PTS: 1

31. The division of the burden of a sales or excise tax on demanders and suppliers:
- a. Is always equal.
 - b. Is always higher for demanders.
 - c. Is always higher for suppliers.

d. Depends on the shapes of the demand and supply curves.

ANS: D PTS: 1

32. The imposition of a sales tax on eggs will:

- a. Cause a parallel shift downward in demand for eggs.
- b. Cause a parallel shift upward in demand for eggs.
- c. Lead to an increase in the slope of the demand curve for eggs.
- d. Have no effect in demand or sales of eggs since they are a small part of any family's budget.

ANS: A PTS: 1

33. A movement up along a supply curve indicates:

- a. a rise in supply.
- b. an increase in the quantity supplied.
- c. an increase in the sales tax on a good.
- d. a reaction by suppliers to a decrease in demand.

ANS: B PTS: 1

34. If the wages of loggers went up, the supply of logs would:

- a. fall, thereby shifting to the right.
- b. fall, thereby shifting to the left.
- c. rise, thereby shifting to the right.
- d. rise, thereby shifting to the left.

ANS: B PTS: 1

35. The simultaneous imposition of a 3 cent sales tax and a 5 cent excise tax on the sale of a cup of coffee would have the same effect on coffee sales as:

- a. a 2 cent subsidy.
- b. a 2 cent excise tax .
- c. a 3 cent excise tax .
- d. an 8 cent excise tax.

ANS: D PTS: 1

36. Which statement is true regarding a market in equilibrium

- a. There is a shortage of the good.
- b. There is a surplus of the good.
- c. Neither demanders or suppliers are satisfied.
- d. Both demanders and suppliers are satisfied.

ANS: D PTS: 1

37. Which of the following would cause a positive change in quantity demanded?

- a. A rise in supply.
- b. A fall in supply.
- c. A rise in demand.
- d. A fall in demand.

ANS: A PTS: 1

38. If both demand and supply rise, which of the following must be true?

- a. The equilibrium price will increase.

- b. The equilibrium price will decrease.
- c. The equilibrium price will not change.
- d. The change in the equilibrium price is indeterminate.

ANS: D PTS: 1

39. If both demand and supply rise, which of the following must be true?
- a. The equilibrium quantity will rise.
 - b. The equilibrium quantity will fall.
 - c. The equilibrium quantity will not change.
 - d. The change in the equilibrium quantity is indeterminate.

ANS: A PTS: 1

40. If the demand for baseballs falls and all other relevant factors remain unchanged, then,
- a. the supply for baseballs will fall.
 - b. the quantity supplied of baseballs will fall.
 - c. the supply for baseballs will rise.
 - d. the quantity supplied of baseballs will rise.

ANS: B PTS: 1

41. If demand rises and supply falls, which of the following must be true?
- a. The equilibrium quantity will rise.
 - b. The equilibrium quantity will fall.
 - c. The equilibrium quantity will not change.
 - d. The change in the equilibrium quantity is indeterminate.

ANS: D PTS: 1

42. If demand rises and supply falls, which of the following must be true?
- a. The equilibrium price will rise.
 - b. The equilibrium price will fall.
 - c. The equilibrium price will not change.
 - d. The change in the equilibrium price is indeterminate.

ANS: A PTS: 1

43. Demand for a product is given by $Q = 100 - P$ and supply is given by $Q = P - 10$. If the quantity demanded rises by 10 units at every possible price, then the equilibrium price will
- a. increase by \$5
 - b. increase by \$10
 - c. decrease by \$5
 - d. increase by \$7.50

ANS: A PTS: 1

44. Demand for a product is given by $Q = 200 - P$ and supply is given by $Q = 0.5P - 10$. If the quantity demanded rises by 10 units at every possible price, then the equilibrium quantity will be
- a. 40 units
 - b. 50 units
 - c. 60 units
 - d. 100 units

ANS: C PTS: 1

ESSAY

1. What is the difference between the *quantity supplied* of corn and the *supply* of corn? What could cause a rise in the quantity supplied of corn, and what could cause a rise in the supply of corn? How would these changes be shown graphically using a supply curve?

ANS:

The quantity supplied of corn is the number of bushels that corn farmers want to sell under the current market conditions, while the supply of corn is a set of price-quantity pairs showing the amounts that farmers wish to sell at various hypothetical prices. According to the law of supply, a rise in the price of corn will cause a rise in the quantity supplied of corn. Non-price factors that positively affect corn growers (such as improved weather conditions, better agricultural technology, and lower costs of fertilizer, seed, labor, and other inputs) would cause a rise in the supply of corn. A rise in quantity supplied is shown by moving up and to the right along the supply curve, and a rise in supply is shown by shifting the supply curve down and to the right.

PTS: 1

2. A person argues that if the prison sentences for all crimes were doubled, this would worsen the problem of overcrowded prisons, all other things being equal. Use the concept of demand to explain why this argument is incorrect.

ANS:

When the prison sentences for all crimes are doubled, the "price" of criminal behavior is higher, and by the law of demand, the amount of criminal behavior will fall. Whether or not the prisons would become more overcrowded depends on whether the "demand" for criminal behavior is relatively flat or steep. If the demand for criminal behavior is relatively flat, then the doubling of prison sentences could sufficiently reduce the amount of criminal behavior so that less total prison time would be served. On the other hand, if the demand for criminal behavior is relatively steep, then the doubling of prison sentences would result in only a minor reduction in criminal behavior, an increase in the total prison time served, and worse overcrowding in prisons.

