

CHAPTER

4

Demand

SECTION 1

What Is Demand?

SECTION 2

What Factors Affect Demand?

SECTION 3

What Is Elasticity of Demand?

CASE STUDY

Fueling Automobile Demand

Demand

This computer store customer meets the two requirements of demand—the customer is willing to buy and is able to pay.

CONCEPT REVIEW

Microeconomics is the study of the economic behaviors and decisions of small units, such as individuals and businesses.

CHAPTER 4 KEY CONCEPT

Demand is the willingness to buy a good or service and the ability to pay for it.

WHY THE CONCEPT MATTERS

The concept of demand is demonstrated every time you buy something. List the last five goods or services that you purchased. Rate each one with a number from 1 (not important to you) to 4 (very important). Which of the goods or services would you stop buying if the price rose sharply? Describe the relationship between your ratings and your willingness to buy at a higher price.

Online Highlights

More at ClassZone.com

Economics Update

Go to **ECONOMICS UPDATE** for chapter updates and current news on demand in the automobile industry. (See Case Study, pages 124–125.) ▶

Animated Economics

Go to **ANIMATED ECONOMICS** for interactive lessons on the graphs and tables in this chapter.

Interactive Review

Go to **INTERACTIVE REVIEW** for concept review and activities.



What caused more people to demand hybrid cars? See the Case Study on pages 124–125.

What Is Demand?

OBJECTIVES

- In Section 1, you will
- define *demand* and outline what the law of demand says
 - explain how to interpret and create demand schedules and describe the role of market research in this process
 - explain how to interpret and create demand curves

KEY TERMS

- demand, p. 98
 law of demand, p. 99
 demand schedule, p. 100
 market demand schedule, p. 100
 demand curve, p. 102
 market demand curve, p. 102

TAKING NOTES

As you read Section 1, complete a cluster diagram like this one for each key concept. Use the Graphic Organizer at **Interactive Review @ ClassZone.com**



The Law of Demand

KEY CONCEPTS

In Chapter 3, you learned that the United States has a free enterprise economy. This type of economic system depends on cooperation between producers and consumers. To make a profit, producers provide products at the highest possible price. Consumers serve their own interests by purchasing the best products at the lowest possible price. The forces of supply and demand establish the price that best serves both producers and consumers. In this chapter, you'll learn about the demand side of this equation.

Demand is the desire to have some good or service and the ability to pay for it. You may want to take a round-the-world cruise or to rent a huge apartment that overlooks the ocean. Or you may want to buy a brand-new sports car or a state-of-the-art home entertainment center. However, you may not be able to afford any of these things. Therefore, economists would say that you have no actual demand for them. Even though you want them, you don't have the money needed to buy them. Conversely, you may want the latest CDs by several of your favorite bands. And, at a price



QUICK REFERENCE

Demand is the willingness to buy a good or service and the ability to pay for it.

of between \$12 and \$15 each, you can afford them. Since you have both the desire for them and the ability to pay for them, you do have demand for CDs.

Price is one of the major factors that influence demand. The **law of demand** states that when the price of a good or service falls, consumers buy more of it. As the price of a good or service increases, consumers usually buy less of it. In other words, quantity demanded and price have an inverse, or opposite, relationship. This relationship is graphically illustrated in Figure 4.1 below.

QUICK REFERENCE

Law of demand states that when prices go down, quantity demanded increases. When prices go up, quantity demanded decreases.



EXAMPLE Price and Demand

Let's take a look at an example of demand in action. Cheryl, a senior at Montclair High School, loves movies and enjoys collecting them on DVD. She and Malik, a friend from school, sometimes meet downtown at Montclair Video Mart to look through the DVD stacks. Rafael, the owner of the video mart, often jokes that Cheryl and Malik spend so much time at his store that he might have to give them jobs. Actually, Cheryl already has a job—stocking shelves at her neighborhood supermarket. She worked so many hours this summer that she has extra money to spend. Let's see how DVD prices at Montclair Video Mart affect her spending decisions.

Cheryl has been saving to buy the DVD boxed set of the original *Star Wars* trilogy, one of her favorite series of movies. The set costs \$69.95, and Cheryl has the money to buy it this weekend. When Cheryl goes to the Montclair Video Mart, she is disappointed to learn that the *Star Wars* set is sold out and a new shipment won't arrive for a week. She decides to buy some other DVDs so that she won't go home empty-handed, but she also decides to save roughly half of her money toward a future purchase of *Star Wars*.

As she looks through the movie DVDs, she sees that most of those she wants sell for \$15. How many will she buy at that price? Let's say she decides to buy three and keep the rest of her money for the *Star Wars* trilogy. But what if each of the DVDs she wants costs just \$5? Cheryl might decide that the price is such a good deal that she can buy seven. As you can see, the law of demand is more than just an economic concept. It's also a description of how consumers behave.

Economics Update

Find an update on the demand for CDs and DVDs at ClassZone.com

APPLICATION Applying Economic Concepts

- A. You have \$50 and want to buy some CDs. If prices of CDs rose from \$5 each to \$10, how would your quantity demanded of CDs change?

Demand Schedules

QUICK REFERENCE

Demand schedule is a listing of how much of an item an individual is willing to purchase at each price.

Market demand schedule is a listing of how much of an item all consumers are willing to purchase at each price.

KEY CONCEPTS

A **demand schedule** is a table that shows how much of a good or service an individual consumer is willing and able to purchase at each price in a market. In other words, a demand schedule shows the law of demand in chart form. A **market demand schedule** shows how much of a good or service all consumers are willing and able to buy at each price in a market.

EXAMPLE Individual Demand Schedule

A demand schedule is a two-column table that follows a predictable format. The left-hand column of the table lists various prices of a good or service. The right-hand column shows the quantity demanded of the good or service at each price.

Cheryl's demand for DVDs can be expressed in a demand schedule. Let's take a look at the price list in Figure 4.2 below. How many DVDs will Cheryl buy if they cost \$20 each? How many will she buy when the price stands at \$10? Your answers to these questions show one thing very clearly. Cheryl's demand for DVDs depends on their price.

FIGURE 4.2 CHERYL'S DVD DEMAND SCHEDULE

	Price per DVD (\$)	Quantity Demanded
a →	30	0
	25	1
	20	2
	15	3
b →	10	4
	\$5	7

a At the top price of \$30, Cheryl is not willing to buy any DVDs.

b At \$10, she will buy four DVDs.

Notice that when the price falls, the number of DVDs Cheryl will buy rises. When the price rises, the number she will buy falls. So quantity demanded and price have an inverse, or opposite, relationship.

Price and Demand

Storeowners often offer products at sale prices to encourage consumers to make more purchases.

ANALYZE TABLES

1. How many DVDs will Cheryl be likely to buy if the price is \$15?
2. What is the relationship between Cheryl's demand for DVDs and various quantities demanded shown on this table?

Animated Economics

Use an interactive demand schedule at **ClassZone.com**

EXAMPLE Market Demand Schedule

The demand schedule in Figure 4.2 shows how many DVDs an individual, Cheryl, is willing and able to buy at each price in the market. The schedule also shows that the quantity of DVDs that Cheryl demands rises and falls in response to changes in price. Sometimes, however, an individual demand schedule does not give business owners enough information. For example, Rafael, who owns Montclair Video Mart, needs information about more than just one consumer before he can price his merchandise to gain the maximum number of sales. He needs a market demand schedule, which shows the quantity demanded by all the people in a particular market who are willing and able to buy DVDs.

Take a look at the DVD market demand schedule below. Notice that it's similar to the individual demand schedule except that the quantities demanded are much larger. It also shows that, like individual demand, market demand depends on price.

FIGURE 4.3 DVD MARKET DEMAND SCHEDULE

	Price per DVD (\$)	Quantity Demanded
a →	30	50
	25	75
	20	100
b →	15	125
	10	175
c →	5	300

- a At the top price of \$30, Rafael's customers will buy 50 DVDs.
- b At the middle price of \$15, the quantity demanded of DVDs is 125.
- c At the low price of \$5, the quantity demanded rises to 300.

So, markets behave in the same way as individual consumers. As prices fall, the quantity demanded of DVDs rises. As prices rise, the quantity demanded falls.

ANALYZE TABLES

- How does the quantity demanded of DVDs change when the price drops from \$25 to \$10?
- How does this market demand schedule illustrate the law of demand?

CONNECT TO MATH

How would a merchant use this schedule to decide on a price? First, the merchant would calculate the total revenue at each price. To figure out total revenue, multiply the price per DVD by the quantity demanded.

$$\begin{array}{r}
 \$30.00 \\
 \times \quad 50 \\
 \hline
 \$1,500.00
 \end{array}
 \qquad
 \begin{array}{r}
 \text{Price} \\
 \times \text{Quantity} \\
 \hline
 \text{Total} \\
 \text{Revenue}
 \end{array}$$

How did Rafael create a market demand schedule? First, he surveyed his customers, asking them how many DVDs they would buy at different prices. Next, he reviewed his sales figures to see how many DVDs he sold at each price. Techniques such as these for investigating a specific market are called market research. Market research involves the gathering and evaluating of information about customer preferences. (You'll learn more about market research in Chapter 7.) By tabulating the results of his market research, Rafael created his market demand schedule.

