

## Understanding Demand

### Introduction and Description

In this lesson, students learn about the different aspects of the demand for a good or service. They learn that the typical demand curve is downward sloping. They learn the difference between a *change in the demand* for a good and a *change in the quantity demanded*, a distinction of great importance. They will see what causes a change in demand and what causes a change in quantity demanded. Graphs are essential for analyzing changes in demand and changes in quantity demanded, but manipulating graphs is not enough. Students must understand the actual behavior that is illustrated by a demand curve.

### Objectives

1. Describe and analyze what demand is and why consumers buy more of a good or service when the price is lower.
2. Differentiate between a *change in demand (shift)* and a *change in quantity demanded (movement on the curve)*.
3. List and explain the *determinants of demand*.
4. Under specific conditions, determine in which direction a demand curve should shift.
5. Define *consumer surplus*, and know how to show it graphically and calculate its value.

### Time Required

Two class periods or 90 minutes

### Materials

1. Activities 2-1.1, 2-1.2
2. Visuals 2-1.1, 2-1.2

### Bell Ringer



Your favorite candy bar goes on sale. Do you buy more or less? Why? What if the candy company brings out a new flavor? What happens then?

Teacher Alert: The distinction between a change in demand and a change in quantity demanded is very important on an AP Economics Exam. A change in quantity demanded is a movement from one point to another on the demand curve. A change in demand will shift the entire demand curve either to the left or right. This change will be caused by a determinant of demand. Be sure students know what causes each type of change and how to show them graphically.



### Procedure

1. Tell students that the law of demand describes the behavior of consumers. To illustrate this law, give each student a slip of paper with three prices for a popular candy bar or other snack food. Ask each student to write down how many units of the snack food he/she would buy in a one-week period at each of the prices. Break into groups and have students add up the quantities at each price for every person in their group. Arrange the prices from the highest to the lowest. In developing the demand curve, point out that the bids are cumulative. That is, a person willing to pay \$1.00 for the snack is also willing to pay \$0.50. Create a hypothetical demand schedule and demand graph based on the snack food and model creating a demand schedule and graph on the board. Have each group create their own. Ask students to describe the behavior of consumers in relation to price and quantity demanded. (*They are inversely related.*)

## UNIT 2 LESSON 1 (continued)

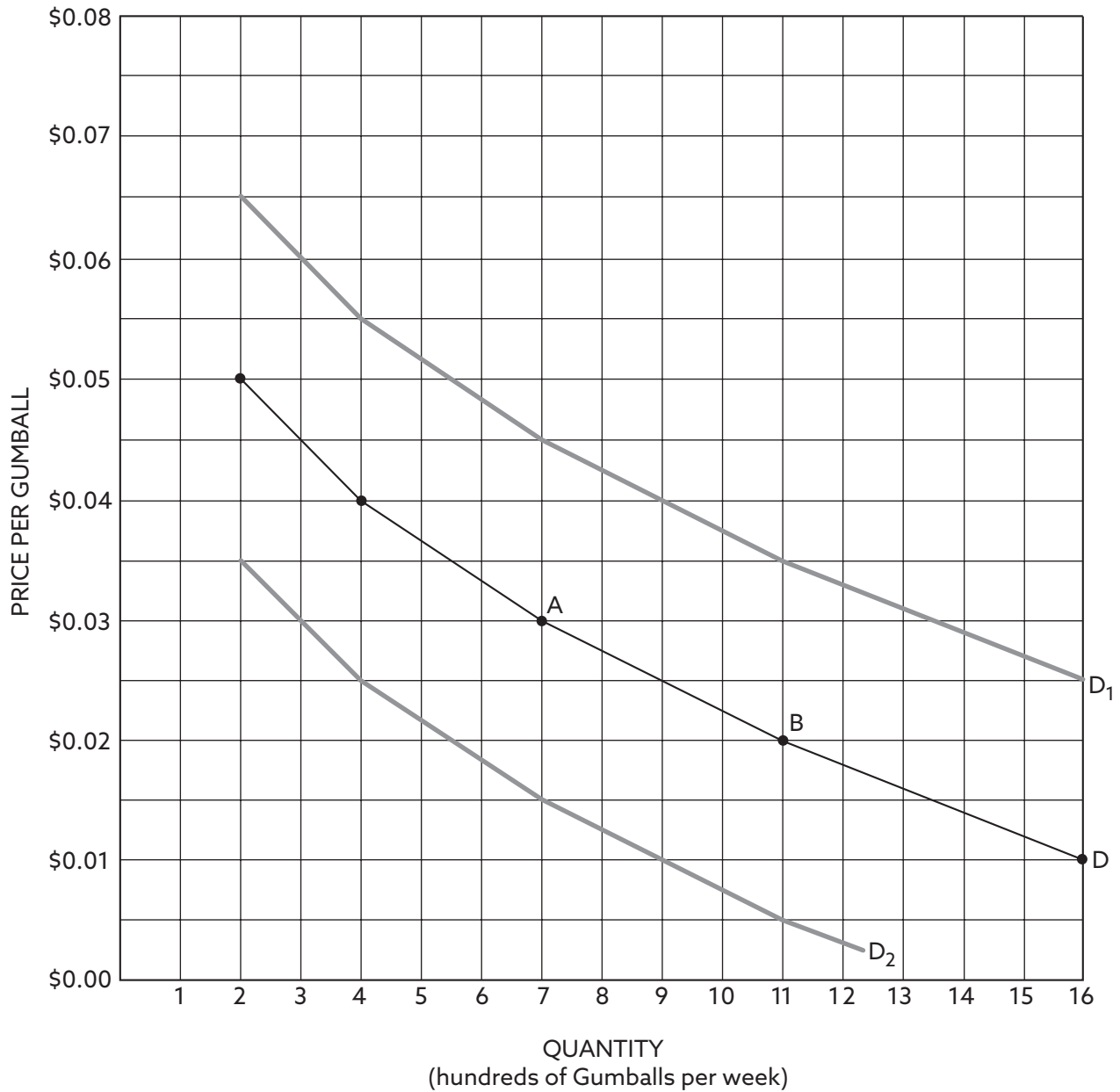
2. Use Visual 2-1.1 to illustrate the difference between a change in demand and a change in quantity demanded. A movement from A to B is a change in quantity demanded. This movement along the curve is caused by a change in the price of the product. Only a change in the price of Gumballs will cause a change in the quantity of Gumballs demanded. A shift in the curve is caused by factors other than a change in the price of Gumballs.

