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Unit 2 Lesson 10

Equilibrium Prices and Equilibrium Quantities

Introduction

Economics The forces of supply and demand work to establish a price at which the quantity of goods and services consumers will buy is equal to the quantity of goods and services businesses will sell. This price is called the equilibrium price or market-clearing price. It is important for students to know that the underlying conditions of supply and demand determine price. Equilibrium price is the child of supply and demand.

Reasoning Students should not think of equilibrium price as a rigid point where two lines on a graph cross. Instead, they should think of it as the result of a process of mutual accommodation among buyers and sellers. Economists may seem to be obsessed about prices; if they are, it is because they know that prices provide the indispensable information and incentives that make the invisible hand of the marketplace such a powerful mechanism for coordinating economic behavior.

Concepts

- Demand
- Equilibrium price
- Quantity demanded
- Quantity supplied
- Shortage
- Supply
- Surplus

Objectives

Students will:

1. Define equilibrium price and equilibrium quantity.
2. Determine the equilibrium price and equilibrium quantity when given the demand for and supply of a good or service.
3. Explain why the price of a good or service and the amount bought and sold in a competitive market will be the equilibrium price and quantity.
4. Predict the effects of changes in supply and demand on equilibrium price and quantity.

Content Standards

- Markets exist when buyers and sellers interact. This interaction determines market prices and thereby allocates scarce goods and services. (NCEE Content Standard 7)
- Prices send signals and provide incentives to buyers and sellers. When supply or demand changes, market prices adjust, affecting incentives. (NCEE Content Standard 8)

Lesson Description

In examining a visual about the market for yo-yos, students think through the process of mutual accommodation among buyers and sellers that results in an equilibrium price. Students then complete an activity plotting supply and demand curves in the market for Frisbees, identifying the equilibrium price and quantity under different conditions.

Time Required: 45 minutes

Materials

- Transparencies of Visuals 1, 2, and 3
- Activity 1

Procedure

1. Explain that the purpose of this lesson is to help the students gain a deeper understanding of equilibrium price. Explain that equilibrium is a state of balance between opposing forces. It occurs because everywhere else there is a state of imbalance or disequilibrium. In markets, equilibrium is often a temporary condition. You might illustrate this by putting a ball in a bowl. It will come to rest. Then hit the bowl, and the ball will move and come to rest again. Hitting the bowl is like a shift in demand or supply. However, the difference is that equilibrium occurs at different levels in supply and demand analysis. Each resting place is a different setting, depending on market conditions.
2. Display Visual 1 and show how markets reach equilibrium. Ask:

   A. What if the market price were $4?

   (There would be a surplus of 800 yo-yos because the quantity demanded is 600 and the quantity supplied is 1,400.)

   B. How would sellers get rid of the surplus?

   (They would lower the price until all the yo-yos offered for sale were sold. The lower price is an incentive [for buyers] that increases the quantity demanded but decreases the quantity supplied. All the yo-yos would be sold at $3, the equilibrium price.)

   C. What if the market price were $2?

   (There would be a shortage of 800 yo-yos. Buyers would demand 800 more yo-yos than sellers are willing to sell. The quantity demanded is 1,400 and the quantity supplied is 600.)

D. Which buyers will get the yo-yos?

(The ones who will pay more. The higher price is an incentive [for sellers] that increases the quantity offered for sale. Once again, at $3 the number of yo-yos offered for sale in a time period is equal to the number of yo-yos consumers are willing and able to buy.)

E. Explain that only at a price of $3 is the number of yo-yos sellers are willing and able to sell equal to the number of yo-yos consumers are willing and able to buy. This is why the equilibrium price of yo-yos is $3 and the equilibrium quantity of yo-yos is 1,000.

F. Explain that this is a process in which prices, incentives, shortages, and surpluses determine an equilibrium or resting place. The equilibrium price is produced by a process of mutual accommodation among buyers and sellers. Furthermore, prices in equilibrium may not remain in equilibrium for long. Any change in underlying conditions leads to a new equilibrium.

3. Refer the students to Activity 1 and ask them to complete Parts A-E. Project Visual 2 and discuss the answers to Parts A-E.

4. Now have the students complete Parts F and G. They should draw curves S_1 and S_2 on the same graph as before and answer the questions. They may need help in drawing the lines.

5. Project Visual 3 and discuss the answers to Parts F and G.

Answers to Activity 1

A. Under these conditions, competitive market forces would tend to establish an equilibrium price of *$3.00* per Frisbee and an equilibrium quantity of *200* million Frisbees.

