Chapter 2

1. The fact that attendance rises at baseball stadiums during "bobblehead" days suggests
   (a) baseball games and bobbleheads are complements.
   (b) baseball games and bobbleheads are substitutes.
   (c) baseball games and bobbleheads are normal goods.
   (d) no information about baseball games and bobbleheads can be determined from this fact.

   Answer: **(a)** As the price of bobbleheads falls (to a price of zero due to the promotion) the demand for tickets rises. This is the definition of a complementary good.

2. Professional sports first arose in England and the United States because
   (a) Anglo-Saxon culture is more attuned to athletics than other cultures.
   (b) the Industrial Revolution increased the productivity of workers there.
   (c) employers used sports as a way to channel the frustrations of workers.
   (d) the educational system in England was more attuned to sports than other nations.

   Answer: **(b)** Sports are a leisure activity. Most people do not have leisure time until they are able to meet their basic survival needs. The Industrial Revolution made this possible for an increasing number of people, making participation in and attendance at sporting events possible.

3. If the Celtics sign Kevin Garnett to a big contract they may raise ticket prices because
   (a) their average cost curve shifts up.
   (b) their demand curve shifts right.
   (c) their marginal cost curve shifts up.
   (d) their fixed cost curve shifts up.

   Answer: **(b)** Garnett's contract would be a fixed cost to the Celtics, because they will pay the same amount no matter how many tickets they sell. The cost of his contract will thus have no impact on ticket prices, *per se*. The increased demand by Celtic fans for tickets *would* drive up ticket prices.

4. Why are season tickets cheaper than tickets for the same number of games when they are purchased individually?

   Answer: Season tickets transfer risk from the team to the fans who buy them. In order to induce risk-averse fans to buy the tickets, the team must make them available at a cheaper price. (*Note:* We shall encounter other reasons why teams sell season tickets in later chapters.)

5. A price ceiling on tickets creates
   (a) excess demand, which creates gray and black markets.
   (b) excess supply, which causes prices to fall.
   (c) excess demand, which cause prices to fall.
   (d) excess supply, which causes gray and black markets.

Answer: **(a)** A price ceiling is typically set below the equilibrium price. This causes the quantity of tickets demanded to rise and the quantity supplied to fall, creating excess demand. Because more tickets are demanded than are available to buy, consumers seek other ways to obtain the tickets. This may take the form of outright defiance of the ceiling ("black markets") or transactions that violate the spirit of the law if not the letter of the law ("gray markets").

6. If the Detroit Pistons raise their ticket prices and see ticket revenues fall (holding all else equal), we can conclude that
   (a) the supply of tickets is too high.
   (b) the demand for tickets is too low.
   (c) the demand for tickets is price inelastic.
   (d) the demand for tickets is price elastic.

   Answer: **(d)** If nothing else changes, then the price rise has resulted in a drop in sales that is disproportionately large relative to the increase in price. That is, $\%\Delta Q^d / \%\Delta P$ □ absolute value of 1. This corresponds to demand that is price elastic.

7. True or False; explain your answer: If the Anaheim Mighty Ducks acquire a star player, the demand for their tickets will rise. This will cause the price of their tickets to rise, causing demand to fall, restoring the initial price and quantity of tickets.

   Answer: False. The statement starts out correctly. If the Mighty Ducks acquire a star player the tastes of potential ticket buyers for Ducks tickets will rise. The increased taste for tickets will shift the demand curve to the right. This will cause excess demand at the original price, which, in turn, will cause prices to rise. The increase in price, however, leads to a fall in *quantity demanded*—a movement back along the new demand curve—rather than a change in demand, which shifts the entire curve back. The quantity demanded will fall and the quantity supplied will rise in response to the higher price, resulting in a higher equilibrium quantity and a higher equilibrium price than before.

8. Given the following regression equation with *t*-statistics in parentheses:

   Salary □ 566,400 □ 71,928 Goals □ 20,403 Assists □ 98,430 All-Star
   (3.45) (2.96) (3.5) (1.30)

   R_2 □ 0.95

   Salary □ NHL Salary in $

   Goals □ Number of career goals

   Assists □ Number of career assists

   All-Star □ 1 if All-Star in the previous season, 0 otherwise.

   (a) Interpret the R2.
   (b) Interpret the coefficient on All-Star.

   Answers: **(a)** The model explains 95 percent of the variation of the salary variable around its mean.