Teacher Alert: Don't let students be lazy and just say "a change in price." They must be specific: When you introduce Determinants of Demand ask the question again. Was it the price of this good that changed, or a change in the price of a substitute good or the price of a complementary good? It matters!



3. Still using Visual 2-1.1, explain the reason a demand curve shifts. (*An increase in demand means people are willing and able to buy more at each price. A decrease in demand means people are willing and able to buy less at each price. A movement from  $D$  to  $D_1$  is an increase in demand. A movement from  $D$  to  $D_2$  is a decrease in demand.*)
4. Now use Visual 2-1.2 to discuss the determinants of demand. Give examples in each category. Students should be able to give and identify examples. To reinforce this, list a few examples and have students identify the factor. Explain to students the concept of *ceteris paribus* (all else being equal) and how economists use this to simplify the analysis of demand.
- Change in consumer tastes
  - Change in the number of buyers
  - Change in consumer incomes
  - Change in the prices of complementary and substitute goods
  - Change in consumer expectations
5. Have students complete Parts A and B of Activity 2-1.1, which ask students to identify changes in demand and changes in quantity demanded. Be sure to point out that the demand price is the maximum price consumers would be willing to pay for a given quantity. Of course, consumers would be willing to pay a lower price than this maximum price.
6. Part C of Activity 2-1.1 introduces the concept of consumer surplus, which is the value received from the purchase of a good in excess of the price paid for it. Use examples that students can relate to as you cover consumer surplus. "You were willing to pay \$80 for that pair of shoes but you got them for \$60. You have a consumer surplus of \$20." Students have frequently missed questions on this concept on past AP exams. Your lecture should include modeling how to find, shade, and calculate consumer surplus using a graph.
7. Have students complete Activity 2-1.2 to reinforce the determinants of demand and shifts in demand.

# Illustrating the Difference between a Change in Demand and a Change in Quantity Demanded



## Determinants of Demand

### Factors that Shift the Demand Curve

- Change in consumer tastes
- Change in the number of buyers
- Change in consumer incomes
- Change in the prices of complementary and substitute goods
- Change in consumer expectations

## UNIT 2 ACTIVITY 2-1.1 SOLUTIONS

# Demand Curves, Movements Along Demand Curves, and Shifts in Demand Curves

### Part A: A Change in Demand versus a Change in Quantity Demanded


Student Alert: The distinction between a “change in demand” and a “change in quantity demanded” is very important!

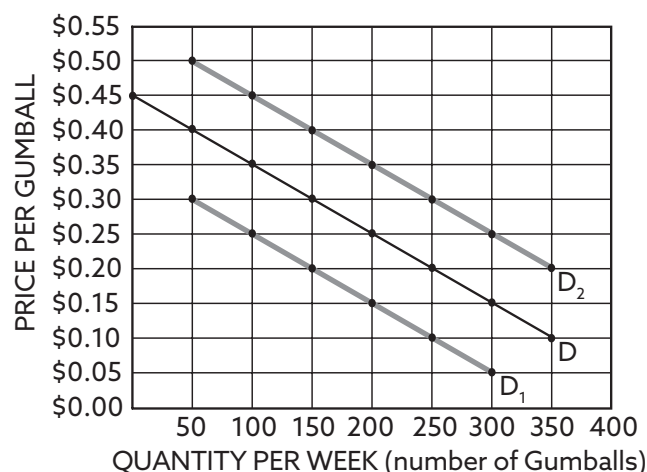


Table 2-1.1 shows the market demand for Gumballs. Study the data and plot the demand for Gumballs on the graph in Figure 2-1.1. Label the demand curve D, and answer the questions that follow.