B. If the price currently prevailing on the market is $4.00 per Frisbee, buyers would want to buy *150* million Frisbees and sellers would want to sell *250* million Frisbees. Under these conditions, there would be a *surplus* of *100* million Frisbees. Competitive market forces would tend to cause the price to *decrease* to a price of *$3.00* per Frisbee.

C. At this new price, buyers would now want to buy *200* million Frisbees, and sellers would now want to sell *200* million Frisbees. Because of this change in *price*, the *quantity demanded* changed by *50* million Frisbees, and the *quantity supplied* changed by *50* million Frisbees.

D. If the price currently prevailing on the market is $2.00 per Frisbee, buyers would want to buy *250* million Frisbees and sellers would want to sell *150* million Frisbees. Under these conditions, there would be a *shortage* of *100* million Frisbees. Competitive market forces would tend to cause the price to *increase* to a price of *$3.00* per Frisbee.

E. At this new price, buyers would now want to buy *200* million Frisbees, and sellers would now want to sell *200* million Frisbees. Because of this change in *price*, the *quantity demanded* changed by *50* million Frisbees, and the *quantity supplied* changed by *50* million Frisbees.

F. Under these conditions, competitive market forces would tend to establish an equilibrium price of *$4.00* per Frisbee and an equilibrium quantity of *150* million Frisbees. Compared to the equilibrium price in question A., we say that, because of this change in *underlying conditions*, the *supply* changed, and both the equilibrium price and the equilibrium quantity changed. The equilibrium price *increased* and the equilibrium quantity *decreased*.

G. Under these conditions, with the supply schedule at S_1, competitive market forces would tend to establish an equilibrium price of *$3.00* per Frisbee and an equilibrium quantity of *100* million Frisbees. Compared to the equilibrium price in question F, because of this change in *underlying conditions*, the *demand* changed. The equilibrium price *decreased* and the equilibrium quantity *decreased*.

CLOSURE

Ask the students to review questions such as the following:

- Why does the price decrease if it is above equilibrium?

  (The quantity for sale is greater than the quantity demanded, so sellers have an incentive to lower the price.)

- Why does the price increase if it is below equilibrium?

  (At a price below equilibrium, the quantity demanded exceeds the quantity supplied. Buyers have an incentive to offer a higher price if they want the good.)

- For each of the following, predict the change in the equilibrium price of turkeys and explain your prediction.

  a. Turkey is called a health food by the U.S. Surgeon General.

  (Price increases because demand increases and shifts right.)

  b. New technology helps turkeys breed faster.

  (Price decreases because supply increases and shifts right.)

c. Thanksgiving is abolished.

(Price decreases because demand decreases and shifts left.)

Multiple-Choice Questions

(correct answers shown in bold)

1. The National Football League "blocks out" local television of football games when the game in question is not sold out in advance. The NFL supports this action because it

   A. Increases the demand for football tickets.

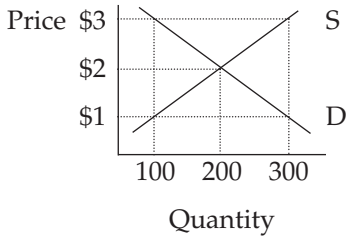
   B. Reduces the supply of football tickets.

   C. Reduces the price of football tickets.

   D. Increases the amount of money that the networks pay to televise NFL games.

Answer questions 2 and 3 on the basis of the following diagram:

