The Market Forces of Supply and Demand

Markets and Competition

- Market
  - A group of buyers and sellers of a good or service
  - Buyers
    - Determine the demand for the product
  - Sellers
    - Determine the supply of the product

Markets and Competition

- Competitive market
  - Market in which there are many buyers and many sellers
  - Each has a negligible impact on market price
  - Price and quantity are determined by all buyers and sellers
    - As they interact in the marketplace

Demand

- Quantity demanded
  - Amount of a good that buyers are willing and able to purchase
- Law of demand
  - Other things equal, when the price of the good rises
    - Quantity demanded of a good falls

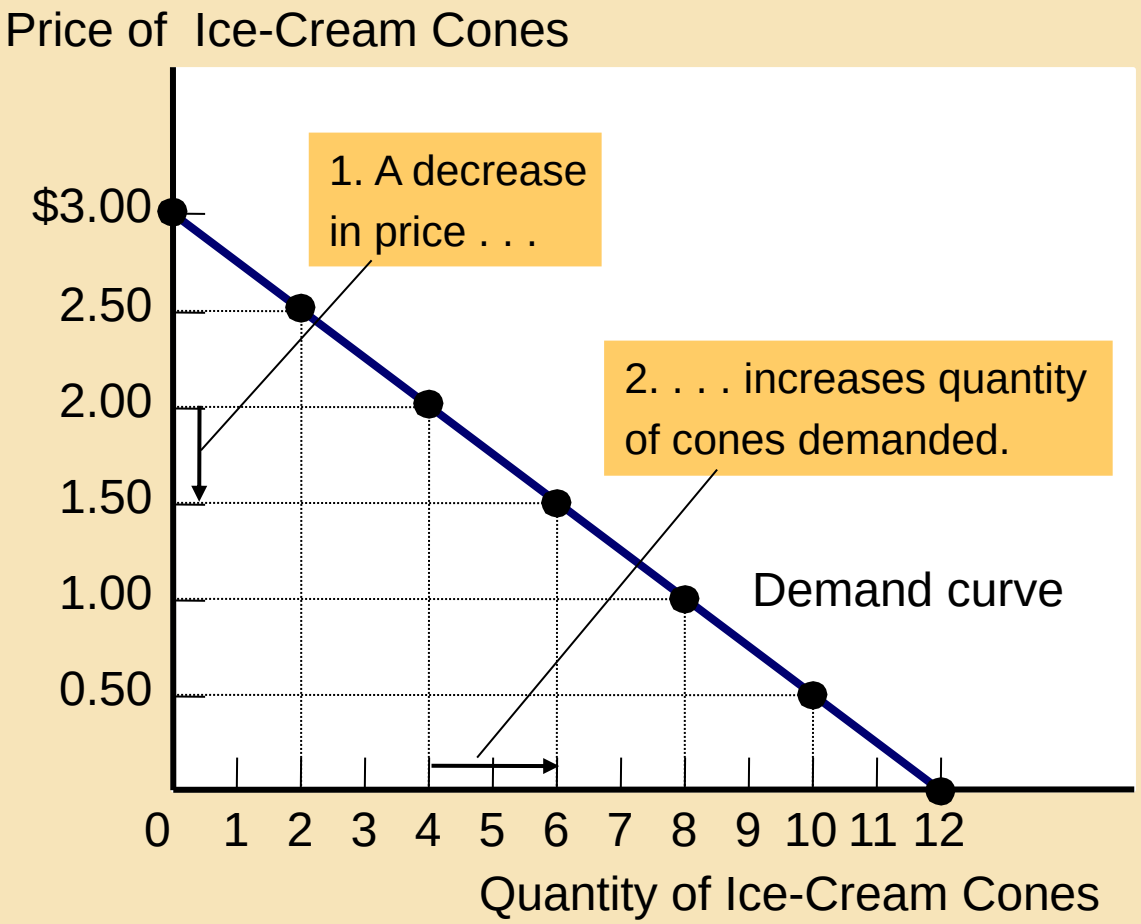
Demand

- Demand schedule - a table
  - Relationship between the price of a good and quantity demanded
- Demand curve - a graph
  - Relationship between the price of a good and quantity demanded
- Individual demand
  - Demand of one individual

Figure 1

Catherine's Demand Schedule and Demand Curve

Price of Ice-Cream Cone	Quantity of Cones Demanded
$0.00	12 cones
0.50	10
1.00	8
1.50	6
2.00	4
2.50	2
3.00	0



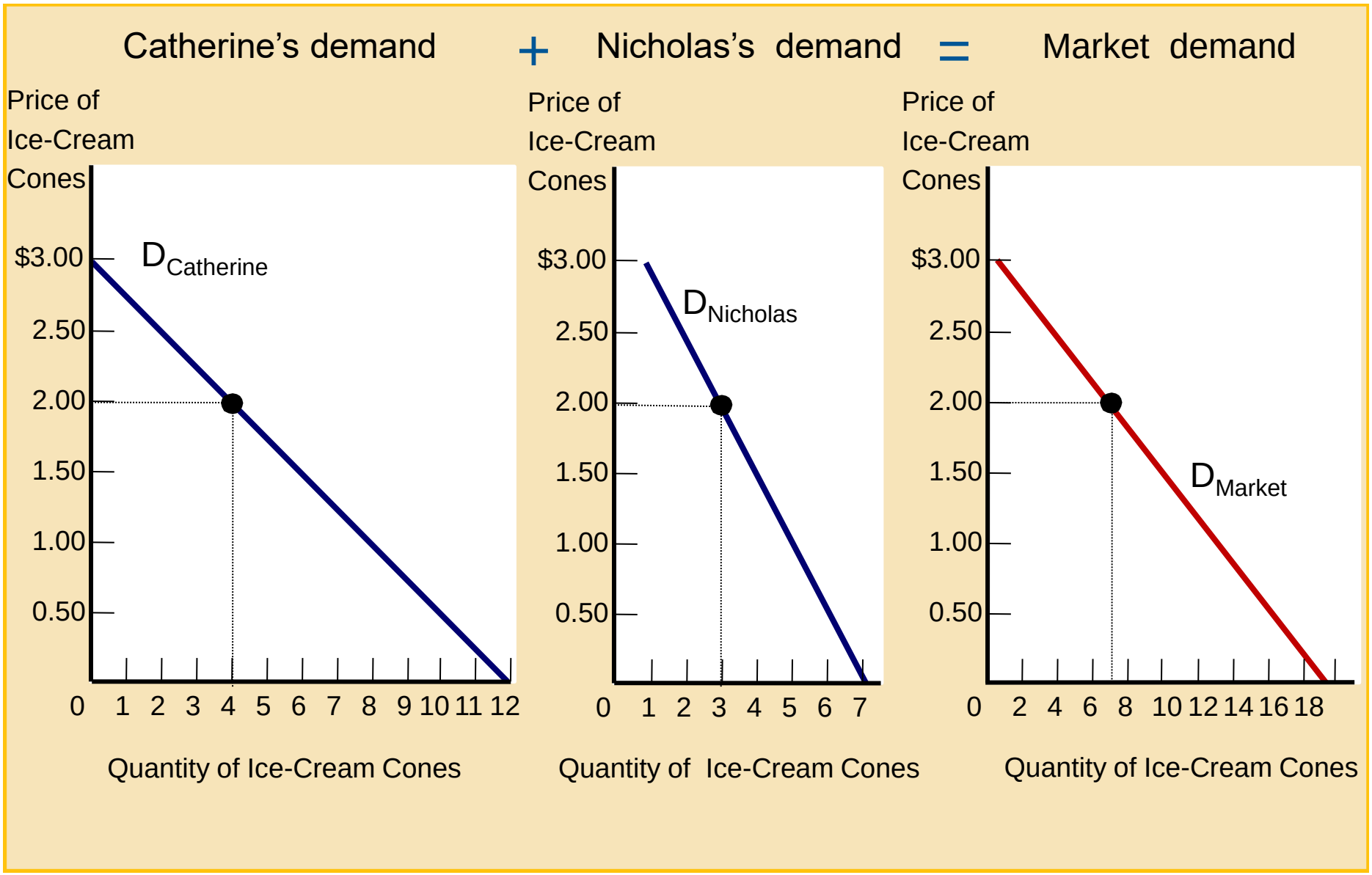
The demand schedule is a table that shows the quantity demanded at each price. The demand curve, which graphs the demand schedule, illustrates how the quantity demanded of the good changes as its price varies. Because a lower price increases the quantity demanded, the demand curve slopes downward.