 **Table 2-1.1**  
**DEMAND FOR GUMBALLS**

Price (per Gumballs)	Quantity demanded per week (number of Gumballs)
\$0.10	350
\$0.15	300
\$0.20	250
\$0.25	200
\$0.30	150
\$0.35	100
\$0.40	50
\$0.45	0

 **Figure 2-1.1**  
**DEMAND FOR GUMBALLS**



1. The data for demand curve D indicate that at a price of \$0.30 per gumball, buyers would be willing to buy 150 Gumballs. All other things held constant, if the price of Gumballs increased to \$0.40 per gumball, buyers would be willing to buy 50 Gumballs. Such a change would be a decrease in (demand/quantity demanded). All other things held constant, if the price of Gumballs decreased to \$0.20, buyers would be willing to buy 250 Gumballs. Such a change would be called an increase in (demand/quantity demanded).

## UNIT 2 ACTIVITY 2-1.1 SOLUTIONS (continued)

Now, let's suppose there is a change in federal income-tax rates that affects the disposable income of gumball buyers. This change in the *ceteris paribus* (all else being equal) conditions underlying the original demand for Gumballs will result in a new set of data, shown in Table 2-1.2. Study these new data, and add the new demand curve for Gumballs to the graph in Figure 2-1.1 Label the new demand curve  $D_1$  and answer the questions that follow.



Table 2-1.2

### NEW DEMAND FOR GUMBALLS

Price (per Gumball)	Quantity demanded per week (number of Gumballs)
\$0.05	300
\$0.10	250
\$0.15	200
\$0.20	150
\$0.25	100
\$0.30	50

2. Comparing the new demand curve ( $D_1$ ) with the original demand curve ( $D$ ), we can say that the change in the demand for Gumballs results in a shift of the demand curve to the (left/right). Such a shift indicates that at each of the possible prices shown, buyers are now willing to buy a (smaller/larger) quantity; and at each of the possible quantities shown, buyers are willing to offer a (higher/lower) maximum price. The cause of this demand curve shift was a(n) (increase/decrease) in tax rates that (increased/decreased) the disposable income of gumball buyers.

## UNIT 2 ACTIVITY 2-1.1 SOLUTIONS (continued)

Now, let's suppose that there is a dramatic change in people's tastes and preferences for Gumballs. This change in the ceteris paribus conditions underlying the original demand for Gumballs will result in a new set of data, shown in Table 2-1.3. Study these new data, and add the new demand curve for Gumballs to the graph in Figure 2-1.1. Label the new demand curve  $D_2$  and answer the questions that follow.



Table 2-1.3

### NEW DEMAND FOR GUMBALLS

Price (per Gumball)	Quantity demanded per week (number of Gumballs)
\$0.20	350
\$0.25	300
\$0.30	250
\$0.35	200
\$0.40	150
\$0.45	100
\$0.50	50

3. Comparing this new demand curve ( $D_2$ ) with the original demand curve ( $D$ ), we can say that the change in the demand for Gumballs results in a shift of the demand curve to the (left/right). Such a shift indicates that at each of the possible prices shown, buyers are now willing to buy a (smaller/larger) quantity; and at each of the possible quantities shown, buyers are willing to offer a (lower/higher) maximum price. The cause of this shift in the demand curve was a(n) (increase/decrease) in people's tastes and preferences for Gumballs.

## UNIT 2 ACTIVITY 2-1.1 SOLUTIONS (continued)

### Part B: Do You Get It?

Now, to test your understanding, choose the answer you think is the best in each of the following multiple-choice questions.

4. All other things held constant, which of the following would not cause a change in the demand (shift in the demand curve) for motorcycles?
- (A) A decrease in consumer incomes
  - (B) A decrease in the price of motorcycles. This will cause an increase in the “quantity demanded” of motorcycles.**
  - (C) An increase in the price of bicycles
  - (D) An increase in the price of bicycle helmets
  - (E) An increase in people’s tastes and preferences for motorcycles
5. “Rising oil prices have caused a sharp decrease in the demand for oil.” Speaking precisely, and using terms as they are defined by economists, choose the statement that best describes this quotation.
- (A) The quotation is correct: an increase in price causes a decrease in demand.
  - (B) The quotation is incorrect: an increase in price causes an increase in demand, not a decrease in demand.
  - (C) The quotation is incorrect: an increase in price causes a decrease in the quantity demanded, not a decrease in demand.**
  - (D) The quotation is incorrect: an increase in price causes an increase in the quantity demanded, not a decrease in demand.
  - (E) The quotation is correct: the sharp decrease in demand for oil has caused the rise in prices.
6. “As the price of domestic automobiles has risen, customers have found foreign autos to be a better bargain. Consequently, domestic auto sales have been decreasing, and foreign auto sales have been increasing.” Using only the information in this quotation and assuming everything else remains constant, which of the following best describes this statement?
- (A) A shift in the demand curves for both domestic and foreign automobiles
  - (B) A movement along the demand curves for both foreign and domestic automobiles
  - (C) A movement along the demand curve for domestic autos, and a shift in the demand curve for foreign autos**
  - (D) A shift in the demand curve for domestic autos, and a movement along the demand curve for foreign autos
  - (E) A shift in the demand curve for domestic autos, and no movement along the demand curve for foreign autos.