Supply and Demand for Hot Dogs



2. The equilibrium price and quantity are:

   A. $3 and 100.

   B. $3 and 300.

   C. $2 and 200.

   D. $1 and 100.

3. If the price were temporarily at $3.00:

   A. A shortage of 200 hot dogs would occur.

   B. The market would be in temporary equilibrium.

   C. The price would decrease.

   D. The quantity supplied would increase.

4. The equilibrium price is one at which:

   A. The market clears.

   B. The quantity supplied equals the quantity demanded.

   C. Neither a shortage nor a surplus exists.

   D. All of the above occur.

5. The function of a market-clearing price is to:

   A. Distribute income equally.

   B. Equate quantity demanded with quantity supplied.

   C. Encourage technological improvement.

   D. Ensure that sellers earn profits.

6. The discovery of oil in Mexico:

   A. Decreased the oil supply.

   B. Increased the oil supply.

   C. Decreased the oil demand.

   D. Increased the oil demand.

Essay Questions

1. What is the difference between a change in quantity demanded and a change in demand?

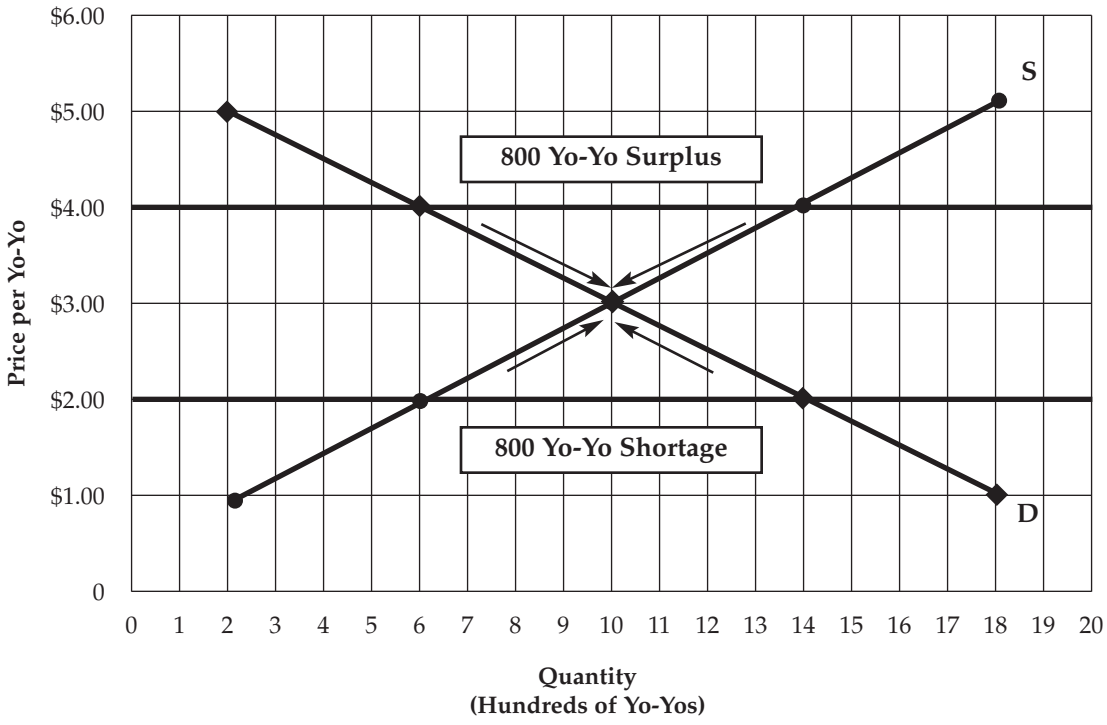
   (A movement along the demand curve is called a change in quantity demanded. Only a change in price can change quantity demanded. A shift in the position of the entire curve is called a change in demand. A change in demand for a good or service is caused by a change in the underlying conditions for that good or service.)

2. The equilibrium price of oil has risen. Sara Green says that this must be because oil companies are cutting back on the supply. If you were her economics teacher, would you fail her or pass her? Why?

   (You should fail her. Her explanation is possible. However, the demand for oil could also have increased. The supply of oil could have decreased but for different reasons such as an increase in the cost of producing or transporting oil. Sara has less than half of the story right, and that is an F.)