APPLICATION Applying Economic Concepts

- B. Imagine that you have discovered a restaurant that makes the best pizza you have ever tasted. Create a demand schedule showing how many pizzas a month you would buy at the prices of \$25, \$20, \$15, \$10, and \$5.

Demand Curves

KEY CONCEPTS

QUICK REFERENCE

Demand curve graphically shows the data from a demand schedule.

Market demand curve graphically shows the data from a market demand schedule.

A **demand curve** is a graph that shows how much of a good or service an individual will buy at each price. In other words, it displays the data from an individual demand schedule. Creating a demand curve simply involves transferring data from one format, a table, to another format, a graph.

A **market demand curve** shows the data found in the market demand schedule. In other words, it shows the quantity that all consumers, or the market as a whole, are willing and able to buy at each price. A market demand curve shows the sum of the information on the individual demand curves of all consumers in a market.

EXAMPLE Individual Demand Curve

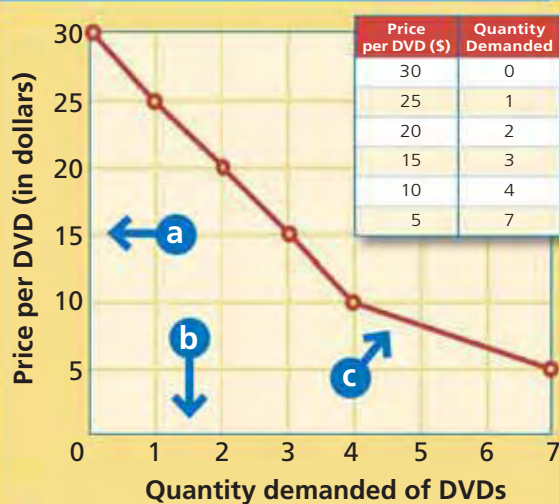
Study the demand curve (Figure 4.4 below) created from Cheryl's demand schedule. How many DVDs will Cheryl buy at the price of \$15? How will Cheryl's quantity demanded change if the price rises by \$5 or falls by \$5? Find the answers to these questions by running your finger along the curve. As you can see, the demand curve is a visual representation of the law of demand. When prices go up, the quantity demanded goes down; when prices go down, the quantity demanded goes up.

You should note that this demand curve and the schedule on which it is based were created using the assumption that all other economic factors except price remain the same. You'll learn more about these factors and how they affect demand in Section 2.

CONNECT TO MATH

One common mistake people make is to look at the downward-sloping graph and think it means that quantity demanded is decreasing. However, if you move your finger downward and to the right on the demand curve, you'll notice that the quantity demanded is increasing.

FIGURE 4.4 CHERYL'S DVD DEMAND CURVE



- a** The vertical axis of the graph shows prices, with the highest at the top.
- b** The horizontal axis shows quantities demanded, with the lowest on the far left.
- c** Notice that **demand curves** slope downward from upper left to lower right.

ANALYZE GRAPHS

1. How many DVDs will Cheryl buy when the price is \$10?
2. How does this demand curve illustrate the law of demand?

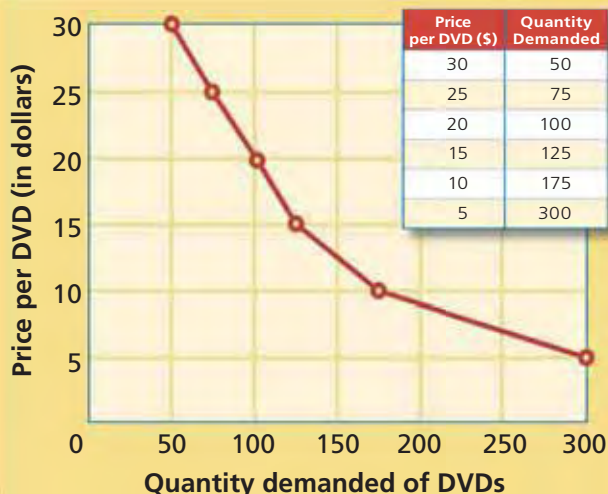
Animated Economics

Use an interactive demand curve at **ClassZone.com**

EXAMPLE Market Demand Curve

Like Cheryl's individual demand curve, the market demand curve for Montclair Video Mart shows the quantity demanded at different prices. In other words, the graph shows the quantity of DVDs that all consumers, or the market as a whole, are willing and able to buy at each price. Despite this difference, the market demand curve for Montclair Video Mart (Figure 4.5) is constructed in the same way as Cheryl's individual demand curve. As in Figure 4.4, the vertical axis displays prices and the horizontal axis displays quantities demanded.

FIGURE 4.5 DVD MARKET DEMAND CURVE



Notice that **market demand curves** slope downward from upper left to lower right, just as individual demand curves do.

The main difference between the two types of demand curves is that the quantities demanded at each price are much larger on a market demand curve. This is because the curve represents a group of consumers (a market), not just one consumer.

NEED HELP?

Throughout this chapter, you will be asked to create and to analyze demand curves. If you need help with those activities, see "Interpreting Graphs."



Skillbuilder Handbook, page R29

ANALYZE GRAPHS

1. At which price will Montclair Video Mart sell 175 DVDs?
2. Cheryl was unwilling to buy any DVDs at \$30. Montclair Video Mart can sell 50 DVDs at that price. How do you explain the difference?

Look at Figure 4.5 above one more time. What is the quantity demanded at the price of \$15? How will quantity demanded change if the price increases by \$5 or drops by \$5? Once again, find the answers to these questions by running your finger along the curve. As you can see, the market demand curve—just like the individual demand curve—vividly illustrates the inverse relationship between price and quantity demanded. If price goes down, the quantity demanded goes up. And if price goes up, the quantity demanded goes down. Also, like the individual demand curve, the market demand curve is constructed on the assumption that all other economic factors remain constant—only the price of DVDs changes.

APPLICATION Applying Economic Concepts

- C. Look back at the demand schedule for pizzas you created for Application B on page 101. Use it to create a demand curve.

SMART Grapher

Create a demand curve at ClassZone.com

Vera Wang: Designer in Demand

FAST FACTS

Vera Wang

Title: Chairman and CEO of Vera Wang Ltd.

Born: June 27, 1949, New York, New York

Major

Accomplishment: Designer of high-fashion wedding gowns

Other Products:

Clothing, perfume, eyewear, shoes, jewelry, home fashions

Books: *Vera Wang on Weddings* (2001)

Price Range for Vera Wang Wedding Gowns: about \$2,000 to \$20,000

In this section, you've learned about the law of demand. You've also seen demand in action in some hypothetical situations. The story of fashion designer Vera Wang, however, provides a real-world example of demand at work.

When they married, Mariah Carey, Jennifer Lopez, and several other stars turned to Wang for their wedding dresses. What explains the demand for this one woman's gowns?

Responding to Demand

Vera Wang had worked in the fashion industry for more than 15 years by the time she started planning her own wedding in 1989. So she was frustrated when she couldn't find the type of sophisticated bridal gown she wanted. She knew that many modern brides were savvy career women who preferred designer clothing. Yet, no one was making wedding dresses for those women.

The next year, Wang decided to fill that unmet demand. She created her own line of gowns featuring elegant sleeveless styles rather than the hooped skirts, puffed sleeves, and lace flounces that had dominated wedding-dress designs before.

Soon celebrities such as Uma Thurman were choosing Vera Wang wedding gowns. This generated publicity, and demand for Wang's creations grew. In response, other designers began to create sleeker wedding dresses, and the style spread. Vera Wang is now considered to be one of the country's most influential designers of wedding gowns.

Demand for the sophisticated Wang style has spread beyond weddings. In recent years, Wang has expanded her product line to include ready-to-wear dresses, perfume, accessories, and home fashions.



Changing Styles

Vera Wang wanted to change traditional wedding dress styles that, she thought, made brides look "like the bride on top of a cake, very decorated."



Economics Update

Find the latest on Vera Wang's business at ClassZone.com

APPLICATION Analyzing Cause and Effect

- D.** In what ways did Vera Wang respond to consumer demand? In what ways did she generate consumer demand?

SECTION 1 Assessment

REVIEWING KEY CONCEPTS

- Explain the differences between the terms in each of these pairs:
 - demand*
law of demand
 - demand schedule*
demand curve
 - market demand schedule*
market demand curve
- Look at Figure 4.1 on page 99. Write a caption for the figure that explains the law of demand.
- Review the information on Vera Wang on the opposite page. Why is it unlikely that most brides will have demand for an original Vera Wang gown?
- How might an owner of a bookstore put together a market demand schedule for his or her store?
- Why does the demand curve slope downward?

- Using Your Notes** How are price and quantity demanded related? Refer to your completed cluster diagram.