## Part C: Calculating Consumer Surplus

Once we have the demand curve, we can define the concept of *consumer surplus*. Consumer surplus is the value a consumer receives from the purchase of a good in excess of the price paid for the good. Stated differently, consumer surplus is the difference between the amount a person is willing and able to pay for a unit of the good and the actual price paid for that unit. For example, if you are willing to pay \$100 for a coat but are able to buy the coat for only \$70, you have a consumer surplus of \$30.

Refer again to the demand data from Table 2-1.1, and assume the price is \$0.30. Some buyers will benefit because they are willing to pay prices higher than \$0.30 for this good. Note that each time the price is reduced by \$0.05, consumers will buy an additional 50 Gumballs. Table 2-1.4 shows how to calculate the consumer surplus resulting from the price of \$0.30.



Table 2-1.4

### FINDING THE CONSUMER SURPLUS WHEN THE PRICE IS \$0.30

Price willing to pay	Quantity demanded	Consumer surplus from the increments of 50 units if P = \$0.30
\$0.40	50 units	$(\$0.10)(50 \text{ units}) = \$5.00$
\$0.35	100 units	$(\$0.05)(50 \text{ units}) = \$2.50$
\$0.30	150 units	$(\$0.00)(50 \text{ units}) = \$0.00$

The Price for each unit is \$0.30. For those consumers willing to buy 50 units at a price of \$0.40, the consumer surplus for each unit is \$0.10 (= \$0.40 the highest price that consumers are willing to pay minus the current price of \$0.30 or \$0.40 – \$0.30), making the consumer surplus for all these units equal to \$5.00.

If the price is reduced from \$0.40 to \$0.35, consumers who paid \$0.40 are also willing to buy at \$0.35 and buy another 50 units; the consumer surplus for these buyers is \$0.05 per unit (\$0.35 – \$0.30) or a total of \$2.50 for those 50 units.

If the price is lowered another \$0.05 to \$0.30, an extra 50 units will be demanded; the consumer surplus for these units is \$0.00 since \$0.30 is the highest price these consumers are willing to pay.

Thus, if the price is \$0.30, a total of 150 units are demanded and the total consumer surplus is \$7.50.

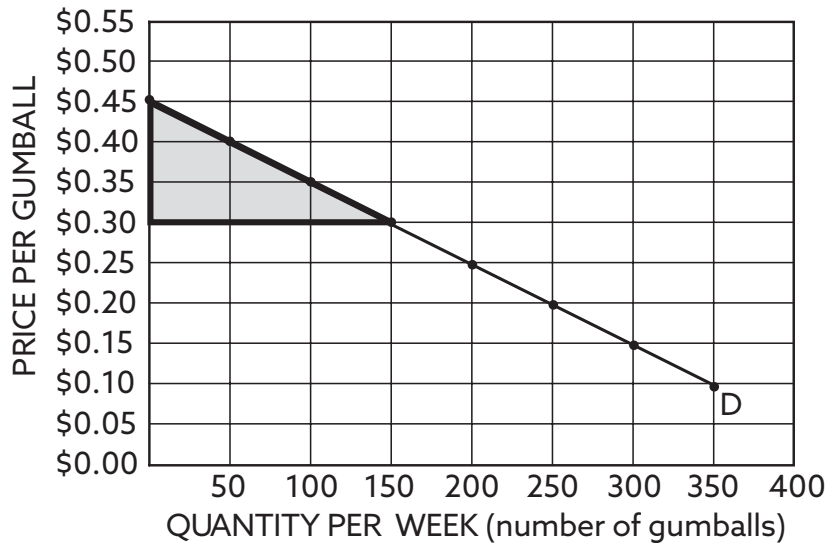
## UNIT 2 ACTIVITY 2-1.1 SOLUTIONS (continued)

An approximation of the total consumer surplus from a given number of units of a good can be shown graphically as the area below the demand curve and above the price paid for those units.