Unit 2, Lesson 10
Visual 1

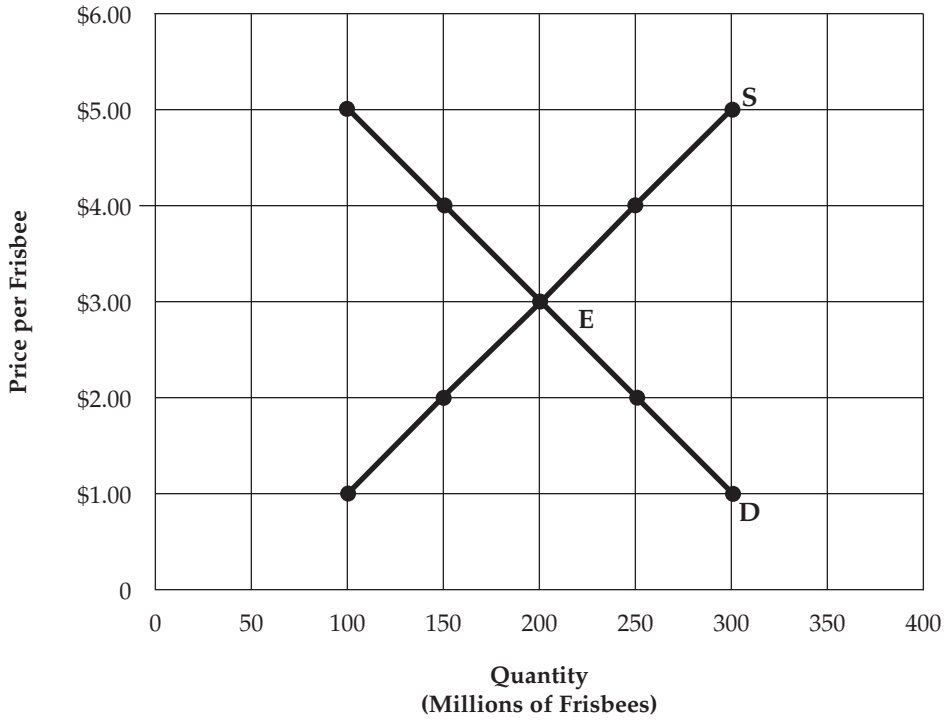
Equilibrium



Unit 2, Lesson 10
Visual 2

Answers to Activity 1

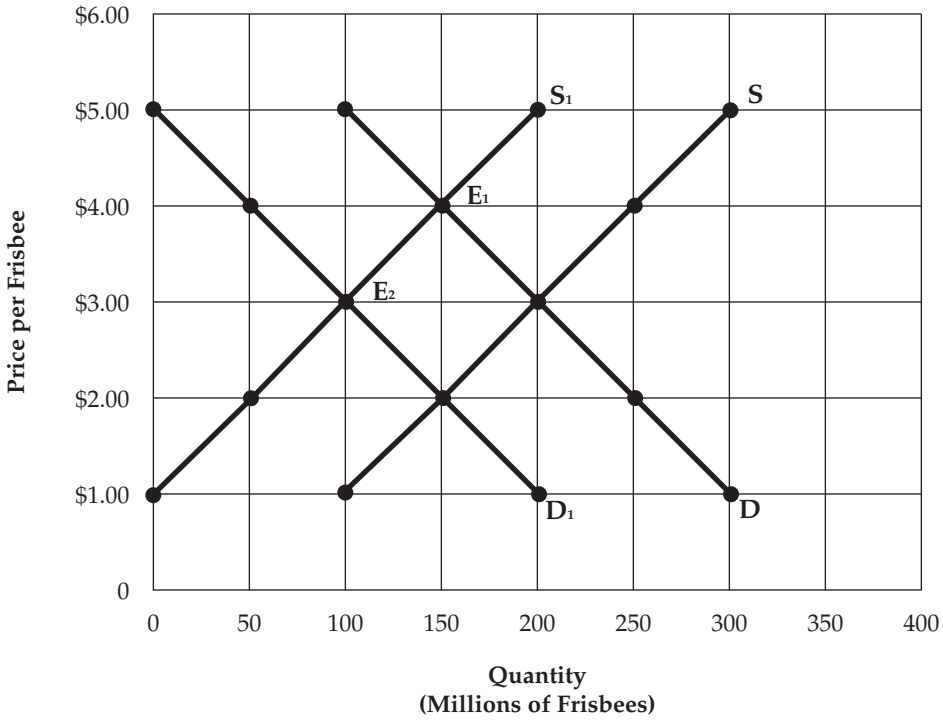
Plotting Demand for and Supply of Frisbees



Unit 2, Lesson 10
Visual 3

Answers to Activity 1

Plotting Changes in Demand for and Supply of Frisbees



Unit 2, Lesson 10

Activity 1

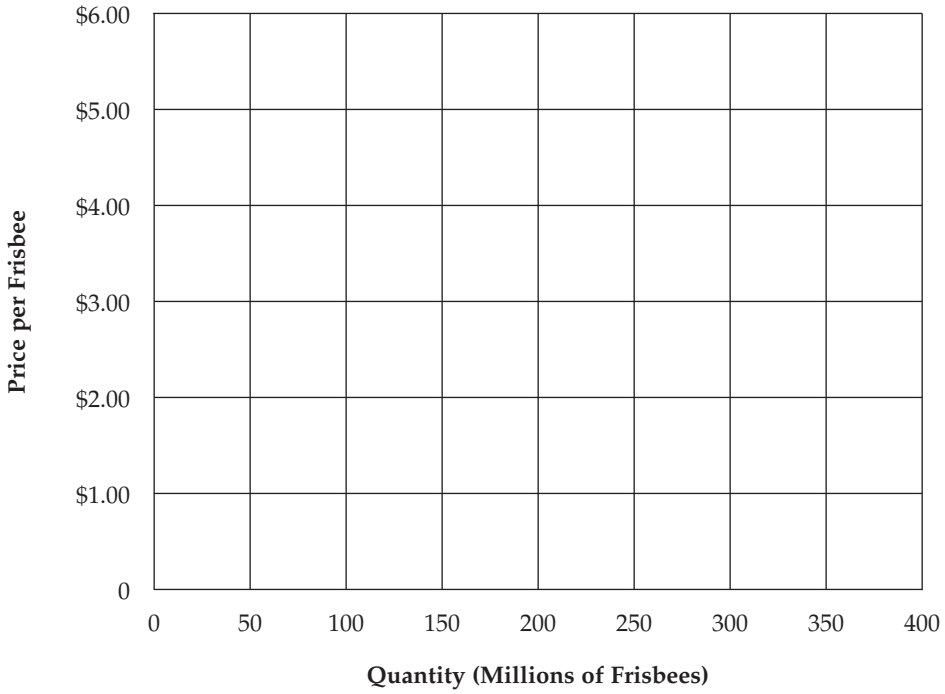
Equilibrium Prices and Equilibrium Quantities