Use the Graphic Organizer at **Interactive Review @ ClassZone.com**

CRITICAL THINKING

- Drawing Conclusions** List three products that you are familiar with and the approximate price of each. Which of the products, if any, do you have a demand for? Consider the two requirements of demand as you answer this question.
- Making Inferences** Why might Rafael's market demand schedule and curve not be an accurate reflection of the actual market? To answer this question, consider the assumption that was made when the schedule and curve were created.
- Applying Economic Concepts** Return to the demand schedule for pizzas you created for Application B on page 101. Assume that your class is the market for pizzas. Tabulate these individual demand schedules to create a market demand schedule. Then use that schedule to draw a market demand curve.
- Challenge** Does quantity demanded always fall if the price rises? List several goods or services that you think would remain in demand even if the price rose sharply. Why does demand for those items change very little? (You will learn more about this topic in Section 3.)

ECONOMICS IN PRACTICE



Making a Market Demand Curve

Suppose that you own a store that sells athletic shoes. You survey your customers and analyze your sales data to see how many pairs of shoes you can expect to sell at various prices. Your research enables you to make the following market demand schedule.

Price per Pair of Shoes (\$)	Quantity Demanded
175	0
150	10
125	20
100	40
75	70
50	110

Create a Demand Curve Use this market demand schedule to create a market demand curve.

Challenge Write a caption for your market demand curve explaining what it shows.

Use **SMART Grapher @ClassZone.com** to complete this activity.

What Factors Affect Demand?

OBJECTIVES

- In Section 2, you will
- determine a change in quantity demanded
 - explain the difference between change in quantity demanded and change in demand
 - determine a change in demand
 - analyze what factors can cause change in demand

KEY TERMS

law of diminishing marginal utility, *p. 106*
 income effect, *p. 107*
 substitution effect, *p. 107*
 change in quantity demanded, *p. 108*
 change in demand, *p. 109*
 normal goods, *p. 110*
 inferior goods, *p. 110*
 substitutes, *p. 112*
 complements, *p. 112*

TAKING NOTES

As you read Section 2, complete a chart that shows each factor that causes change in demand. Use the Graphic Organizer at **Interactive Review @ ClassZone.com**

Factor That Changes Demand	Reason Why Demand Changes

More About Demand Curves

KEY CONCEPTS

The demand schedules and demand curves that you studied in Section 1 were created using the assumption that all other economic factors except the price of DVDs would remain the same. If all other factors remain the same, then the only thing that influences how many DVDs consumers will buy is the price of those DVDs. The demand curve graphically displays that pattern.

Now think about the shape of demand curves. Why do they slope downward? The reason is the **law of diminishing marginal utility**, which states that the marginal benefit from using each additional unit of a good or service during a given time period tends to decline as each is used. Recall that utility is the satisfaction gained from the use of a good or service. Suppose it is a hot day, and you have just gulped down a glass of lemonade. Would you gain the same benefit from drinking a second glass? How about a third? In all likelihood, you'd find the second glass less satisfying than the first, and the third glass less satisfying than the second.

Because consumers receive less satisfaction from each new glass of lemonade they drink, they don't want to pay as much for additional purchases. So, they will buy



QUICK REFERENCE

Law of diminishing marginal utility states that the marginal benefit of using each additional unit of a product during a given period will decline.

two glasses only if the lemonade is offered at a lower price, and they will buy three only if the price is even lower still. This pattern of behavior, which holds true for most consumer goods and services, creates the downward slope of the demand curve. For another example, see Figure 4.6 below, which displays the demand that a young man named Kent has for video games.

FIGURE 4.6 DIMINISHING MARGINAL UTILITY



This graph displays the demand for video games by a high school senior named Kent.

The demand curve slopes downward because of the **law of diminishing marginal utility**, which states that the marginal benefit of using each additional unit of a product during a given period will decline. Because of that declining satisfaction, Kent will buy additional games only at lower prices.

ANALYZE GRAPHS

How many video games is Kent willing to buy at a price of \$45? How does the law of diminishing marginal utility explain his refusal to buy more games at that price?

Why do consumers demand more goods and services at lower prices and fewer at higher prices? Economists have identified two patterns of behavior as causes: the income effect and the substitution effect.

The **income effect** is the term used for a change in the amount of a product that a consumer will buy because the purchasing power of his or her income changes—even though the income itself does not change. For example, you can buy more paperback books if they are priced at \$7 than if they are priced at \$15. If you buy a \$7 book, you will feel \$8 “richer” than if you buy a \$15 book, so you are more likely to buy another book. The income effect also influences behavior when prices rise. You will feel \$8 “poorer” if you buy a \$15 book instead of a \$7 one, so you will buy fewer books overall.

The **substitution effect** is the pattern of behavior that occurs when consumers react to a change in the price of a good or service by buying a substitute product—one whose price has not changed and that offers a better relative value. For example, if the price of paperback books climbs above \$10, consumers might decide to buy fewer books and choose instead to buy \$4 magazines.

QUICK REFERENCE

Income effect is the change in the amount that consumers will buy because the purchasing power of their income changes.

Substitution effect is a change in the amount that consumers will buy because they buy substitute goods instead.

APPLICATION Drawing Conclusions

- A. Malik goes to the mall to buy a \$40 pair of blue jeans and discovers that they are on sale for \$25. If Malik buys two pairs, is this an example of the income effect or the substitution effect? Explain your answer.

Change in Quantity Demanded

QUICK REFERENCE

Change in quantity demanded is an increase or decrease in the amount demanded because of change in price.

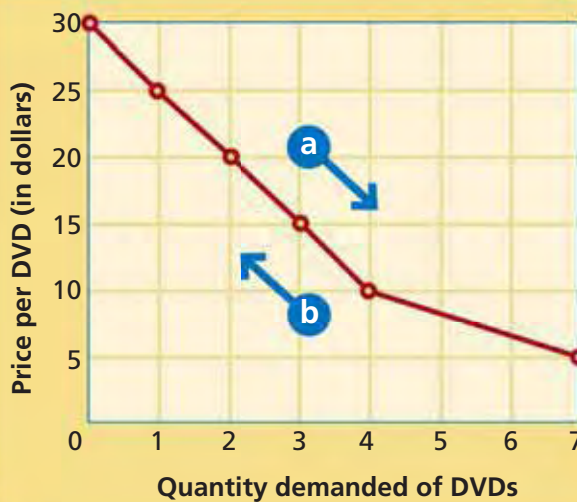
KEY CONCEPTS

Remember that each demand curve represents a specific market situation in which price is the only variable. A change in the amount of a product that consumers will buy because of a change in price is called a **change in quantity demanded**. Each change in quantity demanded is shown by a new point on the demand curve. A change in quantity demanded does not shift the demand curve itself.

EXAMPLE Changes Along a Demand Curve

Let's look again at Cheryl's demand curve for DVDs (Figure 4.7 below). Note the quantities demanded at each price. Notice that as quantity demanded changes, the change is shown by the direction of the movement right or left along the demand curve.

FIGURE 4.7 CHANGE IN QUANTITY DEMANDED



A **change in quantity demanded** doesn't shift the demand curve. The change refers to movement along the curve itself. Each point on the curve represents a new quantity demanded.

- a** As you move to the right along the curve, the quantity demanded increases.
- b** As you move to the left, the quantity demanded decreases.

ANALYZE GRAPHS

1. What is the change in quantity demanded when the price drops from \$20 to \$10?
2. What is the direction of the movement along the demand curve when the quantity decreases?

Animated Economics

Use an interactive demand curve to see changes in quantity demanded at ClassZone.com

Figure 4.7 shows change in quantity demanded for one person. A market demand curve provides similar information for an entire market. However, market demand curves have larger quantities demanded and larger changes to quantity demanded because they combine data from all individual demand curves in the market.

APPLICATION Applying Economic Concepts

- B.** Why do increases or decreases in quantity demanded not shift the position of the demand curve?

Change in Demand

KEY CONCEPTS

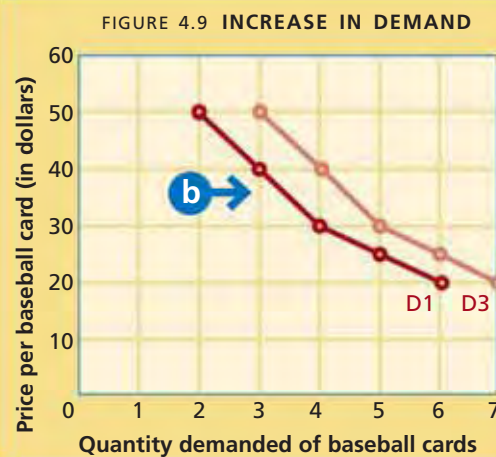
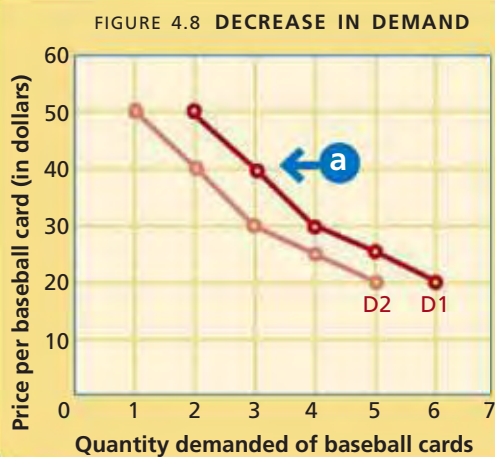
Consider what might happen if you lose your job. If you aren't earning money, you aren't likely to buy many CDs or movie tickets or magazines—no matter how low the price. Similarly, when national unemployment rises, people who are out of work are more likely to spend their limited funds on food and housing than on entertainment. Fewer people would be buying DVDs at every price, so market demand would drop.