Figure 2-1.2

### CONSUMER SURPLUS



7. In Figure 2-1.2, redraw the demand curve (D) from the data in Table 2-1.1. We see that if the price is \$0.30, the quantity demanded is 150 units. Consumer surplus from these 150 units is the shaded area between the demand curve D and the horizontal price line at \$0.30. We can find the area of this triangle using the familiar rule of  $(\frac{1}{2}) \times \text{base} \times \text{height}$ . Shade this area.
8. What is the value of consumer surplus in this market if the price is \$0.30? \$11.25 Write the equation showing how you calculated the value of the area of the triangle representing consumer surplus.

$$\text{Consumer surplus} = (0.5)(150)(\$0.45 - \$0.30) = \$11.25.$$

9. Answer these questions based on the discussion of Figure 2-1.2.

(A) If the price is increased from \$0.30 to \$0.35, consumer surplus will (increase/decrease). Why?

**Consumers will buy fewer units because of the higher price, and the consumer surplus of the units they buy will be smaller.**

(B) If the price is decreased from \$0.30 to \$0.25, consumer surplus will (increase/decrease). Why?

**Consumers will buy more units because of the lower price, and the consumer surplus of the units they buy will be larger.**

# UNIT 2 ACTIVITY 2-1.2 SOLUTIONS

## Reasons for Changes in Demand

### Part A: Does the Demand Curve Shift?

Read the eight newspaper headlines in Table 2-1.5, and use the table to record the impact of each event on the demand for U.S.-made autos. In the second column, indicate whether the event in the headline will cause consumers to buy more or less U.S.-made autos. Use the third column to indicate whether there is a change in demand ( $\Delta D$ ) or a change in quantity demanded ( $\Delta Qd$ ) for U.S.-made autos. In the fourth column, decide whether the demand curve shifts to the right or left or does not shift. Finally, in the last column draw and label the graph showing the shift in the curve for U.S.-made autos.

 **Table 2-1.5**  
**IMPACT OF EVENTS ON DEMAND FOR U.S.-MADE AUTOS**

Headline	Will consumers buy more or less U.S. autos?	Is there a change in demand ( $\Delta D$ ) or a change in quantity demanded ( $\Delta Qd$ )?	Does the demand curve for U.S. autos shift to the right or left or not shift?	Draw and label the graph showing the shift in the curve for U.S. autos.
1. Consumers' Income Drops	More / <b>Less</b>	<b><math>\Delta D</math></b> / $\Delta Qd$	Right / <b>Left</b> / No Shift	
2. Millions of Immigrants Enter the U.S.	<b>More</b> / Less	<b><math>\Delta D</math></b> / $\Delta Qd$	<b>Right</b> / Left / No Shift	
3. Price of Foreign Autos Drop	More / <b>Less</b>	<b><math>\Delta D</math></b> / $\Delta Qd$	Right / <b>Left</b> / No Shift	
4. Major Cities Add Inexpensive Bus Lines	More / <b>Less</b>	<b><math>\Delta D</math></b> / $\Delta Qd$	Right / <b>Left</b> / No Shift	
5. Price of U.S. Autos Rises	More / <b>Less</b>	$\Delta D$ / <b><math>\Delta Qd</math></b>	Right / Left / <b>No Shift</b>	
6. Price of U.S. Autos Expected to Rise Soon	<b>More</b> / Less	<b><math>\Delta D</math></b> / $\Delta Qd$	<b>Right</b> / Left / No Shift	
7. Families Look Forward to Summer Vacations	<b>More</b> / Less	<b><math>\Delta D</math></b> / $\Delta Qd$	<b>Right</b> / Left / No Shift	
8. U.S. Auto Firms Launch Effective Ad Campaigns	<b>More</b> / Less	<b><math>\Delta D</math></b> / $\Delta Qd$	<b>Right</b> / Left / No Shift	

## UNIT 2 ACTIVITY 2-1.2 SOLUTIONS (continued)

### Part B: Why Does the Demand Curve Shift?

Categorize each change in demand in Part A according to the reason why demand changed. A given demand curve assumes that consumer expectations, consumer tastes, the number of consumers in the market, the income of consumers, and the prices of substitutes and complements are unchanged. In Table 2-1.6, place an X next to the reason that the event described in the headline caused a change in demand. One headline will have no answer because it will result in a change in quantity demanded rather than a change in demand.



Table 2-1.6

REASONS FOR A CHANGE IN DEMAND FOR U.S.-MADE AUTOS

Reason	Headline number							
	1	2	3	4	5	6	7	8
9. A change in consumer expectations						X	X	
10. A change in consumer taste								X
11. A change in the number of consumer in the market		X						
12. A change in income	X							
13. A change in the price of a substitute good			X	X				
14. A change in the price of a complementary good								

## UNIT 2 ACTIVITY 2-1.1

# Demand Curves, Movements Along Demand Curves, and Shifts in Demand Curves

### Part A: A Change in Demand versus a Change in Quantity Demanded

Student Alert: The distinction between a “change in demand” and a “change in quantity demanded” is very important!