Demand

- Market demand curve
  - Sum the individual demand curves horizontally
  - Total quantity demanded of a good varies
    - As the price of the good varies
    - Other things constant

Figure 2

Market Demand as the Sum of Individual Demands

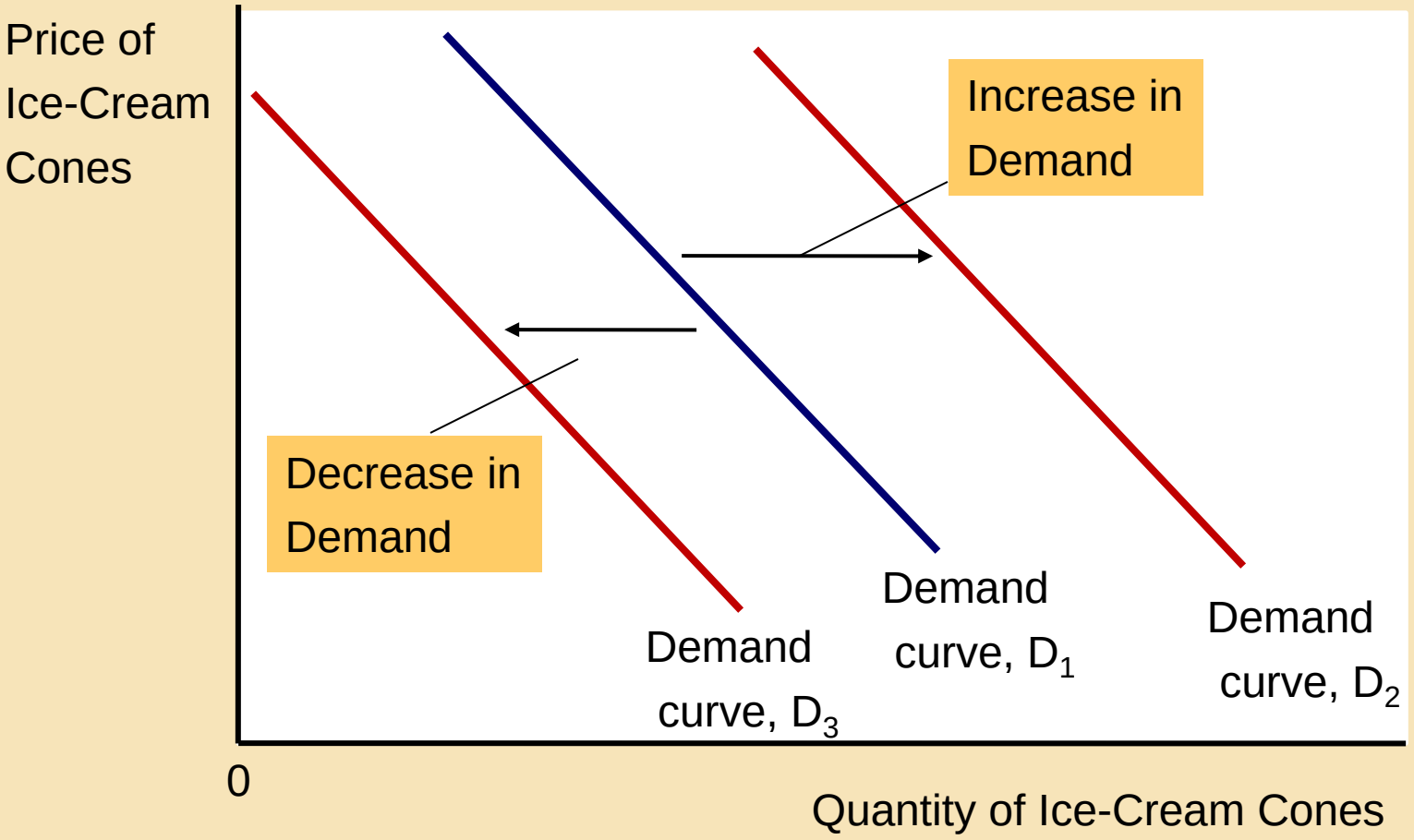


Demand

- Shifts in the demand curve
  - Increase in demand
    - Any change that increases the quantity demanded at every price
    - Demand curve shifts right
  - Decrease in demand
    - Any change that decreases the quantity demanded at every price
    - Demand curve shifts left

Figure 3

Shifts in the Demand Curve



Any change that raises the quantity that buyers wish to purchase at any given price shifts the demand curve to the right. Any change that lowers the quantity that buyers wish to purchase at any given price shifts the demand curve to the left.