This is an example of a **change in demand**, which occurs when a change in the marketplace such as high unemployment prompts consumers to buy different amounts of a good or service at every price. Change in demand is also called a shift in demand because it actually shifts the position of the demand curve.

QUICK REFERENCE

Change in demand occurs when something prompts consumers to buy different amounts at every price.

FIGURES 4.8 AND 4.9 CHANGE IN DEMAND



When a **change in demand** occurs, the demand curve shifts.

- a** As Figure 4.8 shows, a shift to the left (D2) indicates a decrease in demand.
- b** As Figure 4.9 shows, a shift to the right (D3) indicates an increase in demand.

ANALYZE GRAPHS

1. In Figure 4.8, how has demand for baseball cards changed at each of these prices: \$20, \$30, and \$40?
2. In Figure 4.9, how has demand for baseball cards changed at each of these prices: \$30, \$40, and \$50?

Animated Economics

Use an interactive version of shifting demand curves at **ClassZone.com**

Six factors can cause a change in demand: income, market size, consumer tastes, consumer expectations, substitute goods, and complementary goods. An explanation of each one follows.

FACTOR 1 Income

If a consumer's income changes, either higher or lower, that person's ability to buy goods and services also changes. For example, Tyler works at a garden center. He uses his earnings to buy baseball cards for his collection. In the fall, people garden less and buy fewer gardening products, so Tyler works fewer hours. His smaller paycheck means that he has less money to spend, so he demands fewer baseball cards at every price. Figure 4.8 shows this change. The entire demand curve shifts to the left.

QUICK REFERENCE

Normal goods are goods that consumers demand more of when their incomes rise.

Inferior goods are goods that consumers demand less of when their incomes rise.

Suppose, however, that Tyler is promoted to supervisor and receives a raise of \$2 an hour. Now he has more money to spend, so his demand for baseball cards increases and his demand curve shifts to the right—as shown in Figure 4.9 on page 109.

As you might guess, changes in income also affect market demand curves. When the incomes of most consumers in a market rise or fall, the total demand in that market also usually rises or falls. The market demand curve then shifts to the right or to the left.

Increased income usually increases demand, but in some cases, it causes demand to fall. **Normal goods** are goods that consumers demand more of when their incomes rise. **Inferior goods** are goods that consumers demand less of when their incomes rise. Before his raise, Tyler shopped at discount stores for jeans and T-shirts. Now that he earns more, Tyler can afford to spend more on his wardrobe. As a result, he demands less discounted clothing and buys more name-brand jeans and tees. Discounted clothing is considered an inferior good. Other products that might be considered inferior goods are used books and generic food products.

YOUR ECONOMIC CHOICES

NORMAL GOODS AND INFERIOR GOODS

If your income rises, which car will you choose?

Most people prefer to buy a new car if they can afford it. Used cars are an example of inferior goods—demand for them drops when incomes rise because people prefer new-car quality to getting a bargain.



▲ New car

◀ Used truck

FACTOR 2 Market Size

If the number of consumers increases or decreases, the market size also changes. Such a change usually has a corresponding effect on demand. Suppose that the town of Montclair is on the ocean. Each summer, thousands of tourists rent beachfront cottages there. As a result, the size of the population and the market grows. So what do you think happens to the market demand curve for pizza in Montclair in the summer? Check the two graphs at the top of the next page.

Population shifts have often changed the size of markets. For example, in the last 30 years, the Northeast region of the United States lost population as many people moved to the South or the West. The causes of the population shift included the search for a better climate, high-tech jobs, or a less congested area.

FIGURES 4.10 AND 4.11 IMPACT OF CHANGES IN MARKET SIZE

FIGURE 4.10 MONTCLAIR'S POPULATION DURING TOURIST SEASON

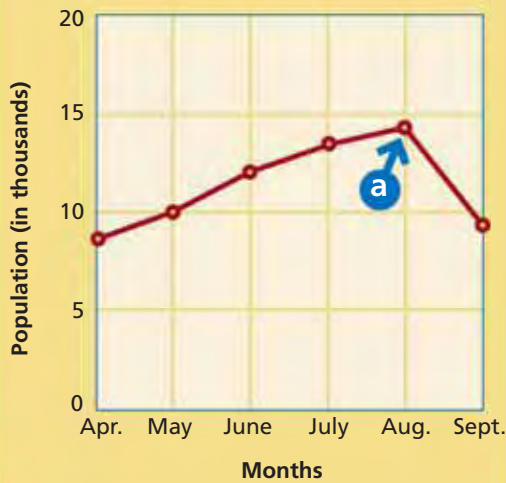
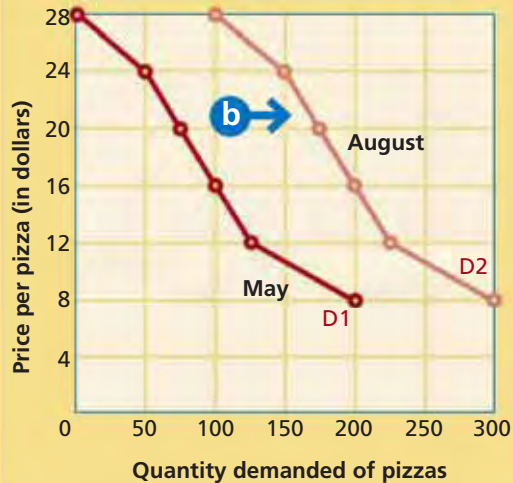


FIGURE 4.11 CHANGE IN PIZZA MARKET DEMAND CURVE



When a change in market size occurs, it often causes a change in demand.

- a** Figure 4.10 shows how the population of Montclair changed during the last tourist season. Notice which month had the highest population.
- b** Notice that the market demand curve (D2) shifts to the right between May and August.

ANALYZE GRAPHS

1. During what month was the population of Montclair at its highest? What happened to the demand for pizzas during that month? Explain.
2. What would you expect to happen to the market demand curve in September? Explain.

One economic result of the migration is that the overall market size of the Northeast has shrunk, while the market size of the South and the West has grown. This change in market size has altered the demand for many products, from essentials such as homes, clothing, and food to nonessentials such as movie tickets. Demand for most items will grow in booming regions and decrease in regions that are shrinking.

FACTOR 3 Consumer Tastes

Because of changing consumer tastes, today's hot trends often become tomorrow's castoffs. When a good or service enjoys high popularity, consumers demand more of it at every price. When a product loses popularity, consumers demand less of it.

Advertising has a strong influence on consumer tastes. Sellers advertise to create demand for the product. For example, some people stop wearing perfectly good pants that still fit because advertising convinces them that the style is no longer popular and that a new style is better.

Think about your own closet. Doesn't it contain some item of clothing that you just had to have a year ago, but would never pay money for now? You've just identified an instance of consumer taste changing demand. Consumer tastes also affect demand for other products besides clothing. When was the last time you saw someone buying a telephone that had to be attached to the wall by a cord?

Economics Update

Find an update on changing consumer tastes at ClassZone.com

FACTOR 4 Consumer Expectations

Your expectations for the future can affect your buying habits today. If you think the price of a good or service will change, that expectation can determine whether you buy it now or wait until later.

Let's look at one example of how consumer expectations shape demand. Automobiles usually go on sale at the end of summer because dealers want to get rid of this year's models before the new models arrive. Would you expect demand for new cars to be higher in May, before the sales, or in August, during the sales? It is higher in August because consumers expect the sales and often choose to wait for them.

QUICK REFERENCE

Substitutes are goods and services that can be used in place of each other.

FACTOR 5 Substitute Goods

Goods and services that can be used in place of other goods and services to satisfy consumer wants are called **substitutes**. Because the products are interchangeable, if the price of a substitute drops, people will choose to buy it instead of the original item. Demand for the substitute will increase while demand for the original item decreases. People may also turn to substitutes if the price for the original item becomes too high. Again, demand for the substitute rises while demand for the original item drops.

Substitutes can be used in place of each other. For example, when gasoline prices are high, some people decide to commute to school by bus or train. When gasoline prices are low, a higher number of people choose to drive instead of to take public transportation. As you can see from that example, when the price of one good rises, demand for it will drop while demand for its substitute will rise.

YOUR ECONOMIC CHOICES

SUBSTITUTE SERVICES

How would you decide whether to take a cab or a bus?

