# ECONOMICS

# UNIT 3

## Lesson I : Demand, Supply and Market Equilbrium

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# Markets and Competition

- A *market* is a group of buyers and sellers of a particular product.

- The terms **supply** and **demand** refer to the behavior of people . . . as they interact with one another in markets.

# Markets and Competition

- Buyers determine *demand*

- Sellers determine *supply*

# The Market Forces of Supply and Demand

- **Supply** and **demand** are the two words that economists use most often.
- Supply and demand are the forces that make market economies work.
- **Modern microeconomics** is about supply, demand, and market equilibrium.

# The Demand Schedule: The Relationship between Price and Quantity Demanded

- Demand Schedule
  - The *demand schedule* is a table that shows the relationship between the price of the product and the quantity demanded.

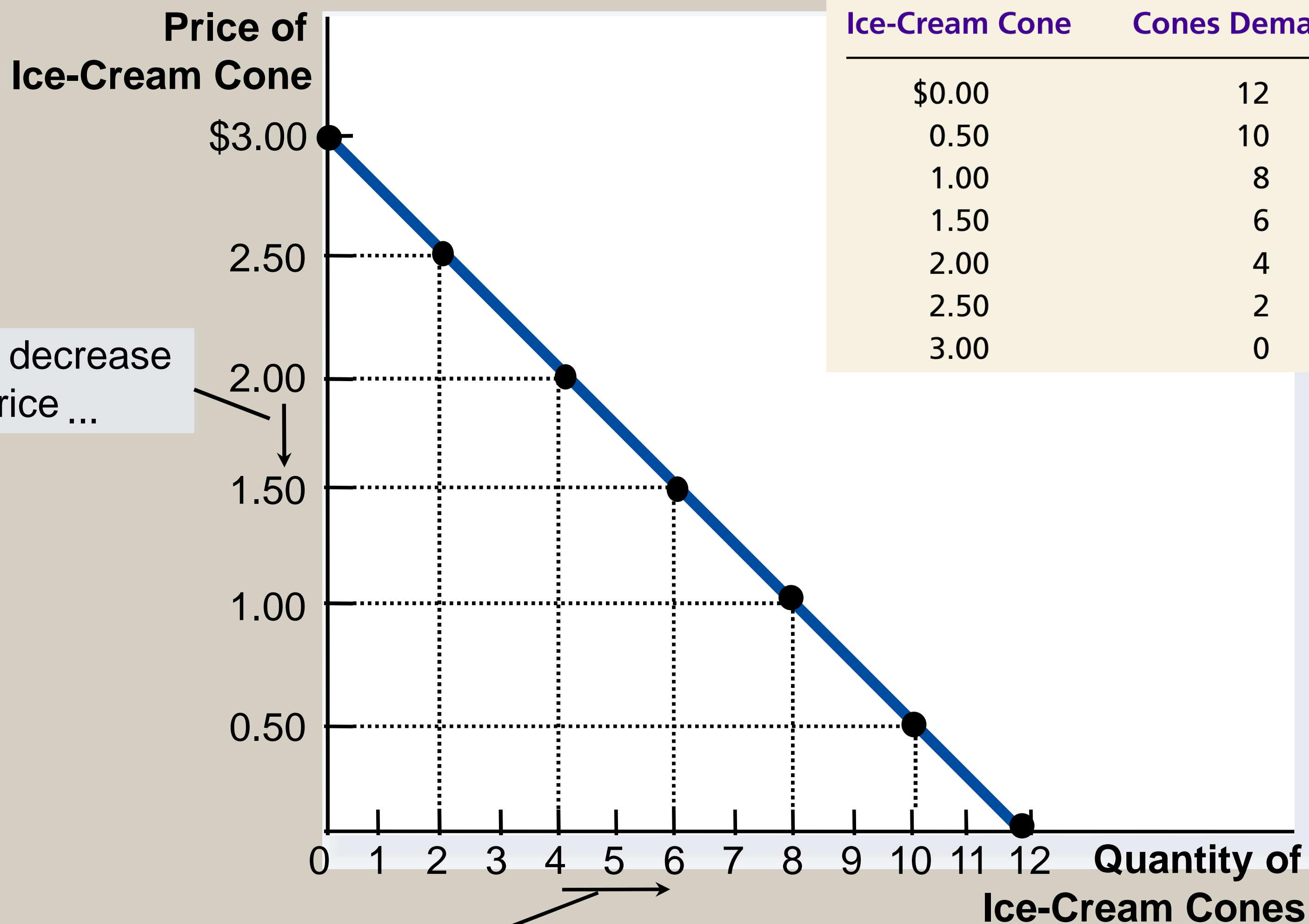
**Catherine's Demand Schedule**

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

# The Demand Curve: The Relationship between Price and Quantity Demanded

- Demand Curve
  - The *demand curve* is a graph of the relationship between the price of a product and the quantity demanded.