Demand

- Variables that can shift the demand curve
  - Income
  - Prices of related goods
  - Tastes
  - Expectations
  - Number of buyers

Demand

- Income
  - Normal good
    - Other things constant
    - An increase in income leads to an increase in demand
  - Inferior good
    - Other things constant
    - An increase in income leads to a decrease in demand

Demand

- Prices of related goods
  - Substitutes - two goods
    - An increase in the price of one
    - Leads to an increase in the demand for the other
  - Complements – two goods
    - An increase in the price of one
    - Leads to a decrease in the demand for the other

Demand

- Tastes
  - Change in tastes – changes the demand
- Expectations about the future
  - Expect an increase in income
    - Increase in current demand
  - Expect higher prices
    - Increase in current demand
- Number of buyers – increase
  - Market demand - increases

Table 1

Variables That Influence Buyers

Variable	A Change in This Variable . . .
Price of the good itself	Represents a movement along the demand curve
Income	Shifts the demand curve
Prices of related goods	Shifts the demand curve
Tastes	Shifts the demand curve
Expectations	Shifts the demand curve
Number of buyers	Shifts the demand curve

This table lists the variables that affect how much consumers choose to buy of any good. Notice the special role that the price of the good plays: A change in the good's price represents a movement along the demand curve, whereas a change in one of the other variables shifts the demand curve.

Two ways to reduce the quantity of smoking demanded

1. Shift the demand curve for cigarettes and other tobacco products
   - Public service announcements
   - Mandatory health warnings on cigarette packages
   - Prohibition of cigarette advertising on television

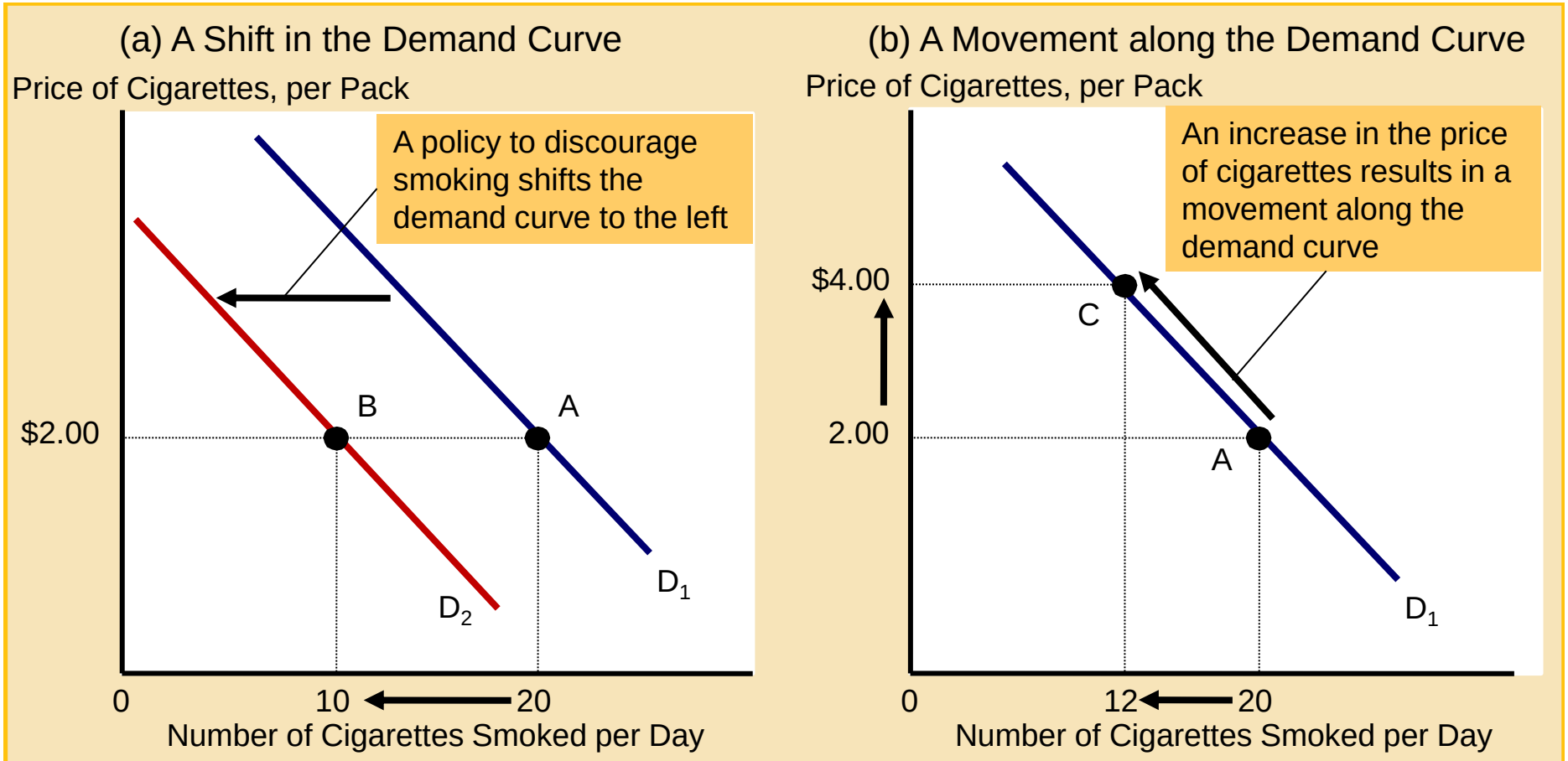
- If successful
  - Shift demand curve to the left

Two ways to reduce the quantity of smoking demanded

2. Try to raise the price of cigarettes
   - Tax the manufacturer
     - Higher price
   - Movement along demand curve
     - 10% ↑ in price ⟶ 4% ↓ in smoking
     - Teenagers: 10% ↑ in price ⟶ 12% ↓ in smoking

Figure 4

Shifts in the Demand Curve versus Movements along the Demand Curve



If warnings on cigarette packages convince smokers to smoke less, the demand curve for cigarettes shifts to the left. In panel (a), the demand curve shifts from D1 to D2. At a price of $2.00 per pack, the quantity demanded falls from 20 to 10 cigarettes per day, as reflected by the shift from point A to point B. By contrast, if a tax raises the price of cigarettes, the demand curve does not shift. Instead, we observe a movement to a different point on the demand curve. In panel (b), when the price rises from $2.00 to $4.00, the quantity demanded falls from 20 to 12 cigarettes per day, as reflected by the movement from point A to point C.