Below is a table showing the demand for Frisbees and the supply of Frisbees. Plot these data on the axes provided. Label the demand curve "D" and the supply curve "S." Then answer the questions that follow.

Demand for and Supply of Frisbees

Price ($ per Frisbee)	Quantity Demanded (millions of Frisbees)	Quantity Supplied (millions of Frisbees)
$1.00	300	100
$2.00	250	150
$3.00	200	200
$4.00	150	250
$5.00	100	300

Plotting Demand for and Supply of Frisbees



Fill in the answer blanks or cross out the incorrect words in parentheses.

A. Under these conditions, competitive market forces would tend to establish an equilibrium price of $_____ per Frisbee and an equilibrium quantity of _____ million Frisbees.

B. If the price currently prevailing on the market is $4.00 per Frisbee, buyers would want to buy _____ million Frisbees and sellers would want to sell _____ million Frisbees. Under these conditions, there would be a *(shortage/surplus)* of _____ million Frisbees. Competitive market forces would tend to cause the price to *(increase/decrease)* to a price of $_____ per Frisbee.

C. At this new price, buyers would now want to buy _____ million Frisbees, and sellers would now want to sell _____ million Frisbees. Because of this change in *(price/underlying conditions)*, the *(demand/quantity demanded)* changed by _____ million Frisbees, and the *(supply/quantity supplied)* changed by _____ million Frisbees.

continued on next page

D. If the price currently prevailing on the market is $2.00 per Frisbee, buyers would want to buy _____ million Frisbees and sellers would want to sell _____ million Frisbees. Under these conditions, there would be a *(shortage/surplus)* of _____ million Frisbees. Competitive market forces would tend to cause the price to *(increase/decrease)* to a price of $_____ per Frisbee.

E. At this new price, buyers would now want to buy _____ million Frisbees, and sellers would now want to sell _____ million Frisbees. Because of this change in *(price/underlying conditions)*, the *(demand/quantity demanded)* changed by _____ million Frisbees, and the *(supply/quantity supplied)* changed by _____ million Frisbees.

F. Now suppose that an increase in the cost of plastic used to make Frisbees causes the supply curve to change as follows:

Change in Supply of Frisbees

Price ($ per Frisbee)	Quantity Supplied (millions of Frisbees)
$2.00	50
$3.00	100
$4.00	150
$5.00	200

Plot the new supply schedule (on Plotting Demand for and Supply of Frisbees) and label it S_1. Label the new equilibrium E_1. Under these conditions, competitive market forces would tend to establish an equilibrium price of $_____ per Frisbee and an equilibrium quantity of _____ million Frisbees. Compared to the equilibrium price in question A, we say that, because of this change in *(price/underlying conditions)*, the *(supply/quantity supplied)* changed, and both the equilibrium price and the equilibrium quantity changed. The equilibrium price *(increased/decreased)* and the equilibrium quantity *(increased/decreased)*.

G. Now with the supply schedule at S_1, suppose further that a sharp drop in people's incomes as the result of a nationwide recession causes the demand schedule to change to the following:

Change in Demand for Frisbees

Price ($ per Frisbee)	Quantity Demanded (millions of Frisbees)
$1.00	200
$2.00	150
$3.00	100
$4.00	50

Plot the new demand schedule (on Plotting Demand for and Supply of Frisbees) and label it D_1. Label the new equilibrium E_2. Under these conditions, with the supply schedule at S_1, competitive market forces would tend to establish an equilibrium price of $_____ per Frisbee and an equilibrium quantity of _____ million Frisbees. Compared to the equilibrium price in question F, because of this change in *(price/underlying conditions)*, the *(demand/quantity demanded)* changed. The equilibrium price *(increased/decreased)* and the equilibrium quantity *(increased/decreased)*.

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