# Catherine's Demand Schedule and Demand Curve

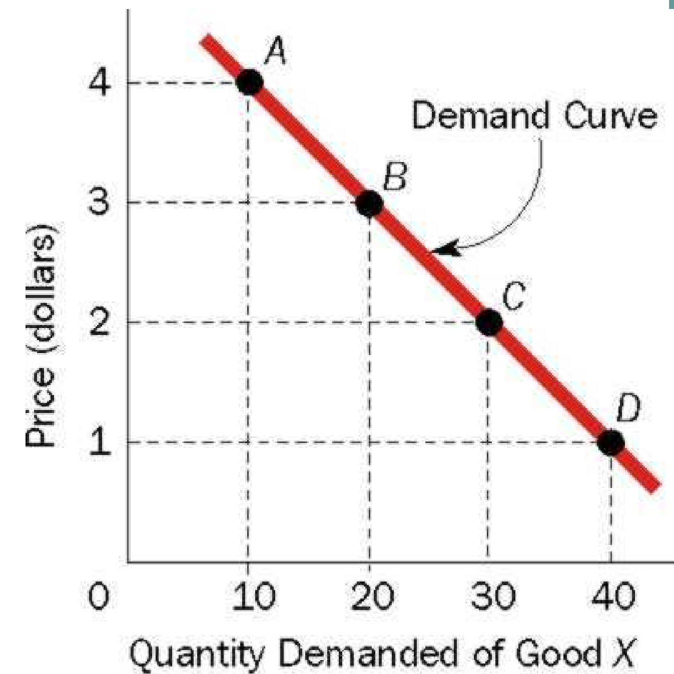



| Price of Ice-Cream Cone | Quantity of Cones Demanded |
|---|---|
| $0.00 | 12 |
| 0.50 | 10 |
| 1.00 | 8 |
| 1.50 | 6 |
| 2.00 | 4 |
| 2.50 | 2 |
| 3.00 | 0 |

# The Demand Curve & Demand Schedule – Another example

| Demand Schedule for Good *X* | | |
|---|---|---|
| **Price (dollars)** | **Quantity Demanded** | **Point in Part (b)** |
| 4 | 10 | A |
| 3 | 20 | B |
| 2 | 30 | C |
| 1 | 40 | D |

**(a)**




**(b)**

# Demand

- *Demand* is the willingness and ability of buyers to purchase different quantities of a product at different prices during a specific period of time.
- *The Law of Demand* states that...

... as the price of a product rises, the quantity demanded falls;

... as the price of a product falls, the quantity demanded rises.

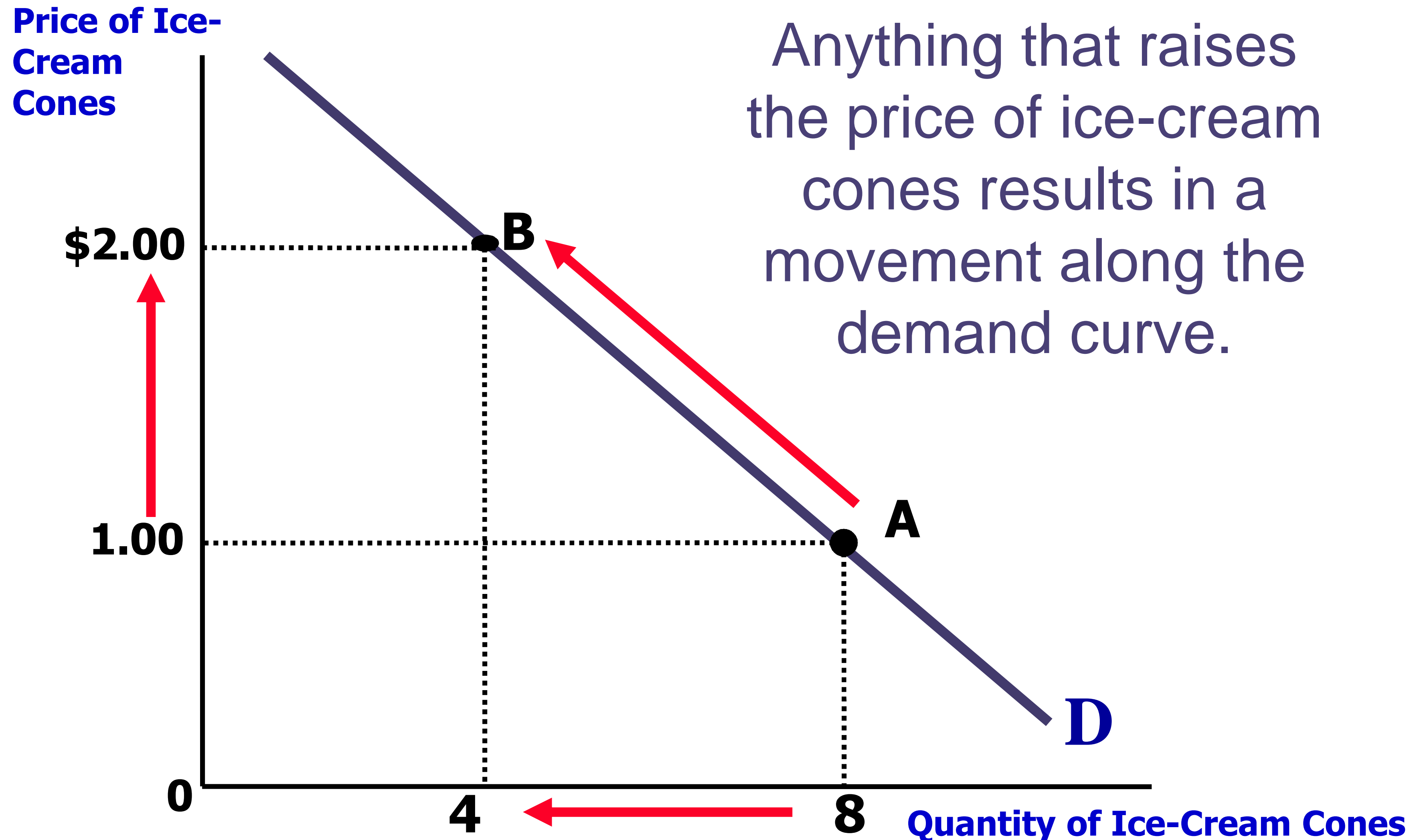
# Four Ways to Represent The Law Of Demand

- In Words: “As price rises, quantity demanded falls”
- In Symbols: $P\uparrow Q_d\downarrow$
- In a Demand Schedule
- In a Demand Curve

# Changes in Quantity Demanded Vs Changes in Demand

- Change in Quantity Demanded
  - **Movement along** the demand curve.
  - It is caused exclusively by a change in the price of the product.
- Change in Demand
  - A **shift** in the demand curve, either to the left or right.
  - It is caused by a change in a determinant other than price.