   (b) The coefficient on All-Star is not significant at the 5 percent level of significance (1.30 □ *t*-critical 1.96), so no interpretation is possible. If the coefficient was statistically significant, the All-Star coefficient would imply that being named an All-Star increases a player's salary by $98,430.

9. Sue does not attend any sporting events. Draw a budget constraint and indifference curve diagram with two goods (sporting events and all other goods) to explain why Sue is still maximizing her utility.

   Answer: See Figure 2.2. Sue maximizes her utility by climbing to the highest indifference curve (U2) that is still within her budget. The combination happens to be one, which includes zero sporting events. This is called a corner solution. One does not have to consume something of everything in order to maximize one's utility. In a single visit you do not buy a little of every single item available of the grocery store but you leave (presumably) happy with the choices that you have made from among those that you can afford.

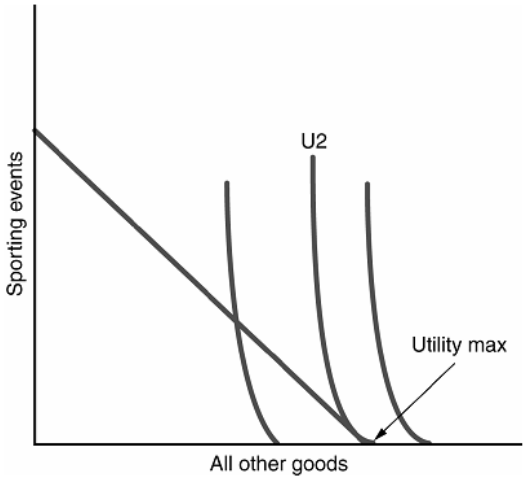

Figure 2.2

10. (a) State the Law of Demand.
    (b) What is the economic reasoning (as discussed in class) behind the law of demand?

    Answers: **(a)** Ceteris paribus price and quantity demanded are negatively related.

    (b) Demand slopes down because of the substitution effect and the income effect. The substitution effect says that as the price of a good rises its quantity demanded falls because people switch away to cheaper substitutes. The income effect says that as the price of a good rises people buy smaller quantities because their purchasing power decreases.

11. Assume that a professional franchise faces a downward sloping demand for game day attendance and that the team sells out every game. Assume that this team competes with several other entertainment alternatives for the consumer's dollar. Explain why this team will choose to pay all of a $\$t$ tax per ticket imposed by the government instead of passing the tax onto the consumer.

    Answer: Since the team sells out every game the marginal cost curve of this team is vertical. A per unit tax of $\$t$ per seat will shift the supply curve vertically up by the amount of the tax however the intersection of demand and supply do not change. Consumers pay the same ticket price (P1) after the tax as they did before the tax. The team bears the entire burden of the tax because supply is perfectly inelastic. See Figure 2.3.

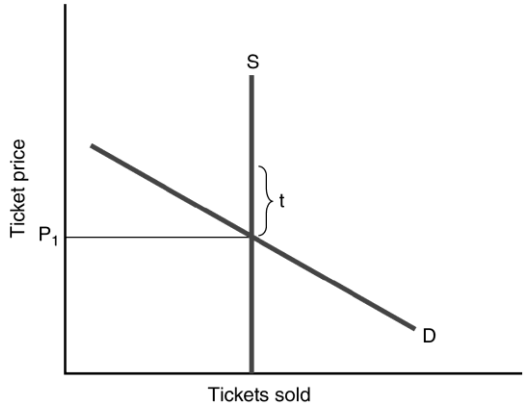

Figure 2.3

12. A MLB economist is very good at what she does. She has been tracking the demand for MLB tickets in the United States for years. She knows from past research that the demand curve looks like the one in Figure 2.4. MLB has just introduced a temporary price reduction on all general admission tickets from $15.00 per seat to $10.00 per seat. Given the demand curve and this decrease in price from $15.00 to $10.00, she expects to see an increase in quantity from 5000 units (per week) to 10,000 units per week. However, she is surprised to see a surge in demand from 5000 units to 20,000 units. Clearly this new point A does not lie on the demand curve. What is going on here? Give an economic argument to justify the existence of this new point. Assume that the economist did not make a mistake in her calculations.