Supply

- Quantity supplied
  - Amount of a good
  - Sellers are willing and able to sell
- Law of supply
  - Other things equal
  - When the price of the good rises
    - Quantity supplied of a good rises

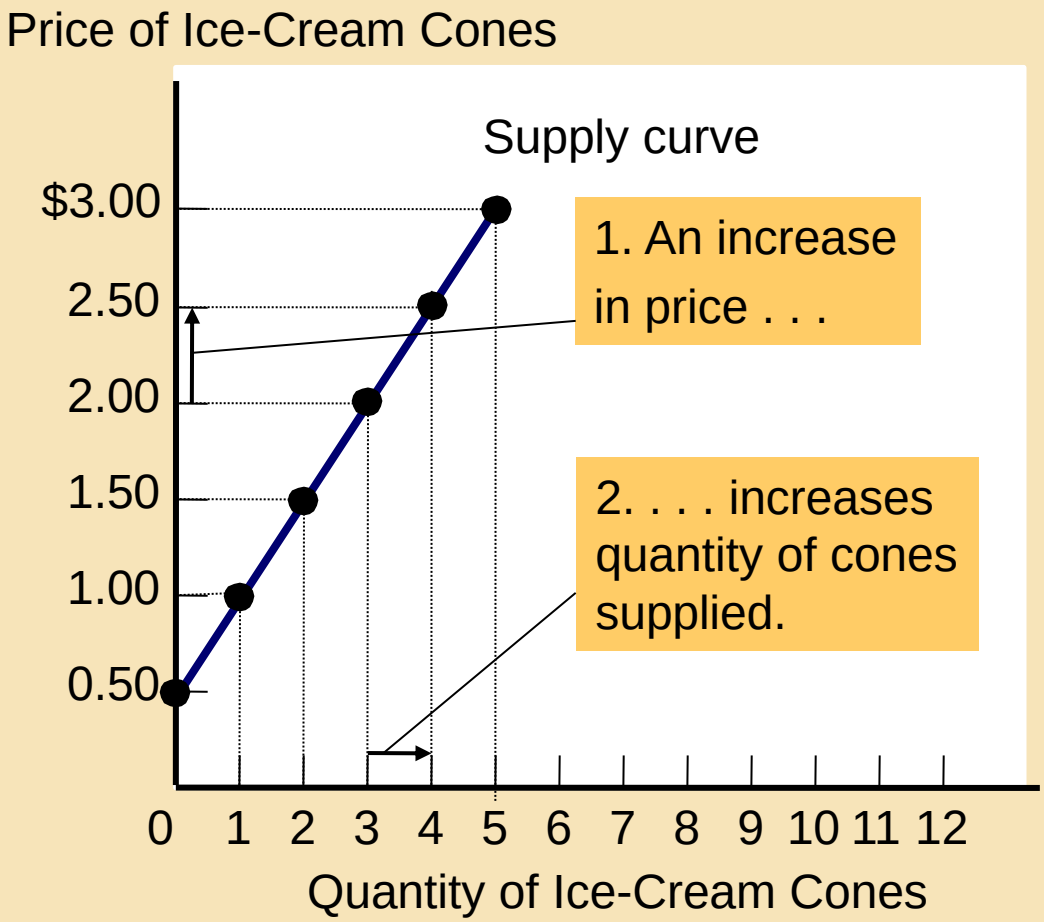
Supply

- Supply schedule - a table
  - Relationship between the price of a good and the quantity supplied
- Supply curve - a graph
  - Relationship between the price of a good and the quantity supplied
- Individual supply
  - Supply of one seller

Figure 5

Ben's Supply Schedule and Supply Curve

Price of Ice-cream Cone	Quantity Of Cones Supplied
$0.00	0 cones
0.50	0
1.00	1
1.50	2
2.00	3
2.50	4
3.00	5



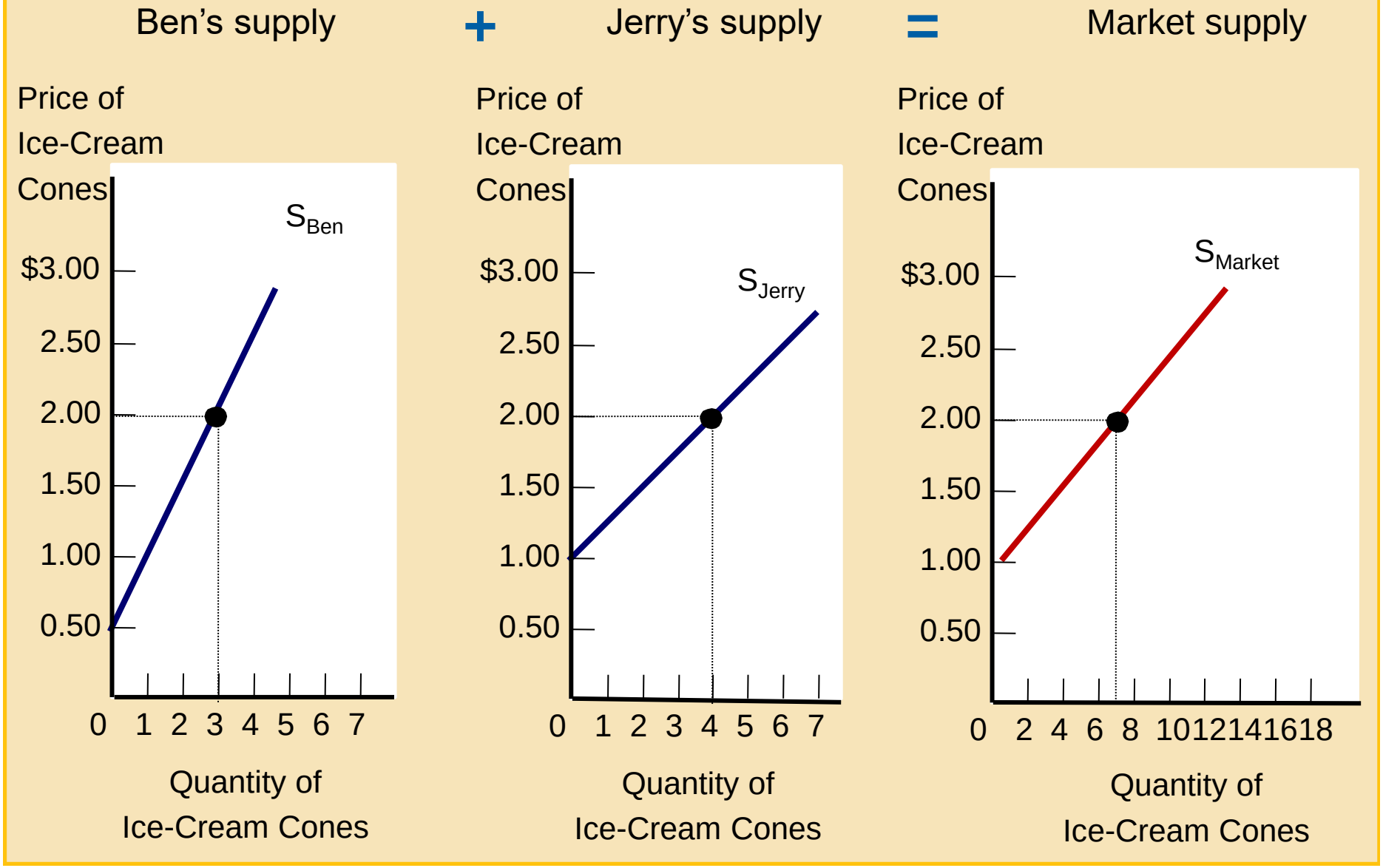
The supply schedule is a table that shows the quantity supplied at each price. This supply curve, which graphs the supply schedule, illustrates how the quantity supplied of the good changes as its price varies. Because a higher price increases the quantity supplied, the supply curve slopes upward.