# Changes in Quantity Demanded

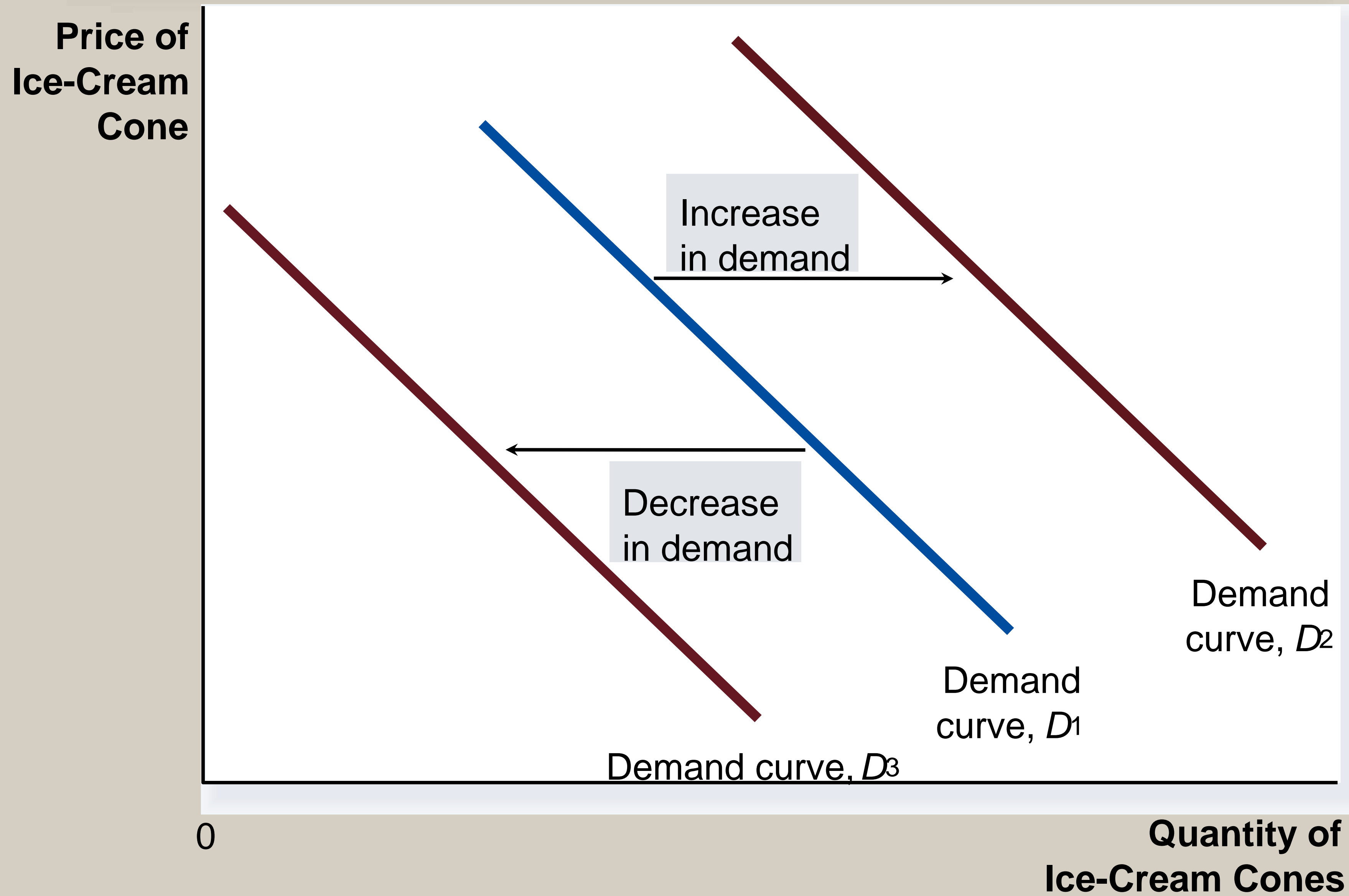


# Changes in Demand (Shifts in the Demand Curve)

Shifts in the demand curve might be caused by:

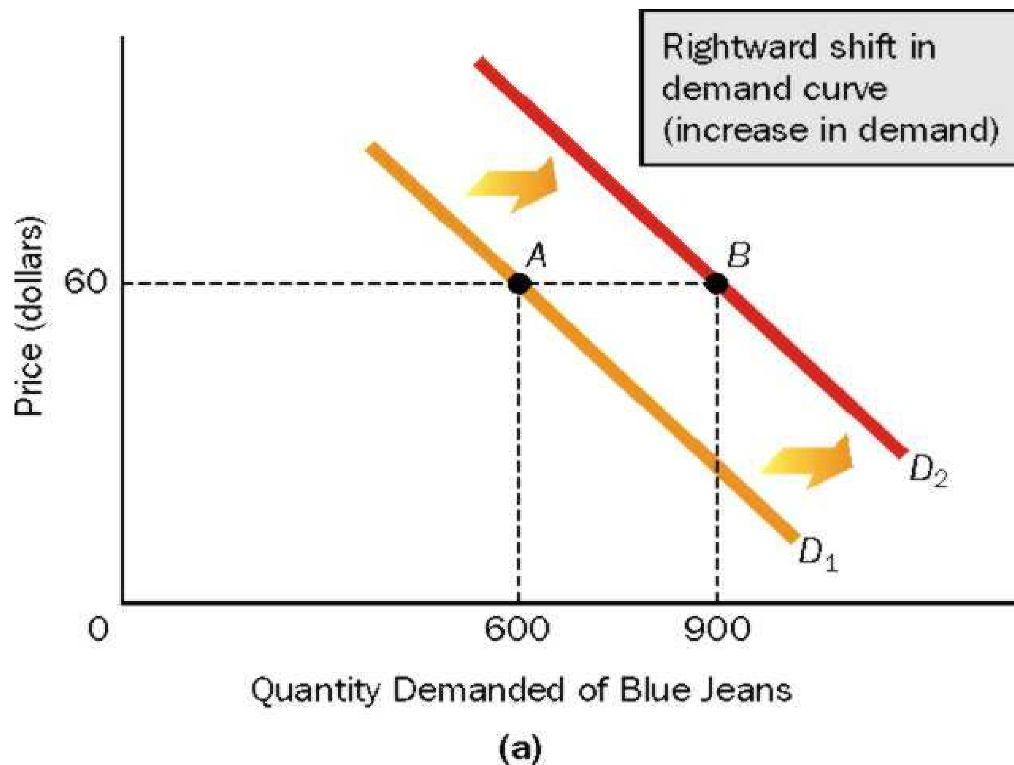
- Consumer income
- Prices of related goods
- Tastes and preferences

# Shifts in the Demand Curve

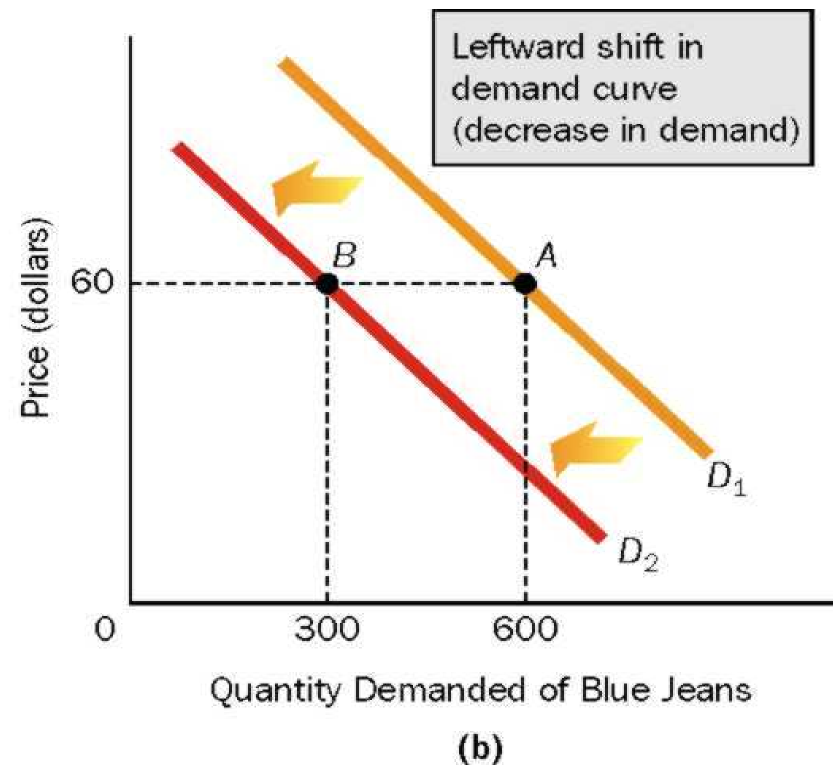


# Shifts in the Demand Curve

- A change in Demand causes a shift in the Demand curve.
- If Demand increases, the curve shifts to the right.
- If Demand decreases, the curve shifts to the left.



(a)