Table 2-1.1 shows the market demand for Gumballs. Study the data and plot the demand for Gumballs on the graph in Figure 2-1.1. Label the demand curve D, and answer the questions that follow.



Table 2-1.1

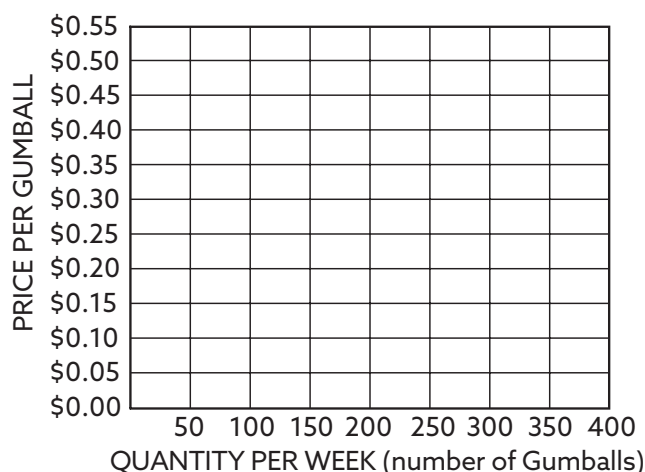
#### DEMAND FOR GUMBALLS

Price (per Gumballs)	Quantity demanded per week (number of Gumballs)
\$0.10	350
\$0.15	300
\$0.20	250
\$0.25	200
\$0.30	150
\$0.35	100
\$0.40	50
\$0.45	0



Figure 2-1.1

#### DEMAND FOR GUMBALLS



1. The data for demand curve D indicate that at a price of \$0.30 per gumball, buyers would be willing to buy \_\_\_\_\_ Gumballs. All other things held constant, if the price of Gumballs increased to \$0.40 per gumball, buyers would be willing to buy \_\_\_\_ Gumballs. Such a change would be a decrease in (demand/quantity demanded). All other things held constant, if the price of Gumballs decreased to \$0.20, buyers would be willing to buy \_\_\_\_ Gumballs. Such a change would be called an increase in (demand/quantity demanded).

## UNIT 2 ACTIVITY 2-1.1 (continued)

Now, let's suppose there is a change in federal income-tax rates that affects the disposable income of gumball buyers. This change in the *ceteris paribus* (all else being equal) conditions underlying the original demand for Gumballs will result in a new set of data, shown in Table 2-1.2. Study these new data, and add the new demand curve for Gumballs to the graph in Figure 2-1.1 Label the new demand curve  $D_1$  and answer the questions that follow.



Table 2-1.2

### NEW DEMAND FOR GUMBALLS

Price (per Gumball)	Quantity demanded per week (number of Gumballs)
\$0.05	300
\$0.10	250
\$0.15	200
\$0.20	150
\$0.25	100
\$0.30	50

2. Comparing the new demand curve ( $D_1$ ) with the original demand curve ( $D$ ), we can say that the change in the demand for Gumballs results in a shift of the demand curve to the (left/right). Such a shift indicates that at each of the possible prices shown, buyers are now willing to buy a (smaller/larger) quantity; and at each of the possible quantities shown, buyers are willing to offer a (higher/lower) maximum price. The cause of this demand curve shift was a(n) (increase/decrease) in tax rates that (increased/decreased) the disposable income of gumball buyers.

## UNIT 2 ACTIVITY 2-1.1 (continued)

Now, let's suppose that there is a dramatic change in people's tastes and preferences for Gumballs. This change in the ceteris paribus conditions underlying the original demand for Gumballs will result in a new set of data, shown in Table 2-1.3. Study these new data, and add the new demand curve for Gumballs to the graph in Figure 2-1.1. Label the new demand curve  $D_2$  and answer the questions that follow.



Table 2-1.3

### NEW DEMAND FOR GUMBALLS

Price (per Gumball)	Quantity demanded per week (number of Gumballs)
\$0.20	350
\$0.25	300
\$0.30	250
\$0.35	200
\$0.40	150
\$0.45	100
\$0.50	50

3. Comparing this new demand curve ( $D_2$ ) with the original demand curve ( $D$ ), we can say that the change in the demand for Gumballs results in a shift of the demand curve to the (left/right). Such a shift indicates that at each of the possible prices shown, buyers are now willing to buy a (smaller/larger) quantity; and at each of the possible quantities shown, buyers are willing to offer a (lower/higher) maximum price. The cause of this shift in the demand curve was a(n) (increase/decrease) in people's tastes and preferences for Gumballs.

## UNIT 2 ACTIVITY 2-1.1 (continued)

### Part B: Do You Get It?

Now, to test your understanding, choose the answer you think is the best in each of the following multiple-choice questions.