Taxis have certain advantages; they will take you to a specific place at a specific time. But if taxi fares rise, you might give up the convenience and go by bus instead.



Taxi



City bus

QUICK REFERENCE

Complements are goods that are used together, so a rise in demand for one increases the demand for the other.

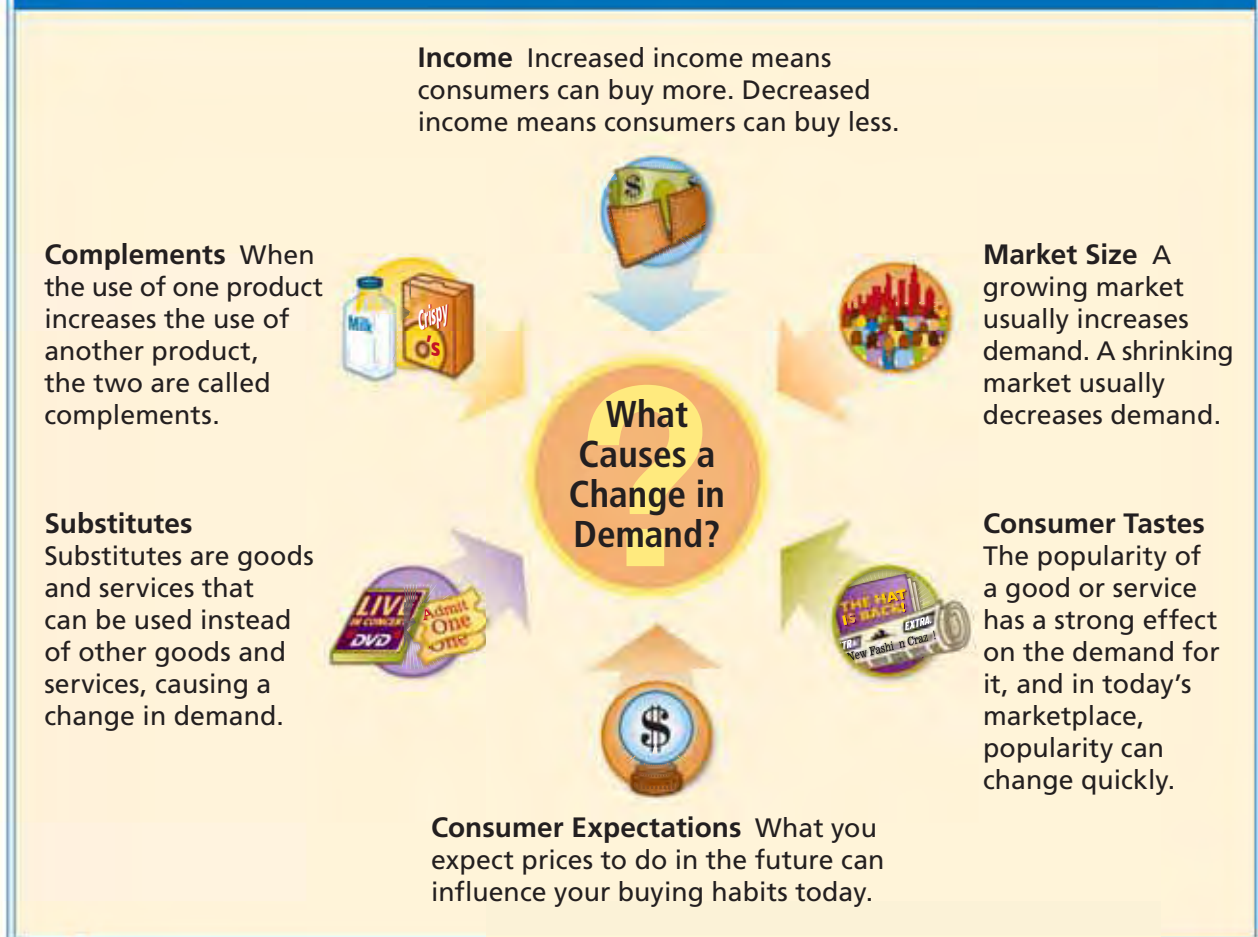
FACTOR 6 Complementary Goods

When the use of one product increases the use of another product, the two products are called **complements**. An increase in the demand for one will cause an increase in the demand for the other. Likewise, a decrease in demand for one will cause a decrease in demand for the other.

In contrast to substitutes, complements are goods or services that work in tandem with each other. An increase in demand for one will cause an increase in demand for the other. One example is CDs and CD players. Consumers who bought CD players

ECONOMICS ESSENTIALS

FIGURE 4.12 Factors That Cause a Change in Demand



ANALYZE CHARTS

Choose a product used by most consumers, and create a hypothetical demand curve showing demand for that product in a town of 1,000 people. Label it A. On the same graph, add a demand curve showing demand if the population drops to 700. Label it B. Which factor on the chart does the shift in the demand curve represent?

also demanded CDs to play on them. And, as CDs became more popular, demand for CD players grew until they began to appear in places they had never been before, such as in the family minivan.

Therefore, with complements, if the price of one product changes, demand for both products will change in exactly the same way. If the price for one product rises, demand for both will drop. Conversely, if the price for one product drops, demand for both will rise.

APPLICATION Categorizing Information

- C. Choose one of the following products: soda, hamburgers, pencils, or tennis rackets. On your own paper, list as many substitutes and complements for the product as you can. Compare your lists with those of a classmate.



For more on analyzing political cartoons, see the Skillbuilder Handbook, page R26.

Analyzing Political Cartoons

Political cartoons often deal with economic themes. Because of this, you will find that the skill of interpreting political cartoons helps you to understand the economic issues on people's minds.

TECHNIQUES USED IN POLITICAL CARTOONS Political cartoonists use many techniques to deliver their message. The techniques used in this cartoon include:

Exaggeration The cartoonist has shown the automobile as towering over humans to make the point that some Americans drive big cars that are gas-guzzlers.



Source: © *The Economist*

Labels Cartoonists use written words to identify people, groups, or events. Notice the sign on the gas pump referring to OPEC (Organization of Petroleum Exporting Countries) and the license plate on the car.

Stereotyping Here a stereotype image of a man in Arab robes stands for OPEC, even though not all OPEC countries are in the Middle East.

Other techniques that political cartoonists use include **caricature**, or creating a portrait that distorts a person's features; **symbolism**, using an object or idea to stand for something else; and **satire**, attacking error or foolishness by ridiculing it.

THINKING ECONOMICALLY Analyzing

1. What does the phrase "Too high!!" mean?
2. What complementary goods are shown in this cartoon? Why are they complementary?
3. How does this cartoon relate to demand? Consider the effect of rising prices, especially rising prices for complementary goods.

SECTION 2 Assessment

REVIEWING KEY CONCEPTS

- Explain the differences between the terms in each of the pairs below:
 - change in quantity demanded* *normal goods*
change in demand *inferior goods*
 - income effect* *substitutes*
substitution effect *complements*
- What feature of demand curves is explained by the law of diminishing marginal utility?
- How does the income effect influence consumer behavior when prices rise?
- Why might an increase in income result in a decrease in demand?
- What else besides migration might account for a change in market size?

6. Using Your Notes Why does a change in market size affect demand? Refer to your completed chart.

Use the Graphic Organizer at **Interactive Review @ ClassZone.com**

Factor That Changes Demand	Reason Why Demand Changes

CRITICAL THINKING

- Analyzing Causes** A new version of the computer game Big-Hit Football just came out. Malik buys it now because it has improvements over the current version, which he is bored with. Cheryl decides to wait to see if the price drops. Which of the factors shown in the chart on page 113 affected their decisions?
- Applying Economic Concepts** The U.S. government has used many strategies to reduce smoking. It banned television ads for cigarettes, ran public service messages about the health risks of smoking, and imposed taxes on cigarettes. Which factors that affect demand was the government trying to influence?
- Analyzing Effects** Take out the market demand curve for athletic shoes that you created on page 105. Add a new curve showing how demand would be changed if the most popular basketball player in the NBA endorses a brand of shoes that your store does not sell. Share your graph with a classmate and explain your reasoning.
- Challenge** Do you think changes in consumer taste are most often initiated by the consumers themselves or by manufacturers and advertisers? Explain your answer, using real-life examples.

ECONOMICS IN PRACTICE



Explaining Changes in Demand

Think about different types of bicycles: road bikes, mountain bikes, hybrid bikes. What factors affect demand for bicycles?

Identify Factors Affecting Demand

The table below lists examples of a change in demand in the market for bicycles. For each example, identify which factor that affects demand is involved.

Example of Change in Demand	Factor That Affected Demand
Electric scooter sales rise, and bike sales fall.	
The cost of aluminum alloy bike frames is about to rise; consumers buy bikes now.	
Using a folding bicycle becomes a fad among commuters. Sales of this type of bike boom.	
The U.S. birth rate declined for 10 years in a row, eventually causing a drop in sales of children's bikes.	