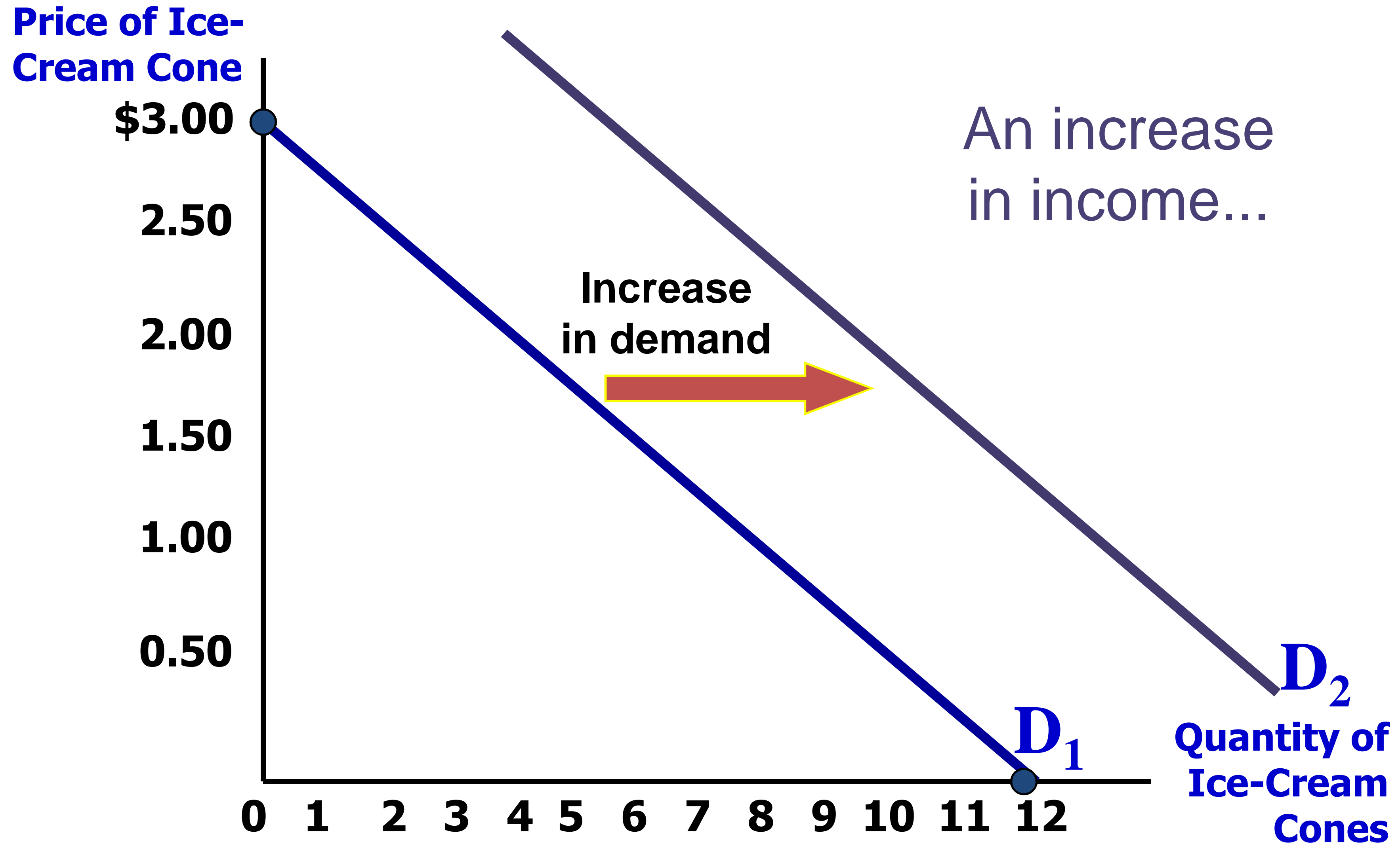
(b)

# Shifts in the Demand Curve

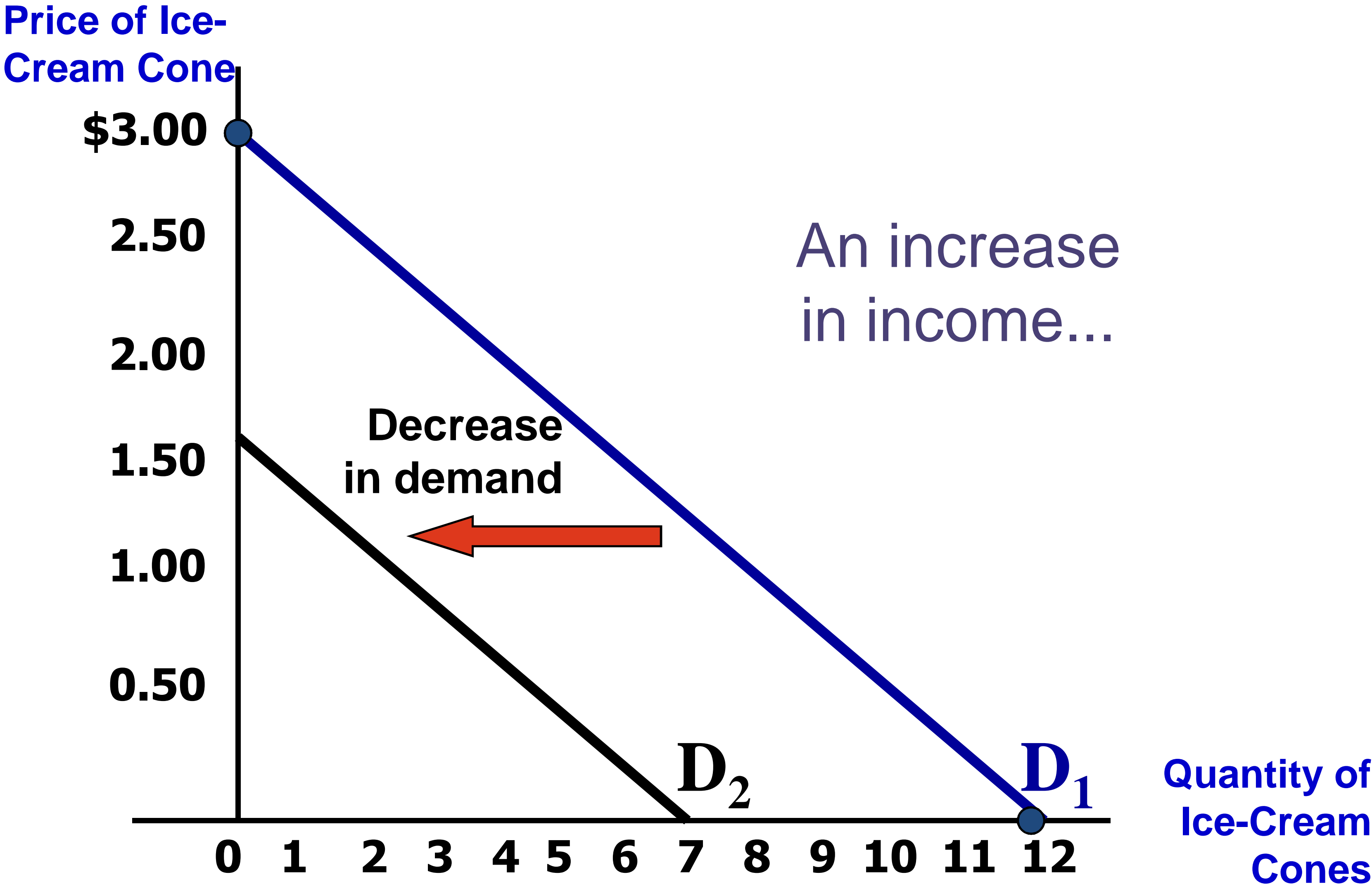
**Income changes** affect the demand of a product depending on the nature of the product:

- *Normal goods* are goods for which the demand rises (falls) as income rises (falls).
- *Inferior good* are goods for which the demand rises (falls) as income falls (rises).