Supply

- Market supply curve
  - Sum of individual supply curves horizontally
  - Total quantity supplied of a good varies
    - As the price of the good varies
    - All other factors that affect how much suppliers want to sell are hold constant

Figure 6

Market Supply as the Sum of Individual Supplies

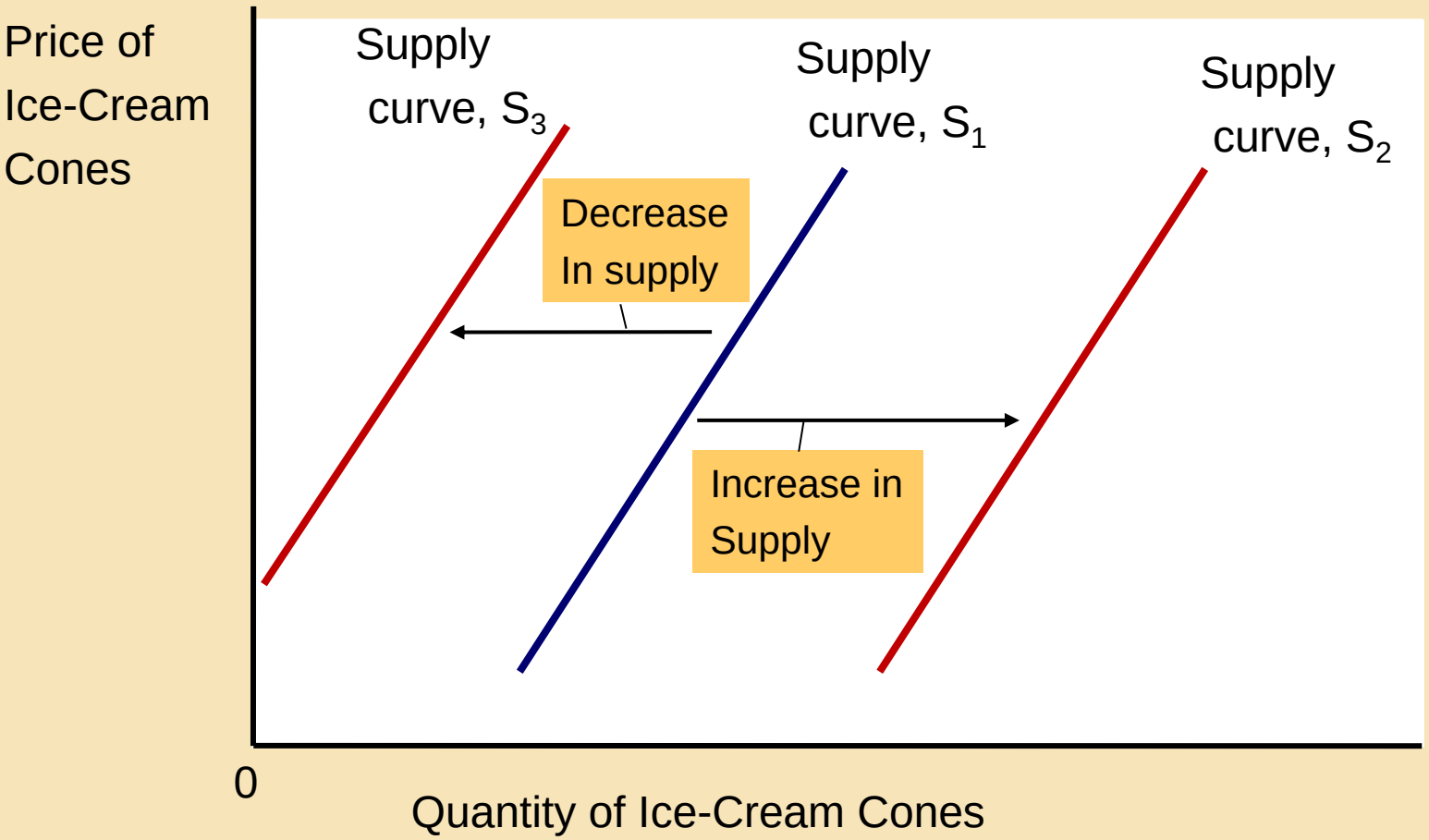


Supply

- Shifts in supply
  - Increase in supply
    - Any change that increases the quantity supplied at every price
    - Supply curve shifts right
  - Decrease in supply
    - Any change that decreases the quantity supplied at every price
    - Supply curve shifts left

Exhibit 7

Shifts in the Supply Curve



Any change that raises the quantity that sellers wish to produce at any given price shifts the supply curve to the right. Any change that lowers the quantity that sellers wish to produce at any given price shifts the supply curve to the left.

Supply

- Variables that can shift the supply curve
  - Input Prices
  - Technology
  - Expectations about future
  - Number of sellers

Supply

- Input Prices (costs)
  - Supply – negatively related to prices of inputs
  - Higher input prices – decrease in supply
- Technology
  - Advance in technology – increase in supply

Supply

- Expectations about future
  - Affect current supply
  - Expected higher prices
    - Decrease in current supply
- Number of sellers – increase
  - Market supply - increase

Table 2

Variables That Influence Sellers

Variable	A Change in This Variable . . .
Price of the good itself	Represents a movement along the supply curve
Input prices	Shifts the supply curve
Technology	Shifts the supply curve
Expectations	Shifts the supply curve
Number of sellers	Shifts the supply curve

This table lists the variables that affect how much producers choose to sell of any good. Notice the special role that the price of the good plays: A change in the good's price represents a movement along the supply curve, whereas a change in one of the other variables shifts the supply curve.