Challenge Identify the two factors affecting demand that do not appear on this table. Provide examples of how these factors might affect demand for bicycles.

What Is Elasticity of Demand?

OBJECTIVES

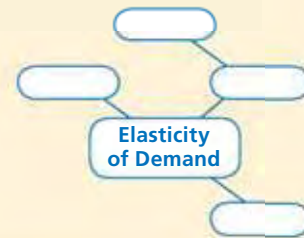
- In Section 3, you will
- define *elasticity of demand*
 - identify the difference between elastic and inelastic demand
 - define *unit elastic*
 - determine how total revenue is used to identify elasticity

KEY TERMS

- elasticity of demand, p. 117
 elastic, p. 117
 inelastic, p. 117
 unit elastic, p. 118
 total revenue, p. 122
 total revenue test, p. 122

TAKING NOTES

As you read Section 3, complete a cluster diagram using the key concepts and other terms. Use the Graphic Organizer at **Interactive Review @ ClassZone.com**



Elasticity of Demand

KEY CONCEPTS

You have learned that there are many factors that influence the demand for a product. However, those factors alone are not the only influences on the sales of goods and services. How does the owner of an electronics store know how to price his or her goods so that the entire inventory of PDAs, or personal digital assistants, are sold?

Store owners know that consumers are responsive to changes in price. Let's examine the relationship between price and demand, and how it affects consumers' buying habits.

Consumer demand is not limitless. It is highly dependent on price. But as you know, demand is seldom fixed. As a result, price is also seldom fixed. Generally, people assume that if prices rise consumers will buy less, and if prices drop consumers will buy more. However, this isn't always the case. The relationship between price and demand is somewhat more complicated than you might think. Change in consumer buying habits is also related to the type of good or service being produced and how important the good or service is to the consumer. The marketplace certainly is very sensitive to changes in price—but not all increases in price will result in a decrease in demand.



Economists use the term **elasticity of demand** to describe how responsive consumers are to price changes in the marketplace. Economists describe demand as being either elastic or inelastic. Demand is **elastic** when a change in price, either up or down, leads to a relatively larger change in the quantity demanded. The more responsive to change the market is, the more likely the demand is elastic. On the other hand, demand is **inelastic** when a change in price leads to a relatively smaller change in the quantity demanded. For this reason, elastic goods and services are often said to be price sensitive. So, in the case of inelastic demand, changes in price have little impact on the quantity demanded.

Another way to think about elasticity is to imagine that a rubber band represents quantity demanded. When the quantity demanded increases by a marked amount, the demand is elastic and the rubber band stretches. If the quantity demanded barely changes, demand is inelastic and the rubber band stretches very little.

QUICK REFERENCE

Elasticity of demand is a measure of how responsive consumers are to price changes.

Demand is **elastic** if quantity demanded changes significantly as price changes.

Demand is **inelastic** if quantity demanded changes little as price changes.

EXAMPLE Elasticity of Demand for Goods and Services

Let's look at an example of elastic demand. Suppose that a certain brand of PDAs goes on sale. If the price of that brand goes down 20 percent, and the quantity demanded goes up 30 percent, then demand is elastic. The percentage change in quantity demanded is greater than the percentage change in price. Goods that have a large number of substitutes fall into the elastic category, since if the prices change, consumers can choose other products.

Now think about a completely different type of good—the medicine insulin. Many diabetics require daily insulin injections to regulate their blood sugar levels. Even if the price of insulin were to rise sharply, diabetics would still need the same amount of insulin as they did before. If the price were to drop, they would not need any more insulin than their required dosage. As a result, the demand for insulin is inelastic because the quantity demanded remains relatively constant.

YOUR ECONOMIC CHOICES

NECESSITY OR CHOICE

Which of these services could you give up?

Most people consider getting a cavity filled to be a necessity. Having your teeth whitened is a service that can be postponed or eliminated without harm. As a result, the demand for whitening is more elastic than the demand for fillings.



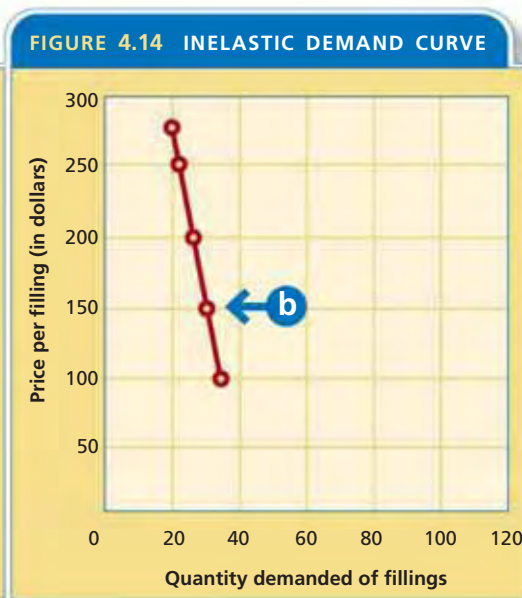
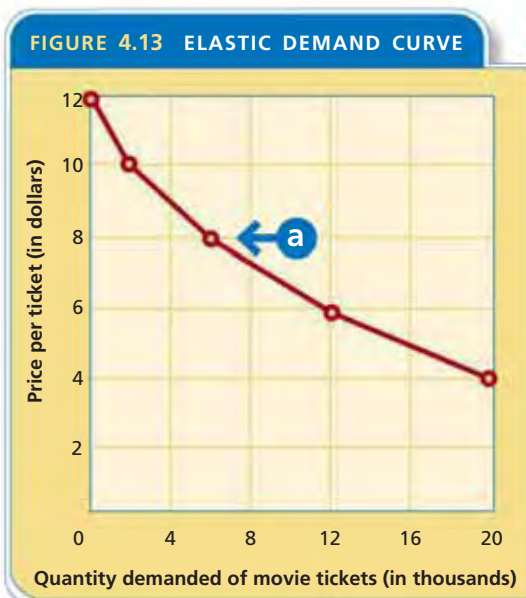
◀ Cosmetic whitening



▲ Filling a cavity

Over time the elasticity of demand for a particular product may change. If more substitutes for a product become available, the demand may become more elastic. For example, the cost of cell phones and their service has become more elastic as more providers enter the market. On the other hand, in the case of prescription drugs, if a product is withdrawn from the market and there are fewer choices for the consumer, the demand may become inelastic.

The data for elastic demand and the data for inelastic demand produce demand curves that look very different from each other. Compare Figure 4.13 and Figure 4.14 below. Notice that the inelastic demand curve has a steeper slope than the elastic demand curve does. The reason for this difference is that the changes along the vertical axis (the price) are proportionally greater than the changes along the horizontal axis (the quantity demanded).



- a** In Figure 4.13, elastic demand curves have gradual slopes. They are more horizontal than vertical because of the greater changes in quantity demanded.
- b** In Figure 4.14, inelastic demand curves have steep slopes. They are more vertical than horizontal because quantity demanded changes very little.

ANALYZE GRAPHS

- In Figure 4.13, what happens to the quantity demanded when price drops from \$10 to \$8?
- In Figure 4.14, what is the difference in quantity demanded between the most expensive and least expensive filling?

Animated Economics
Use elastic and inelastic demand curves at **ClassZone.com**

QUICK REFERENCE

Demand is **unit elastic** when the percentage change in price and quantity demanded are the same.

Demand is said to be **unit elastic** when the percentage change in price and quantity demanded are the same. In other words, a 10 percent increase in price would cause exactly a 10 percent drop in quantity demanded, while the reverse would be true.

No good or service is ever really unit elastic. Instead, unit elasticity is simply the dividing point between elastic and inelastic demand. It is a useful concept for figuring out whether demand is elastic or inelastic.

APPLICATION Drawing Conclusions

- A.** Decide how elastic demand is for the following item. Explain your reasoning.
When a grocery store sells soup at \$1.09 per can, it sells 1,500 cans per week. When it dropped the price to \$0.75, it sold an additional 1,000 cans.

What Determines Elasticity?

KEY CONCEPTS

Just as there are factors that cause a change in demand, there are also factors that affect the elasticity of demand. The factors that affect elasticity include the availability of substitute goods or services, the proportion of income that is spent on the good or service, and whether the good or service is a necessity or a luxury.

FACTOR 1 Substitute Goods or Services

Generally speaking, if there is no substitute for a good or service, demand for it tends to be inelastic. Think back to the consumers who need insulin to regulate their blood sugar levels. No substitute exists for insulin, so consumers' demand is inelastic even when the price goes up. If many substitutes are available, however, demand tends to be elastic. For example, if the price shoots up for beef, consumers can eat chicken, pork, or fish. In this case, demand is elastic.



Find an update on factors affecting elasticity at ClassZone.com

FACTOR 2 Proportion of Income

The percentage of your income that you spend on a good or service is another factor that affects elasticity. Suppose that photography is your hobby, and you spend about 10 percent of your income on a digital camera, memory cards, software programs, and lenses. If the price for any of these rises even slightly, your demand will likely fall because you just don't have any more money to spend on your hobby. Your demand is elastic. At the same time, demand for products that cost little of your income tends to be inelastic. For example, if the cost of pencils or ballpoint pens rose, would you buy fewer pencils and pens? Probably not. You spend so little on these items that you could easily pay the increase.