# Consumer Income - Normal Goods



# Consumer Income - Inferior Goods



# Normal and Inferior Goods

- As income increases the demand for *normal goods* will increase
- As income decreases the demand for *normal goods* will decrease
- As income increases the demand for *inferior goods* will decrease
- As income decreases the demand for *inferior goods* will increase

# Shifts in the Demand Curve

- **Prices of Related Goods**
  - When a fall (rise) in the price of one product reduces (increases) the demand for another product, the two products are called *substitutes*.
  - When a fall (rise) in the price of one product increases (reduces) the demand for another product, the two products are called *complements*.

# Shifts in the Demand Curve

- **Tastes, preferences, fashion and social patterns** influence the demand of goods. They affect the amount of a product consumers are willing to buy at a particular price.
- When tastes, preferences, fashion or social patterns change so more people want the product, the demand curve will **shift rightward**.

- When tastes, preferences, fashion or social patterns change so less people want the product, the demand curve will **shift leftward**.

# Q & A

- As Laura's income rises, her demand for popcorn rises.  As Mark's income falls, his demand for prepaid telephone cards rises. What kinds of goods are popcorn and telephone cards for Laura and Mark?
- Why are demand curves downward sloping?
- Give an example that illustrates how to derive a market demand curve.
- What factors can change demand? What factors can change quantity demanded?

# The Supply Schedule: The Relationship between Price and Quantity Supplied

- Supply Schedule
  - The *supply schedule* is a table that shows the relationship between the price of a product and the quantity supplied.

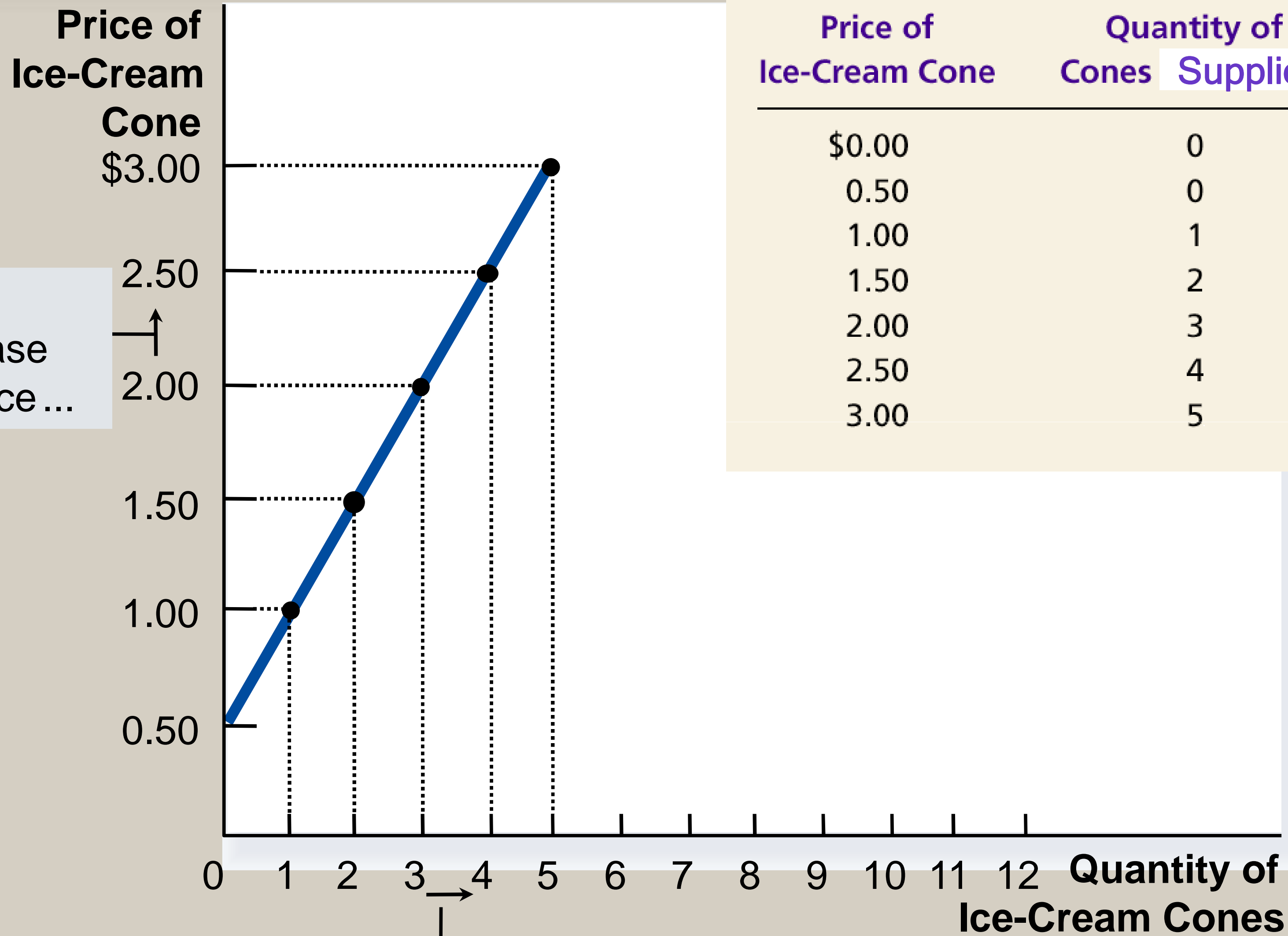
**Ben's Supply Schedule**

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

# The Supply Curve: The Relationship between Price and Quantity Supplied

- Supply Curve
  - The *supply curve* is the graph of the relationship between the price of a product and the quantity supplied.