Supply and Demand Together

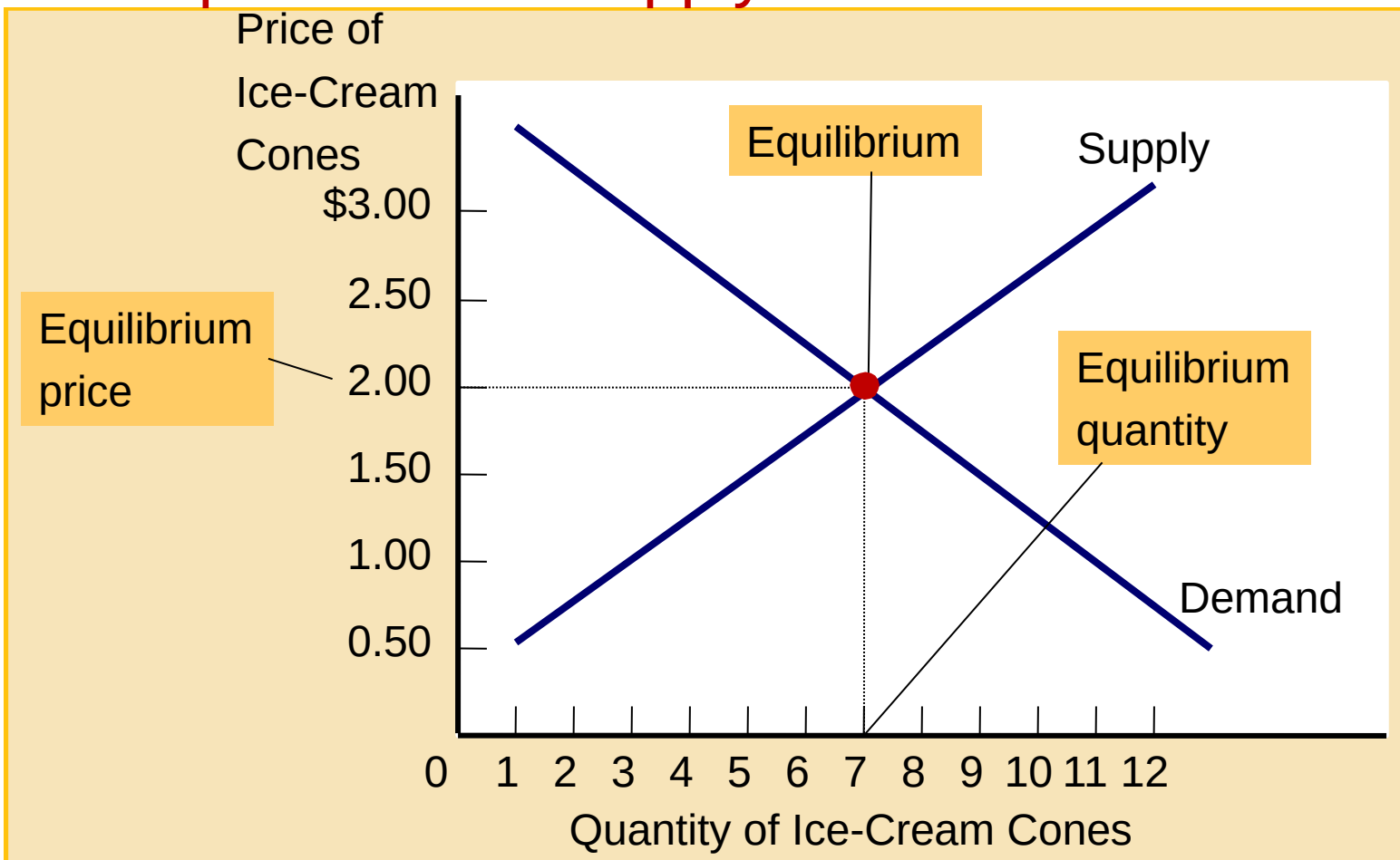
- Equilibrium - a situation
  - Supply and demand forces are in balance
  - A situation in which market price has reached the level where
    - Quantity supplied = quantity demanded
  - Supply and demand curves intersect

Supply and Demand Together

- Equilibrium price
  - Balances quantity supplied and quantity demanded
  - Market-clearing price
- Equilibrium quantity
  - Quantity supplied and quantity demanded at the equilibrium price

Figure 8

The Equilibrium of Supply and Demand



The equilibrium is found where the supply and demand curves intersect. At the equilibrium price, the quantity supplied equals the quantity demanded. Here the equilibrium price is $2.00: At this price, 7 ice-cream cones are supplied, and 7 ice-cream cones are demanded.