YOUR ECONOMIC CHOICES

PROPORTION OF INCOME

How much would you invest in a hobby?

This amateur photographer spends about 10 percent of her income to pay for her digital camera and supplies. If the costs of taking photographs rise sharply, she won't be able to increase her demand by an equal amount because she won't have enough money to pay for the additional expenses.



If the level of your income increases, you are likely to increase your demand for some goods or services. Suppose you ordinarily see one movie per month. If your income increases, you may choose to attend the movies several times a month.

FACTOR 3 Necessities Versus Luxuries

A necessity is something you must have, such as food or water. Demand for necessities tends to be inelastic. Even if the price rises, consumers will pay whatever they can afford for necessary goods and services.

But that doesn't mean that consumers will buy the same quantities no matter what the price. If the price of a necessity such as milk rises too much, consumers may choose to buy a substitute, such as a cheaper brand of milk or powdered milk. The quantity demanded of milk will change as the law of demand predicts; however, the change in quantity demanded is smaller than the change in price, so demand is inelastic.

In contrast, a luxury is something that you desire but that is not essential to your life, such as a plasma television. The demand for luxuries tends to be elastic. Consumers will think twice about paying a higher price for something they don't truly need. The change in quantity demanded is much greater than the change in price.

FIGURE 4.15 Estimating Elasticity

By examining the three factors that affect elasticity, you can often estimate whether demand for a certain good or service will be elastic or inelastic.

		Products					
		Table Salt	Ice Cream	Sports Car	Gasoline	Insulin	Braces on Teeth
Factors that affect elasticity	Are there good substitutes? yes = elastic no = inelastic	no	yes	yes	no	no	no
	What proportion of income does it use? large = elastic small = inelastic	small	small	large	small	small	large
	Is it a necessity or a luxury? luxury = elastic necessity = inelastic	necessity	luxury	luxury	necessity	necessity	luxury
	Conclusion	inelastic	elastic	elastic	inelastic	inelastic	elastic

ANALYZE TABLES

What patterns can you see in the factors that affect elasticity? Write a sentence summarizing your answer.

APPLICATION Evaluating

- B. Create a chart like the one above for the following products: mountain bikes, airplane tickets, and home heating oil. Determine if the products are elastic or inelastic.

Calculating Elasticity of Demand

KEY CONCEPTS

Businesses find it useful to figure the elasticity of demand because it helps them to decide whether to make price cuts. If demand for a good or service is elastic, price cuts might help the business earn more. If demand is inelastic, price cuts won't help.

To determine elasticity, economists look at whether the percentage change in quantity demanded is greater than the percentage change in price. To calculate that relationship, economists use mathematical formulas. One such set of formulas is shown below. Another way to determine elasticity is shown on page 122.

MATH CHALLENGE

FIGURE 4.16 Calculating the Elasticity of Demand

Step 1: Calculate percentage change in quantity demanded.
(If the final result is a negative number, treat it as positive.)

$$\frac{\text{Original quantity} - \text{New quantity}}{\text{Original quantity}} \times 100 = \text{Percentage change in quantity demanded}$$

Example Calculations

$$\frac{2,000 - 6,000}{2000} \times 100 = 200\%$$

Step 2: Calculate percentage change in price.
(If the final result is a negative number, treat it as positive.)

$$\frac{\text{Original price} - \text{New price}}{\text{Original price}} \times 100 = \text{Percentage change in price}$$

$$\frac{10 - 8}{10} \times 100 = 20\%$$

Step 3: Calculate elasticity.

$$\frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in price}} = \text{Elasticity}$$

$$\frac{200\%}{20\%} = 10$$

Step 4: After doing your calculations, if the final number is greater than 1, demand is elastic. If the final number is less than 1, demand is inelastic.

Advanced Calculations Economists use a more complex version of these formulas. In Step 1, instead of dividing the change in quantity demanded by the original quantity demanded, they divide it by the average of the original and new quantities. In Step 2, they divide change in price by an average of the original price and new price.

NEED HELP?



Math Handbook,
"Calculating and Using
Percents," page R4

APPLICATION Applying Economic Concepts

- C. Choose two points on the demand curve shown in Figure 4.13 and determine the price and quantity demanded for each point. Then use that data to calculate elasticity of demand.

Total Revenue Test

QUICK REFERENCE

Total revenue is a company's income from selling its products.

Total revenue test is a method of measuring elasticity by comparing total revenues.

KEY CONCEPTS

Businesses need to know about elasticity of demand because it influences the amount of revenue they will earn. Economists measure elasticity of demand by calculating a seller's **total revenue**, the amount of money a company receives for selling its products. Total revenue is calculated using the following formula, in which P is the price and Q is the quantity sold: **TOTAL REVENUE = P × Q**.

You can measure elasticity by comparing the total revenue a business would receive when offering its product at various prices. This method is the **total revenue test**.

If total revenue increases after the price of a product drops, then demand for that product is considered elastic. Why? Because even though the seller makes less on each unit sold, the quantity demanded has increased enough to make up for the lower price. For example, if a hot dog stand sells 100 hot dogs for \$2.50 each, the total revenue is \$250 for the day. However, if the price of hot dogs drops to \$2.00 each and 150 are sold, the total revenue for the day will be \$300. The demand is elastic.

But if the total revenue decreases after the price is lowered, demand is considered inelastic. If the hot dog stand lowers its price to \$1.00 each and sells 200 hot dogs, it makes \$200 in total revenue. Clearly, the price reduction has caused only a modest increase in quantities sold, which is not enough to compensate for lower revenues.

EXAMPLE Revenue Table

Let's look at an example of demand for movie tickets. In Figure 4.17, you can see how total revenues show whether demand is elastic or inelastic.

FIGURE 4.17 MOVIE TICKET REVENUE TABLE

	Price of a Movie Ticket (\$)	Quantity Demanded per Month	Total Revenue (\$)
	12	1,000	12,000
a →	10	2,000	20,000
b →	8	6,000	48,000
	6	12,000	72,000
	4	20,000	80,000

a At \$10 a ticket, the quantity demanded is 2,000. Total revenue is \$20,000.

b When the price drops to \$8, the quantity demanded rises to 6,000. Total revenue rises to \$48,000. So, demand is elastic.

ANALYZE TABLES

When the price range changes from \$8 to \$6, is demand elastic or inelastic? Explain.

APPLICATION Creating Tables

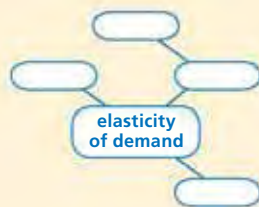
D. Use the information from Figure 4.14 to estimate prices to make a total revenue table.

SECTION 3 Assessment

REVIEWING KEY CONCEPTS

1. Use each of the terms below in a sentence that gives an example of the term:
a. *elastic* b. *inelastic* c. *total revenue*
2. How is total revenue related to elasticity of demand?
3. Why are elastic goods and services said to be price sensitive?
4. What are the factors that affect elasticity of demand and how does each affect elasticity?
5. Analyze the factors that determine elasticity to explain why utilities companies never offer sale prices on their services.

6. **Using Your Notes** How does the concept of unit elasticity relate to the concepts of elasticity and inelasticity? Refer to your completed cluster diagram.



Use the Graphic Organizer at **Interactive Review @ ClassZone.com**

CRITICAL THINKING

7. **Analyzing Causes** In early 2004, news articles reported that prescription drug prices were rising almost three times faster than the prices of other products. Identify the factors that explain why the drug companies were able to raise prices so sharply.
8. **Analyzing Data** In June, Snead's Snack Bar sold 1,000 fruit smoothies at a price of \$2.50 each. In July, they sold 1,300 fruit smoothies at a price of \$2.00. Is the demand for fruit smoothies elastic or inelastic? Use the formula on page 121 to decide. Show the math calculations to support your answer.
9. **Applying Economic Concepts** Suppose the company that runs concession stands at a local sports arena wants to increase revenue on sales of soft drinks. The manager believes the only solution is to charge higher prices. As a business consultant, what advice would you give the manager? Use economic thinking to support your answer.
10. **Challenge** You learned in this section that no product ever has demand that is unit elastic. What possible reasons can you give for that? Draw on what you know about utility, demand, and elasticity as you formulate your answer.

ECONOMICS IN PRACTICE



Calculating Elasticity

Determine the elasticity of bottled water by calculating elasticity and using the revenue table below. Use the information on pages 121 and 122 to help you.

Number of Bottles Sold	Price (\$)
35	2.00
75	1.50
100	1.25
120	1.00

Write a Summary After you have determined whether bottled water is elastic or inelastic, think about what factors affect the demand for bottled water. Write a summary of your conclusions explaining whether demand is elastic or inelastic and why, and what factors affect the elasticity of water.