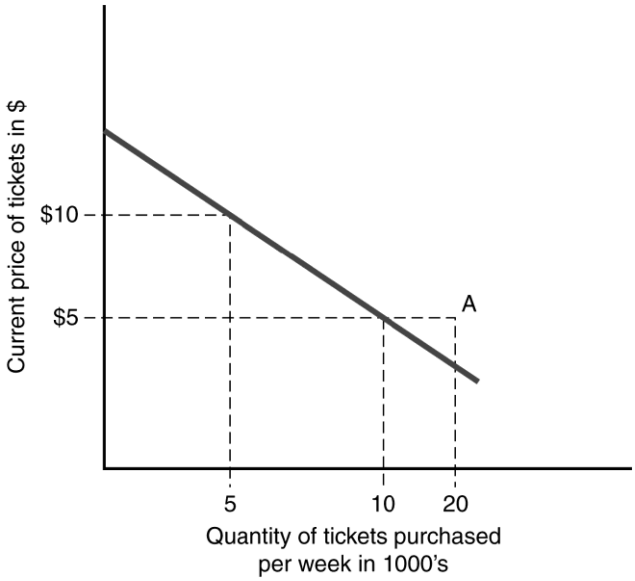

Figure 2.4

Answer: Because the price cut is temporary, fans expect ticket prices to rise in the near future. An increase in expected prices causes demand to increase and shifts the demand curve to the right. The new Point A, therefore, does not lie on the old demand curve but rather on a new one.

13. Given that parking and attendance at ballgames are complements (in consumption). Explain why a rise in parking fees may adversely affect game attendance.

Answer: If parking and attendance at ballgames are consumed together a rise in the price of a complement will result in a decrease in demand for ballgames. If supply does not change, then a decrease in the demand for ballgames could lead to a decline in attendance.

14. Given that attendance at minor league baseball games are substitutes for attendance at MLB games. Explain why a fall in minor league ticket prices may adversely affect MLB game attendance.

Answer: Since minor league games are substitutes for MLB games, consumers will substitute the cheaper good (minor league baseball) for the more expensive good (MLB baseball). Thus the demand for MLB attendance will decline as consumers switch to the cheaper good.

15. Draw a set of indifference curves for two goods X and Y where X is a bad (penalties against your favorite team) and Y is a good (wins for your favorite team).

Answer: See Figure 2.5. U3 □ U2 □ U1

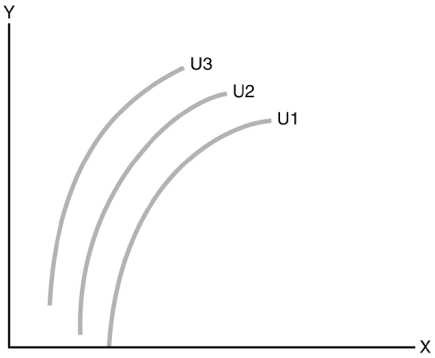

Figure 2.5

16. A fan called a talk show and exclaimed, "I've had it with professional sports. The building is always sold out, and the tickets are too expensive!" Use supply and demand analysis, including graphs, to show that these claims cannot both be true simultaneously.

Answer: The problem is that, from the standpoint of positive economic analysis, these two statements cannot hold simultaneously. If the building is always sold out, then it must be the case that the there are enough consumers willing and able to pay the current price. Thus "too expensive" may be true for the individual, but from the team's perspective, if anything, the tickets are not expensive enough. See Figure 2.6.

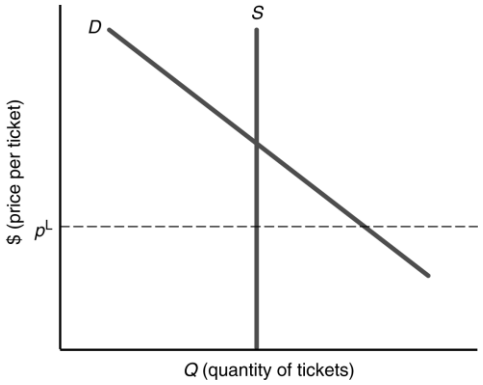

Figure 2.6

At any price below the equilibrium price, such as p^L, excess Demand will drive the price of tickets back up.

17. Suppose a monopoly team faces demand for a sporting event of Q □ 100 □ p. The associated marginal revenue function is MR □ 100 □ 2Q. If marginal cost is zero, what are the optimal quantity (of tickets) and price per ticket? If fixed costs are $500, what would the level of profit be?

Answer: Students should follow the profit maximizing rule, MC □ MR. If marginal cost is zero, then the firm maximizes profits by setting marginal revenue equal to zero.

$$100 - 2Q - 0$$
$$Q - 50$$
$$p - 50$$

Total cost is equal to the fixed cost of $500. Total revenue is $2500. Thus, profits are $2000.