# Ben's Supply Schedule and Supply Curve

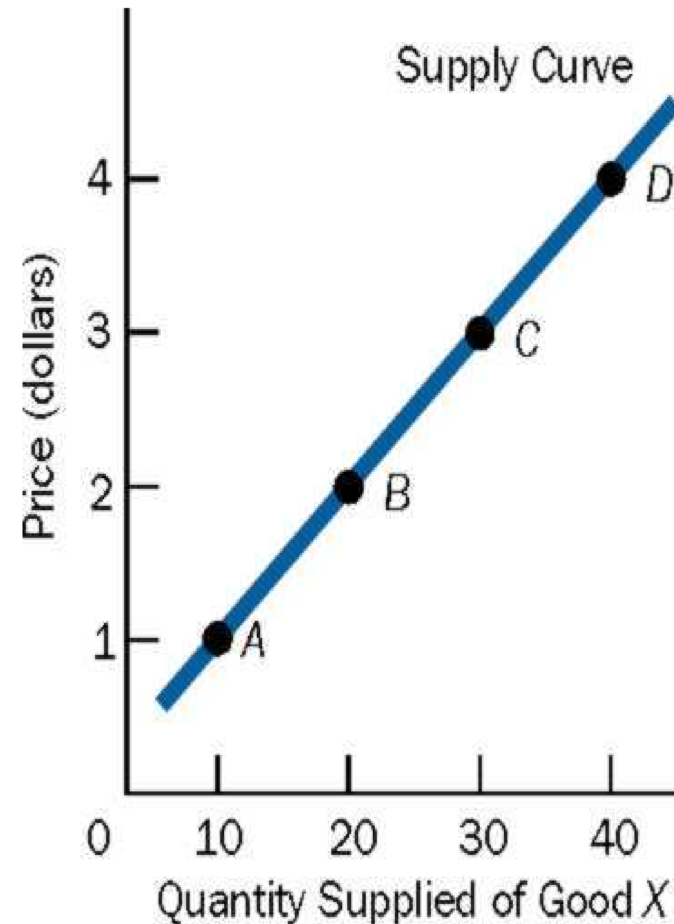



| Price of Ice-Cream Cone | Quantity of Cones Supplied |
|---|---|
| $0.00 | 0 |
| 0.50 | 0 |
| 1.00 | 1 |
| 1.50 | 2 |
| 2.00 | 3 |
| 2.50 | 4 |
| 3.00 | 5 |

2. ... increases quantity of cones supplied.

# Why Supply Curves Slope Upwards

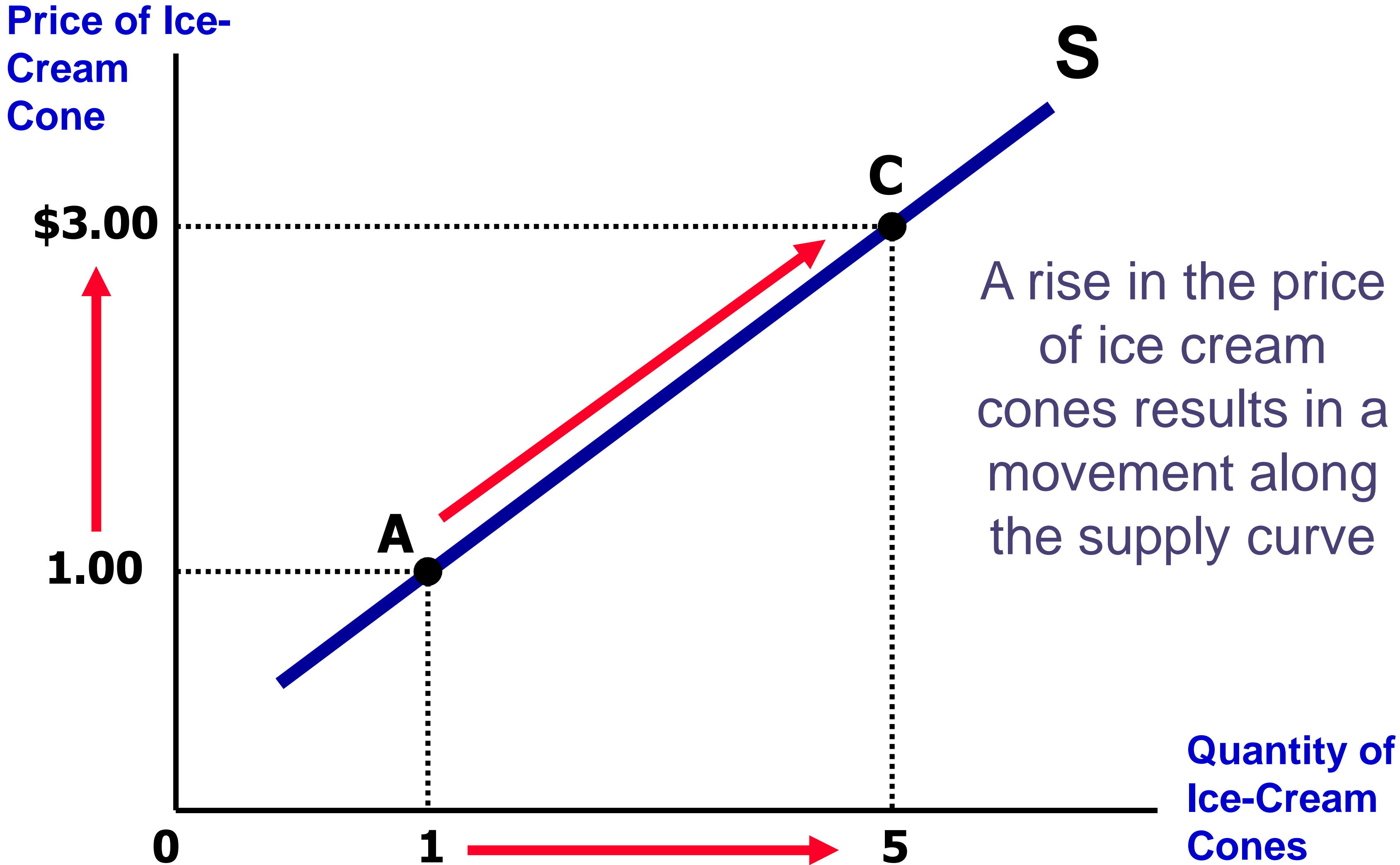
An Upward-sloping supply curve reflects the fact higher price is an incentive to producers to produce more of a product.