PTS: 1

3. What can be said about the market price when a good is in surplus (i.e., when the quantity supplied exceeds the quantity demanded)? How will demanders and suppliers respond to a surplus, and what will happen to the market price?

ANS:

When there is a surplus, the market price must be higher than the equilibrium price. Demanders will be satisfied in this situation, but suppliers will not. Competition among suppliers will cause the market price to be bid down until it reaches the equilibrium price.

PTS: 1

4. Define the terms *legal incidence* and *economic incidence*. When the legal incidence of a tax is changed, how does this affect the economic incidence of the tax? Why does this result occur?

ANS:

Legal incidence refers to the division of a tax burden according to who is required by law to pay the tax, while economic incidence refers to the division of a tax burden according to who actually pays the tax after all price adjustments are taken into account. A change in the legal incidence of a tax will have no effect on the economic incidence. If the legal incidence of a per-unit tax is entirely on suppliers, the supply curve will shift up by the amount of the tax. On the other hand, if the legal incidence is entirely on demanders, the demand curve will shift down by the amount of the tax. In both situations, the equilibrium quantity will fall, suppliers will receive a lower post-tax price, and demanders will pay a higher post-tax price. Simple geometry shows that the magnitudes of these effects are the same in the two cases.

PTS: 1

5. Suppose that a city law requires taxi drivers to wear tuxedos. The drivers must pay \$10 per week for the tuxedos. Taxicab companies pay their drivers \$210 per week. After paying for the tuxedos, taxi drivers earn \$200 per week.
- (i) If the law were revised so that taxicab companies, not the drivers, must pay for the tuxedos, what would happen to the taxi drivers' earnings?
 - (ii) If the law were repealed, what would happen to the taxi drivers' earnings? Be as specific as possible.

ANS:

- (i) The change in the legal incidence has no effect on the economic incidence. Taxicab companies will pay their drivers \$200 per week, and when the cost of the tuxedos is added, their total cost of a driver will still be \$210 per week. Taxi drivers will continue to earn \$200 per week.
- (ii) The \$10 per week windfall from the repeal of the law will be shared by taxi drivers and taxicab companies. Taxi drivers will now earn more than \$200 per week but less than \$210 per week.

PTS: 1

6. Suppose the demand curve for a good is given by the equation $P = 200 - \frac{1}{2}Q$ and the supply curve is given by the equation $P = 50 + \frac{1}{4}Q$, where P represents the price of the good (measured in dollars per unit) and Q represents the quantity of the good (measured in units per week).

- (i) Find the equilibrium price and quantity for this market.
- (ii) Suppose the government imposes a sales tax of \$9 per unit on this good. Find the new formula for the demand curve, the new equilibrium quantity, the post-tax price received by suppliers, and the post-tax price paid by demanders.
- (iii) What fraction of the economic burden of this tax is borne by demanders and what fraction is borne by suppliers?

ANS:

- (i) $Q = 200$ units per week and $P = \$100$ per unit.
- (ii) The new demand curve is $P = 191 - 1/2 Q$. The new equilibrium quantity is $Q = 188$ units per week, and the new equilibrium price is $P = \$97$ per unit. Since the legal incidence is on demanders, the post-tax price received by suppliers is \$97 per unit and the post-tax price paid by demanders is $\$97 + \9 or \$106 per unit.
- (iii) Demanders bear $2/3$ of the tax burden, while suppliers bear the other $1/3$.

PTS: 1

7. The following was heard on a primetime news cast.

"The government has just increased the sales tax. This is unfair to consumers, particularly the poor, because budgets are already stretched far enough. It would have been much more fair for the government to have levied an excise tax on firms as a way of making big business give back to the community."

Explain why the person's argument is more than likely incorrect. Be sure to discuss whether the person has over or understated the effect of the tax on consumers and producers.

ANS:

The person's reasoning is incorrect because they are confusing the legal and economic incidence of the tax. An excise tax no more hurts the producer than does the sales tax. At the same time, the excise tax no more helps the consumer than does the sales tax. The person has overstated the effect of the sales tax on consumers and understated the effect on producers. At the same time, the person has overstated the effect of the excise tax on producers and understated the effect of the excise tax on consumers.

PTS: 1

8. Suppose the demand curve for a good is given by the equation $Q = 100 - P$ and the supply curve is given by the equation $Q = 0.25P$, where P represents the price of the good (measured in dollars per unit) and Q represents the quantity of the good (measured in units per week).
- (i) Find the equilibrium price and quantity for this market.
 - (ii) Suppose quantity demanded for the good rises by 10 units at every possible price while at the same time quantity supplied falls by 5 units at every possible price (with the exception that quantity supplied can not drop below zero units at any price). Find the new equilibrium price and quantity in this market.
 - (iii) Given the change in demand, how large would the fall in supply need to be (given the same 10 unit rise in demand) in order for the price to decrease instead of increasing as in part (ii)?

ANS:

- (i) $Q = 20$ units per week and $P = \$80$ per unit.
- (ii) $Q = 18$ units per week and $P = \$92$ per unit.
- (iii) Because demand has risen and supply has fallen, the change in price must be positive and hence there is no fall in supply that can increase the price - given that demand has risen.

PTS: 1