18. Suppose the Lakers did a study that showed that the demand for tickets was perfectly inelastic at the capacity of building up to a price of $500 per ticket, at which point it becomes perfectly elastic. Draw a supply and demand diagram assuming a building capacity of 20,000. What would this imply about their best pricing strategy?

Answer: When the demand curve is perfectly inelastic, it is a vertical line. When it is perfectly elastic, it is a horizontal line. Hence, it looks like this:

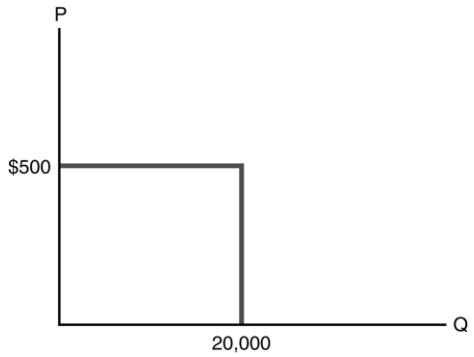

Figure 2.7

Assuming that the supply curve is a vertical line at the capacity of the arena (20,000), the supply can demand picture looks like this:

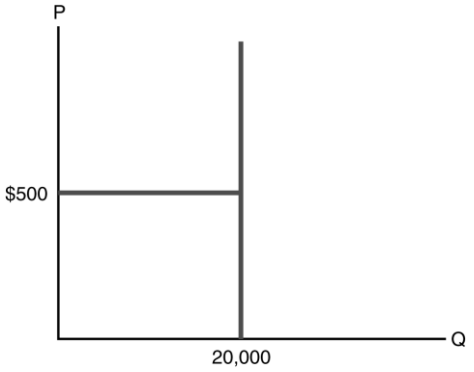

Figure 2.8

where the heavy black segment is the intersection of the supply and demand curves. This implies that the Lakers can sell 20,000 seats at any price up to $500. At any price above $500, they cannot sell any seats. The best strategy is thus to sell tickets for $500 each.

19. Suppose that the demand curve for seats at a minor league baseball stadium in Trenton, N.J.,, is $Q^d - 6{,}000 - 10p$.
    (a) How many fans would attend if ticket were free?
    (b) At what price would no fans attend the game?
    (c) If the building capacity (supply) is fixed at 4000, what price would maximize revenue while ensuring a sellout?

Answers: The demand equation implies that the demand curve is a straight line with a vertical intercept of 600 and a slope of □0.10. It looks like Figure 2.9:

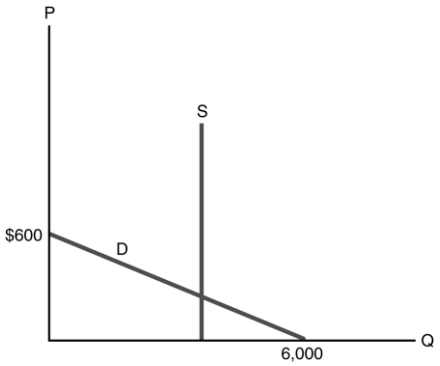

Figure 2.9

(a) If tickets were free, plug 0 in for price. Then the demand equation implies that 6000 □ 10(0) □ 6000 tickets would be the quantity demanded.

(b) Plug in 0 for Q^d. The demand equation then implies 6000 □ 10*p* □ 0. Solving for *p*, 6000 □ 10*p*, so *p* □ 600.

(c) If the capacity of the arena was 4000, then the supply curve is the vertical line in the diagram. The firm can sell out the stadium at any price below the price that ensures sales of 4000. Set demand □ supply so 6000 □ 10*p* □ 4000. Solving, 10*p* □ 6000 □ 4000, so 10*p* □ 2000, or *p* □ $200.

20. Suppose the city of Anaheim places a tax on tickets to see the Mighty Ducks play. Use supply and demand curves to shows that the fans and the team share the burden of the tax.

Answer: See Figure 2.10. For simplicity, suppose the sales tax is a fixed tax of $*t* per ticket. This tax pushes the supply curve up by the amount $*t*. At the price P_e^0 □ *t*, however, there is excess supply. This causes the price to fall to the new equilibrium price, P_e^1.