Challenge What effect might the introduction of a new energy drink have on the demand for bottled water? Use economic thinking to support your answer.

Fueling Automobile Demand

Background Automobiles make up a huge portion of the American economy. In recent years the demand for automobiles and all the services connected with them has accounted for approximately one-fifth of all retail sales. Over the past decade, the total number of automobiles, including light trucks and SUVs (Sport Utility Vehicles), sold has been over 16 million units.

Car dealers are constantly looking for ways to sustain and increase demand for their product. Paul Taylor, chief economist of the National Automobile Dealers Association, observed, “The key to sales of 16.9 million will be the continued strong economy and sustained incentives.” Incentives are awards designed to lure potential buyers into an automobile showroom and encourage sales. Manufacturers have tried everything from giving away mountain bikes to zero percent financing.

What’s the issue? How does demand affect your selection of a vehicle? Study these sources to discover how the law of demand and the factors that affect demand shape the market.

A. Online Article

Most car dealers offer some sort of incentive. This article discusses Volkswagen’s new approach in dealer incentives to car buyers.

Text not available for electronic use.
Please refer to the text in the textbook.



Thinking Economically Do incentives described in this document change the demand for automobiles or the quantity demanded? Explain your answer.

B. Political Cartoon

Brian Duffy, a cartoonist with the *Des Moines Register*, drew this cartoon about the rising price of gasoline.



Thinking Economically Which of the factors that cause a change in demand does this cartoon address? Explain your answer.

C. Online Report

An auto-buying service linking buyers and sellers examines demand for hybrid automobiles. Hybrid cars get power from a combination of batteries and a gas-powered engine.

The Year of the Hybrid

Stellar Fuel Efficiency, Low Emissions, and More Power

Why do we think 2005 will be The Year of the Hybrid? We can sum it up in two words: Power and SUV. There's something reassuring about how auto manufacturers are helping Americans have their cake and eat it too by offering up more fuel-efficient SUVs. Let's face it, America's love affair with the SUV shows no sign of waning. Yet . . . we can't live in denial that the SUV has a fat appetite for gasoline. And then there's the power argument. Despite the crowd pleasing fuel efficiency standards offered by hybrids, there was still the complaint that they lacked juice, or horsepower. . . . 2005's hybrids will appeal to those of us . . . who absolutely demand a lot of horsepower. As if overcompensating for being picked on when they were little, 2005's hybrids are coming out with more horsepower than their gas-only counterparts.

Though hybrids tend to be more expensive than their gas- or diesel-only powered cousins, the savings in fuel (and sometimes in taxes) can more than offset this difference in the long run.

Source: Invoicedealers.com



Thinking Economically Which of the factors affecting demand is evident in this article? Use evidence from the article to support your answer.

THINKING ECONOMICALLY Synthesizing

1. How would the demand for automobiles be affected by information presented in each of these documents? Support your answer with examples from the documents.
2. Identify and discuss the factors that affect elasticity of demand illustrated in these documents.
3. Explain how Documents B and C illustrate a cause and effect relationship in the demand for SUVs. Use evidence from these documents to support your answer.

Review this chapter using interactive activities at **ClassZone.com**

- Online Summary
- Quizzes
- Vocabulary Flip Cards
- Graphic Organizers
- Review and Study Notes

REVIEWING KEY CONCEPTS

What Is Demand? (pp. 98–105)

1. What two things are necessary for a consumer to have demand for a good or service?
2. What do economists mean when they say that quantity demanded and price have an inverse relationship?

What Factors Affect Demand? (pp. 106–115)

3. What is the difference between change in quantity demanded and change in demand?
4. How do consumer expectations affect demand?

What Is Elasticity of Demand? (pp. 116–125)

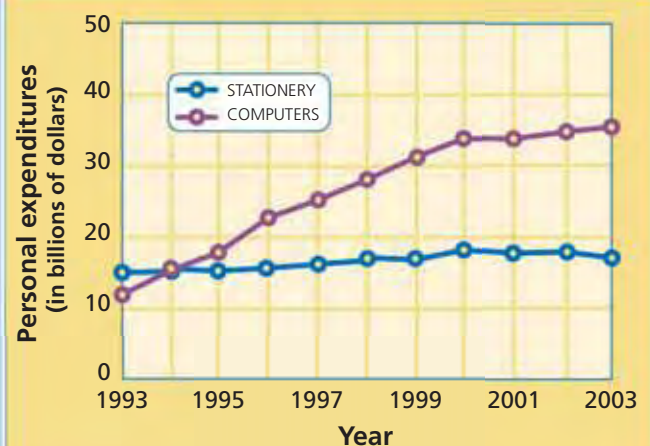
5. Explain the difference between elastic and inelastic demand.
6. What are two methods for calculating elasticity of demand?

APPLYING ECONOMIC CONCEPTS

Look at the graph below showing personal spending for two types of products: computers and stationery.

7. What is the general trend of how spending for each of these product types has changed? Are the two trends alike or different?
8. In what way might these products be complements? In what way might they be substitutes?

FIGURE 4.18 PERSONAL SPENDING ON COMPUTERS AND STATIONERY



Source: U.S. Department of Commerce, Bureau of Economic Analysis

Choose the key concept that best completes the sentence. Not all key concepts will be used.

- | | |
|---|--|
| change in demand | law of demand |
| change in quantity demanded | market demand curve |
| demand | market demand schedule |
| demand curve | normal goods |
| demand schedule | substitutes |
| elastic | substitution effect |
| elasticity of demand | total revenue |
| income effect | total revenue test |
| inelastic | unit elastic |
| inferior goods | |

1 is the desire for a product and the ability to pay for it. According to the 2, when price decreases, demand rises, and when price increases, demand falls.

Demand can be displayed in a table called a 3 or on a graph called a 4. A 5 is a table that shows how much demand all consumers in a market have. When that same information is displayed on a graph, it is called a 6.

The different points on a demand curve show a 7. A 8 occurs when consumers are willing to buy different amounts of a product at every price. The six factors that change demand are income, market size, consumer expectations, consumer taste, complement, and 9.

The term 10 describes how responsive consumers are to price changes. Demand that changes significantly when prices change is 11. Demand that doesn't change significantly when prices change is 12. The dividing line between the two is where demand is 13.

14 is calculated by multiplying price by quantity sold.

CRITICAL THINKING

9. Creating Graphs A tornado destroys a town. Think of three goods for which demand will rise in the weeks after the storm and three goods for which demand will fall. For each good, create a graph with two demand curves: curve A representing demand before the storm and curve B representing demand after the storm. Under each graph, write a caption explaining the change in demand.

Use  **SMART Grapher** @ **ClassZone.com** to complete this activity.

10. Identifying Causes A certain stuffed toy is popular during the holiday season, but sells for half the listed price after the holidays. Which factor in change in demand is at work here? Explain.

11. Identifying Causes In the last few decades, demand for ketchup has dropped in the United States, while demand for salsa has risen. Which factors that affect demand account for this?

12. Using Economic Concepts Airlines give discounts to travelers who book in advance and stay over a weekend. Travelers who book at the last minute and do not stay over a weekend usually pay full-price. How does the concept of elasticity explain the difference between the two groups' demand for tickets and the airlines' pricing decisions?

13. Challenge Suppose that you read the following article in the newspaper:

Meteorologists announced today that this has been the warmest winter in 57 years. The unusual weather has affected local businesses. According to Pasha Dubrinski, owner of Pasha's Outerwear, sales of winter parkas are 17 percent lower than last year. Dubrinski said, "Instead of buying down-filled parkas, people have been buying substitute items such as leather coats."

Across town, Michael Ellis, owner of Home Hardware, said that his sales of snow blowers are also down. "Next week, I will cut the price. That will increase demand."

Are these two storeowners correct in the way they use economic terms? Explain your answer.

SIMULATION

Equip Your Team

Step 1 Choose a partner. Imagine you are equipment managers for your school's baseball team. You must equip the nine starters with a budget of \$5,000. The equipment supplier sends you the list of prices shown in column A of the table below. Create a list telling how many of each item you will buy.

SPORTING GOODS PRICES			
Item	Prices (in dollars)		
	A	B	C
Bat	130	170	200
Baseball	2	3	4
Glove or Mitt	80	130	160
Catcher's Mask	80	90	100
Full Uniform	65	100	135
Jersey Only	30	60	90
Cleats	25	60	90
Sunglasses	20	30	40
Team Jacket	50	75	100

Step 2 When you call in the order, you learn that a big sporting goods factory has burned. Prices have risen to those shown in column B. You must redo your order using the new prices but the same budget.

Step 3 The economy is hit with sudden and severe price hikes. Redo your order using the prices in column C.

Step 4 Share your three purchasing lists with the class. As a class, use the collected data to create a market demand curve for each item.

Step 5 Use the collected data to calculate elasticity for each item. (You may use either method explained in this chapter.) Then as a class discuss your results. What factors influenced elasticity?

Use  **SMART Grapher** @ **ClassZone.com** to complete this activity.