4. All other things held constant, which of the following would not cause a change in the demand (shift in the demand curve) for motorcycles?
  - (A) A decrease in consumer incomes
  - (B) A decrease in the price of motorcycles. This will cause an increase in the “quantity demanded” of motorcycles.
  - (C) An increase in the price of bicycles
  - (D) An increase in the price of bicycle helmets
  - (E) An increase in people’s tastes and preferences for motorcycles
5. “Rising oil prices have caused a sharp decrease in the demand for oil.” Speaking precisely, and using terms as they are defined by economists, choose the statement that best describes this quotation.
  - (A) The quotation is correct: an increase in price causes a decrease in demand.
  - (B) The quotation is incorrect: an increase in price causes an increase in demand, not a decrease in demand.
  - (C) The quotation is incorrect: an increase in price causes a decrease in the quantity demanded, not a decrease in demand.
  - (D) The quotation is incorrect: an increase in price causes an increase in the quantity demanded, not a decrease in demand.
  - (E) The quotation is correct: the sharp decrease in demand for oil has caused the rise in prices.
6. “As the price of domestic automobiles has risen, customers have found foreign autos to be a better bargain. Consequently, domestic auto sales have been decreasing, and foreign auto sales have been increasing.” Using only the information in this quotation and assuming everything else remains constant, which of the following best describes this statement?
  - (A) A shift in the demand curves for both domestic and foreign automobiles
  - (B) A movement along the demand curves for both foreign and domestic automobiles
  - (C) A movement along the demand curve for domestic autos, and a shift in the demand curve for foreign autos
  - (D) A shift in the demand curve for domestic autos, and a movement along the demand curve for foreign autos
  - (E) A shift in the demand curve for domestic autos, and no movement along the demand curve for foreign autos.



## Part C: Calculating Consumer Surplus

Once we have the demand curve, we can define the concept of *consumer surplus*. Consumer surplus is the value a consumer receives from the purchase of a good in excess of the price paid for the good. Stated differently, consumer surplus is the difference between the amount a person is willing and able to pay for a unit of the good and the actual price paid for that unit. For example, if you are willing to pay \$100 for a coat but are able to buy the coat for only \$70, you have a consumer surplus of \$30.

Refer again to the demand data from Table 2-1.1, and assume the price is \$0.30. Some buyers will benefit because they are willing to pay prices higher than \$0.30 for this good. Note that each time the price is reduced by \$0.05, consumers will buy an additional 50 Gumballs. Table 2-1.4 shows how to calculate the consumer surplus resulting from the price of \$0.30.



Table 2-1.4

### FINDING THE CONSUMER SURPLUS WHEN THE PRICE IS \$0.30

Price willing to pay	Quantity demanded	Consumer surplus from the increments of 50 units if P = \$0.30
\$0.40	50 units	$(\$0.10)(50 \text{ units}) = \$5.00$
\$0.35	100 units	$(\$0.05)(50 \text{ units}) = \$2.50$
\$0.30	150 units	$(\$0.00)(50 \text{ units}) = \$0.00$

The Price for each unit is \$0.30. For those consumers willing to buy 50 units at a price of \$0.40, the consumer surplus for each unit is \$0.10 (= \$0.40 the highest price that consumers are willing to pay minus the current price of \$0.30 or \$0.40 – \$0.30), making the consumer surplus for all these units equal to \$5.00.

If the price is reduced from \$0.40 to \$0.35, consumers who paid \$0.40 are also willing to buy at \$0.35 and buy another 50 units; the consumer surplus for these buyers is \$0.05 per unit (\$0.35 – \$0.30) or a total of \$2.50 for those 50 units.

If the price is lowered another \$0.05 to \$0.30, an extra 50 units will be demanded; the consumer surplus for these units is \$0.00 since \$0.30 is the highest price these consumers are willing to pay.

Thus, if the price is \$0.30, a total of 150 units are demanded and the total consumer surplus is \$7.50.

## UNIT 2 ACTIVITY 2-1.1 (continued)

### Part C: Calculating Consumer Surplus (continued)

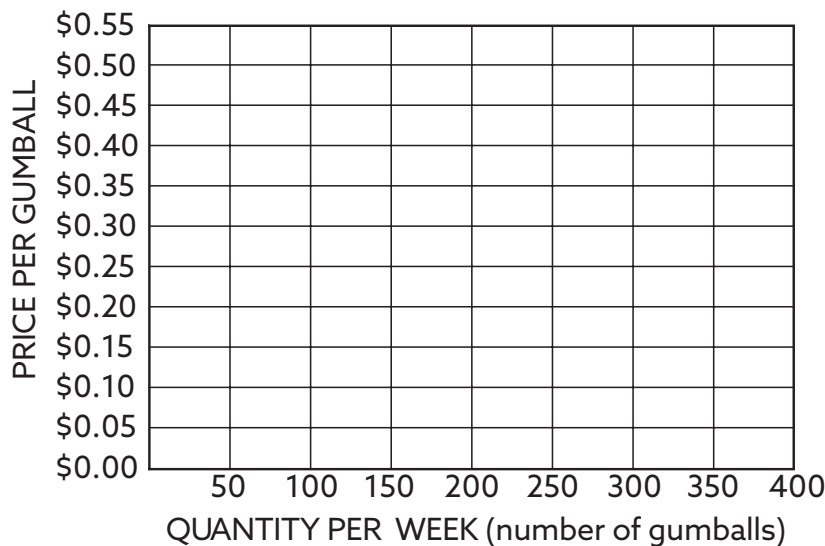
An approximation of the total consumer surplus from a given number of units of a good can be shown graphically as the area below the demand curve and above the price paid for those units.