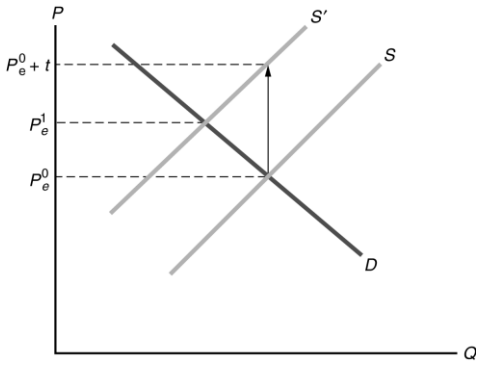

Figure 2.10

Because the price of tickets rises, the fans pay some of the tax. Because the price rises by less than $*t*, the Mighty Ducks receive less than price P_e^0 for each ticket they sell. As a result, they pay part of the tax. This concept is known as "tax incidence." The incidence of any tax is almost always split between the consumer and the producer with side with the most inelastic supply or demand bearing the majority of the tax burden.
See Figure 2.10.

21. If a game is not sold out, the marginal costs to a team accommodating one more fan is:

a. Almost infinite.
b. Half the average ticket price.
c. Essentially zero.
d. The inverse of marginal costs.

Answer: c. Since there is no additional costs to providing a seat that did not happen to sell for a particular game, the additional (that is, marginal) costs of accommodating one more fan is negligible (for example, one more fan to clean up after).

22. We can show the impact of a per-unit tax on tickets in MLB as a:

a. Rightward shift of the demand curve.
b. Increase in fixed costs.
d. Leftward shift of the supply curve.
d. Rightward shift of the supply curve.

Answer: c. Taxes "increase the cost of doing business" and thus shift the supply curve to the left for any business entity (implying that the price they must receive after the tax is imposed must now be higher for them to offer-up the same quantity of product they were before the imposition of the tax).

23. If tickets to a Rancho Cucamonga Quakes game are considered an inferior good, falling incomes of their fan base will:

a. Cause the price of Quakes tickets to fall.
b. Leave demand for Quakes tickets unchanged.
c. Reduce demand for Quakes tickets.
d. Increase demand for Quakes tickets.

Answer: d. Inferior goods are goods consumers purchase out of economic necessity or as the lowest-cost viable option among substitute products (such as in the Quakes example).Thus, as their incomes fall, they increase their demand for them.

24. True or False: An increase in the price of a good results in a leftward shift of the demand curve for that good, ceteris paribus.

a. True.
b. False.

Answer: b. False. When the price of a good changes, it causes a movement along the demand curve (that is, a change in quantity demanded). Shifts of the demand curve occur when factors such as income, tastes and preferences or the price of related goods (substitutes and complements) change.

25. A negative aspect of anti-scalping laws is that:

a. They hurt ticket agencies.
b. They prevent sell-outs.
c. They cause people to pay more than they are willing to get tickets.
d. They prevent the market from matching willing buyers and sellers.

Answer: d. When a scalper and ticket-buyer come-together to make a transaction, both parties benefit (that is utility is enhanced for each) because the scalper valued the money to be received more than the ticket, and the ticket-buyer valued the ticket more than the money they had to pay for the ticket. Anti-scalping laws mitigate the extent to which these mutually-beneficial exchanges can occur.

26. True/False: The fact that Mantle cards from the same year and manufacturer are so much more valuable than Aaron cards provides clear evidence of racial discrimination by baseball card collectors.

a. True.
b. False.

Answer: b. False. There are many factors other than race that help explain why Mantle cards, ceteris paribus, are worth so much more than Aaron cards, as Mantle played for the winningest team in history (Yankees0 in baseball's largest market (New York), was a flamboyant character and spectacular outfielder. Aaron played on the normally humble Braves and Brewers in the much smaller markets of Milwaukee and Atlanta, was a quiet and low-key individual who played solid (but not spectacular) outfield.

27. If the price and quantity combinations for a monopolists good are as follows:

Price:	$100	$90	$75	$64	$51	$38
Quantity:	0	1	2	3	4	5

what is the marginal revenue for the firm when they move from 2 to 3 units of output?

a. $-14
b. $60
c. $42
d. $12

Answer: c. Marginal revenue (MR) is given by the formula: Change in total revenue/change in quantity. Thus, to get MR, one must first calculate total revenue (TR), which is simply PxQ.
As one moves from 2 units of output (TR=$150) to 3 units of output (TR=$192), the MR is thus 442/1 = $42.

28. A horizontal demand curve represents:

a. Perfectly inelastic demand.
b. Perfectly elastic demand.
c. Unit elastic demand.
d. None of the above.

Answer: b. A horizontal demand curve implies there will an infinite response on the part of consumers (i.e., no units will be sold) if price is raised above the established market price. Such demand curves are said to be perfectly (infinitely) elastic.