Supply and Demand Together

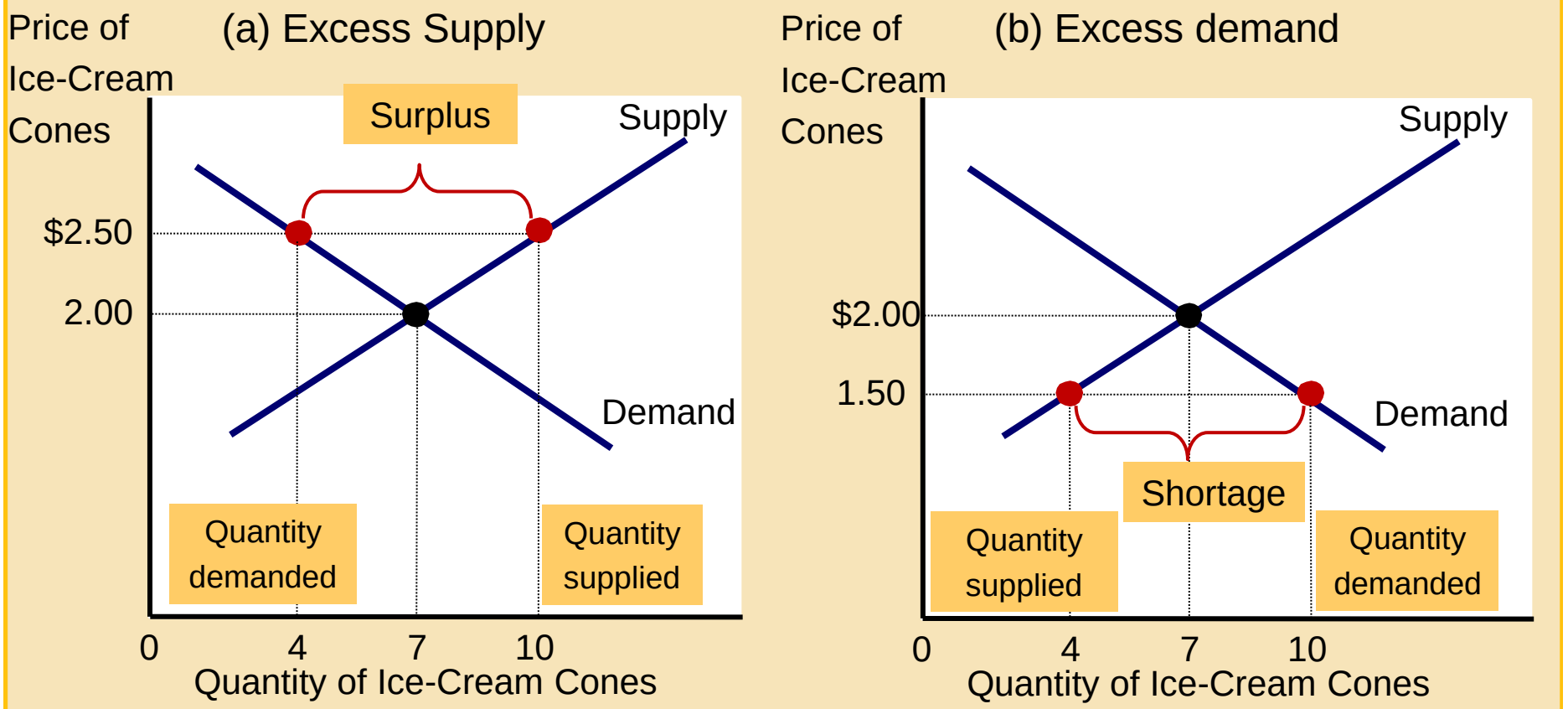
- Surplus
  - Quantity supplied > quantity demanded
  - Excess supply (surplus)
  - Downward pressure on price
    - Movements along the demand and supply curves
    - Increase in quantity demanded
    - Decrease in quantity supplied

Supply and Demand Together

- Shortage
  - Quantity demanded > quantity supplied
  - Excess demand (shortage)
  - Upward pressure on price
    - Movements along the demand and supply curves
    - Decrease in quantity demanded
    - Increase in quantity supplied

Figure 9

Markets Not in Equilibrium



In panel (a), there is a surplus. Because the market price of $2.50 is above the equilibrium price, the quantity supplied (10 cones) exceeds the quantity demanded (4 cones). Suppliers try to increase sales by cutting the price of a cone, and this moves the price toward its equilibrium level. In panel (b), there is a shortage. Because the market price of $1.50 is below the equilibrium price, the quantity demanded (10 cones) exceeds the quantity supplied (4 cones). With too many buyers chasing too few goods, suppliers can take advantage of the shortage by raising the price. Hence, in both cases, the price adjustment moves the market toward the equilibrium of supply and demand

Supply and Demand Together

- Law of supply and demand
  - The price of any good adjusts
    - To bring the quantity supplied and the quantity demanded for that good into balance
  - In most markets
    - Surpluses and shortages are temporary

Supply and Demand Together

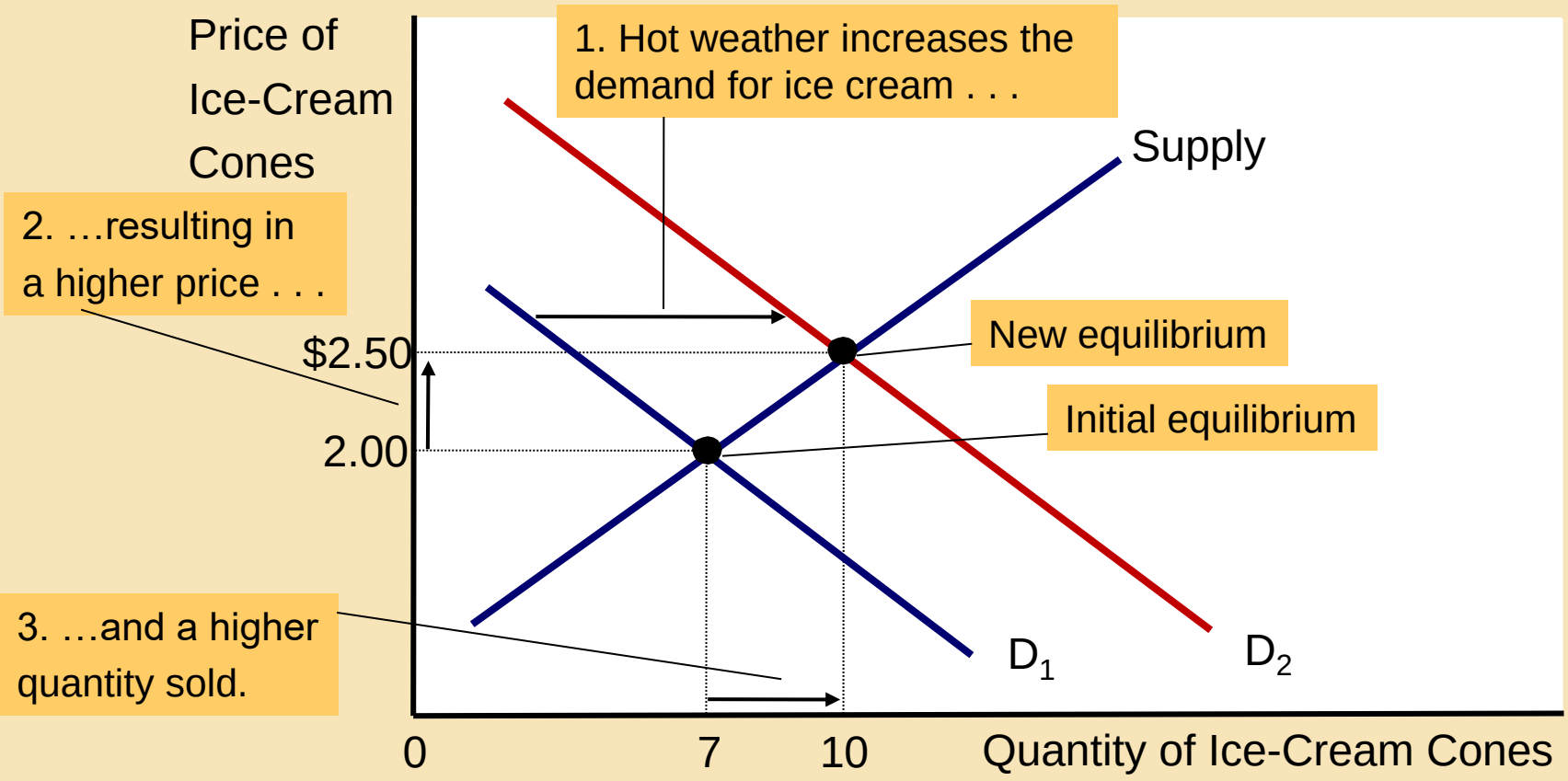
- Three steps to analyzing changes in equilibrium
  1. Decide whether the event shifts the supply curve, the demand curve, or, in some cases, both curves
  2. Decide whether the curve shifts to the right or to the left
  3. Use the supply-and-demand diagram
     - Compare the initial and the new equilibrium
     - Effects on equilibrium price and quantity