1. In Figure 2-1.2, redraw the demand curve (D) from the data in Table 2-1.1. We see that if the price is \$0.30, the quantity demanded is 150 units. Consumer surplus from these 150 units is the area between the demand curve D and the horizontal price line at \$0.30. Shade this area. We can find the area of this triangle using the familiar rule of  $(\frac{1}{2}) \times \text{base} \times \text{height}$ .



Figure 2-1.2

#### CONSUMER SURPLUS



2. What is the value of consumer surplus in this market if the price is \$0.30? \_\_\_\_\_ Write the equation showing how you calculated the value of the area of the triangle representing consumer surplus.
3. Answer these questions based on the discussion of Figure 2-1.2.
  - (A) If the price is increased from \$0.30 to \$0.35, consumer surplus will (increase/decrease). Why?
  - (B) If the price is decreased from \$0.30 to \$0.25, consumer surplus will (increase/decrease). Why?

## UNIT 2 ACTIVITY 2-1.2

### Reasons for Changes in Demand

#### Part A: Does the Demand Curve Shift?

Read the eight newspaper headlines in Table 2-1.5, and use the table to record the impact of each event on the demand for U.S.-made autos. In the second column, indicate whether the event in the headline will cause consumers to buy more or less U.S.-made autos. Use the third column to indicate whether there is a change in demand ( $\Delta D$ ) or a change in quantity demanded ( $\Delta Qd$ ) for U.S.-made autos. In the fourth column, decide whether the demand curve shifts to the right or left or does not shift. Finally, in the last column draw and label the graph showing the shift in the curve for U.S.-made autos.

 **Table 2-1.5**  
**IMPACT OF EVENTS ON DEMAND FOR U.S.-MADE AUTOS**

Headline	Will consumers buy more or less U.S. autos?	Is there a change in demand ( $\Delta D$ ) or a change in quantity demanded ( $\Delta Qd$ )?	Does the demand curve for U.S. autos shift to the right or left or not shift?	Draw and label the graph showing the shift in the curve for U.S. autos.
1. Consumers' Income Drops	<i>More / Less</i>	$\Delta D / \Delta Qd$	<i>Right / Left / No Shift</i>	
2. Millions of Immigrants Enter the U.S.	<i>More / Less</i>	$\Delta D / \Delta Qd$	<i>Right / Left / No Shift</i>	
3. Price of Foreign Autos Drop	<i>More / Less</i>	$\Delta D / \Delta Qd$	<i>Right / Left / No Shift</i>	
4. Major Cities Add Inexpensive Bus Lines	<i>More / Less</i>	$\Delta D / \Delta Qd$	<i>Right / Left / No Shift</i>	
5. Price of U.S. Autos Rises	<i>More / Less</i>	$\Delta D / \Delta Qd$	<i>Right / Left / No Shift</i>	
6. Price of U.S. Autos Expected to Rise Soon	<i>More / Less</i>	$\Delta D / \Delta Qd$	<i>Right / Left / No Shift</i>	
7. Families Look Forward to Summer Vacations	<i>More / Less</i>	$\Delta D / \Delta Qd$	<i>Right / Left / No Shift</i>	
8. U.S. Auto Firms Launch Effective Ad Campaigns	<i>More / Less</i>	$\Delta D / \Delta Qd$	<i>Right / Left / No Shift</i>	

## UNIT 2 ACTIVITY 2-1.2 (continued)

### Part B: Why Does the Demand Curve Shift?

Categorize each change in demand in Part A according to the reason why demand changed. A given demand curve assumes that consumer expectations, consumer tastes, the number of consumers in the market, the income of consumers, and the prices of substitutes and complements are unchanged. In Table 2-1.6, place an X next to the reason that the event described in the headline caused a change in demand. One headline will have no answer because it will result in a change in quantity demanded rather than a change in demand.



Table 2-1.6

REASONS FOR A CHANGE IN DEMAND FOR U.S.-MADE AUTOS

Reason	Headline number							
	1	2	3	4	5	6	7	8
9. A change in consumer expectations								
10. A change in consumer taste								
11. A change in the number of consumer in the market								
12. A change in income								
13. A change in the price of a substitute good								
14. A change in the price of a complementary good								