Supply and Demand Together

- A change in market equilibrium due to a shift in demand
  - One summer - very hot weather
  - Effect on the market for ice cream?
  1. Hot weather – shifts the demand curve (tastes)
  2. Demand curve shifts to the right
  3. Higher equilibrium price; higher equilibrium quantity

Figure 10

How an increase in demand affects the equilibrium



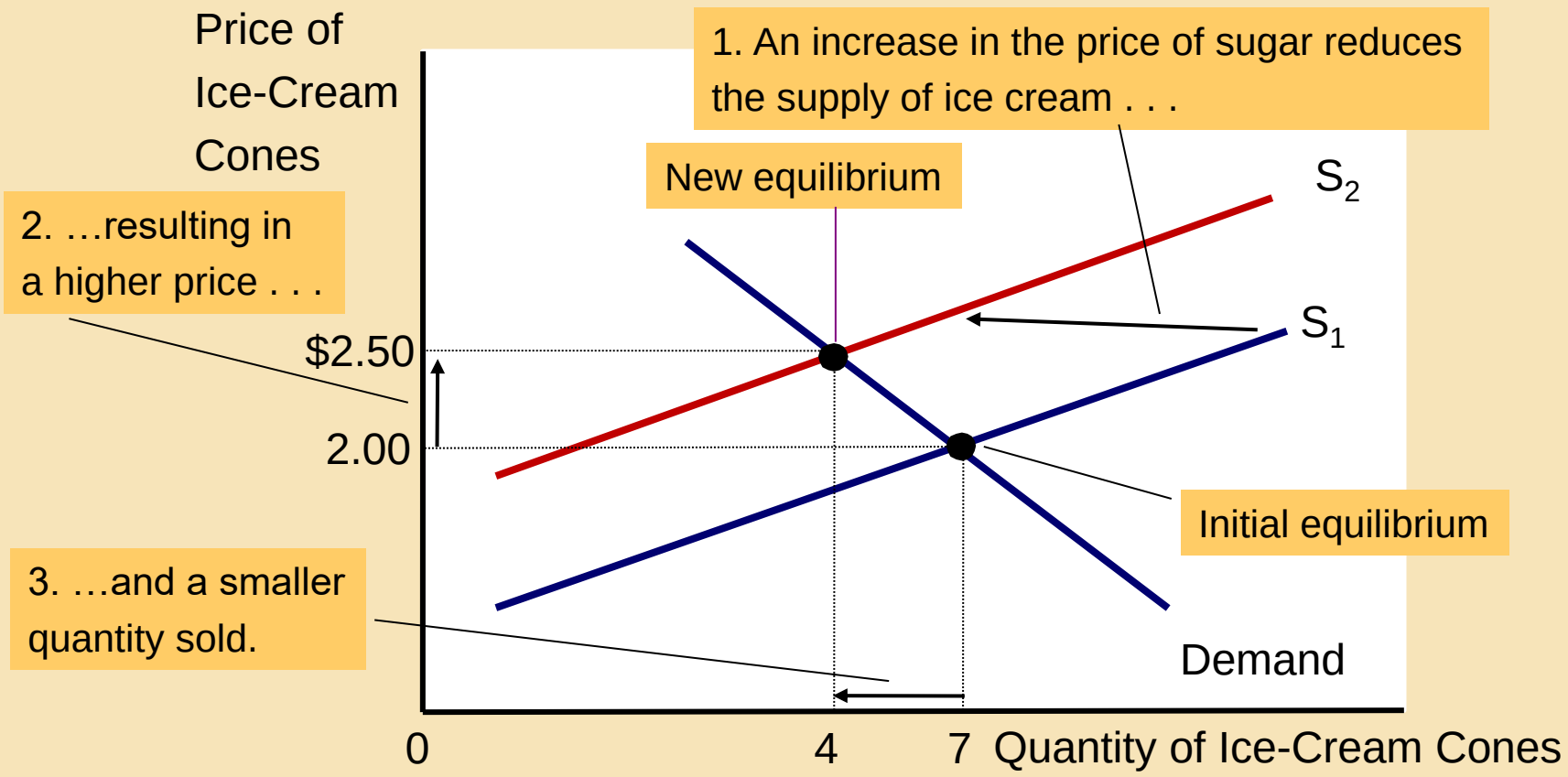
An event that raises quantity demanded at any given price shifts the demand curve to the right. The equilibrium price and the equilibrium quantity both rise. Here an abnormally hot summer causes buyers to demand more ice cream. The demand curve shifts from D_1 to D_2, which causes the equilibrium price to rise from $2.00 to $2.50 and the equilibrium quantity to rise from 7 to 10 cones.

Supply and Demand Together

- A change in market equilibrium due to a shift in supply
  - One summer - a hurricane destroys part of the sugarcane crop: higher price of sugar
  - Effect on the market for ice cream?
  1. Change in price of sugar - supply curve
  2. Supply curve - shifts to the left
  3. Higher equilibrium price; lower equilibrium quantity

Figure 11

How a Decrease in Supply Affects the Equilibrium



An event that reduces quantity supplied at any given price shifts the supply curve to the left. The equilibrium price rises, and the equilibrium quantity falls. Here an increase in the price of sugar (an input) causes sellers to supply less ice cream. The supply curve shifts from S_1 to S_2, which causes the equilibrium price of ice cream to rise from $2.00 to $2.50 and the equilibrium quantity to fall from 7 to 4 cones.

How Prices Allocate Resources

- Prices
  - Signals that guide the allocation of resources
  - Mechanism for rationing scarce resources
  - Determine who produces each good and how much is produced