# Changes in Quantity Supplied Vs Changes in Supply

- Change in Quantity Supplied
  - **Movement along** the supply curve.
  - Caused exclusively by a change in the price of the product.
- Change in Supply
  - A **shift** in the supply curve, either to the left or right.
  - Caused by a change in a determinant other than price.

# Change in Quantity Supplied



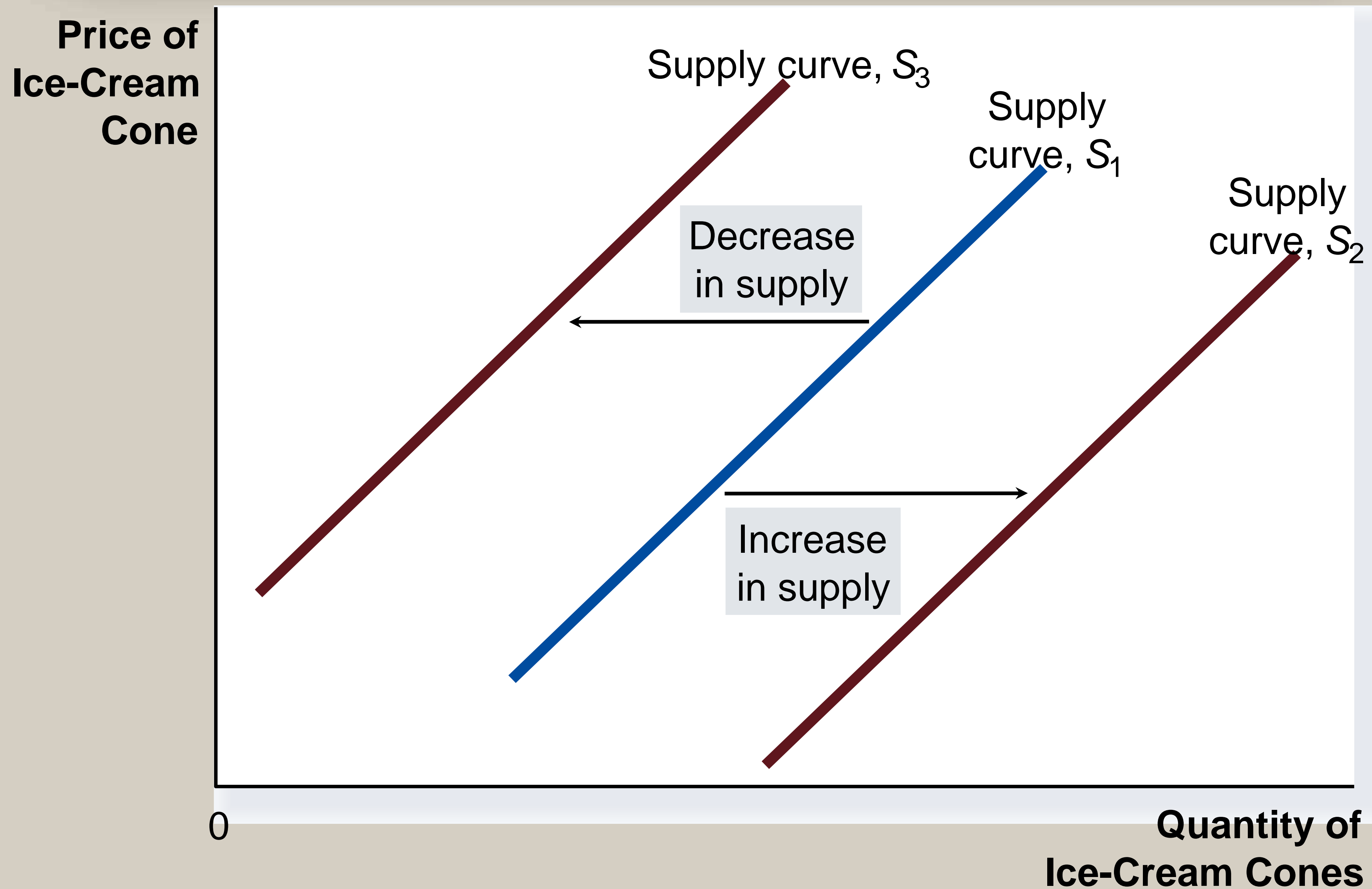

A rise in the price of ice cream cones results in a movement along the supply curve

# Changes in Supply (Shifts in the Supply Curve)

Shifts in the supply curve might be caused by:

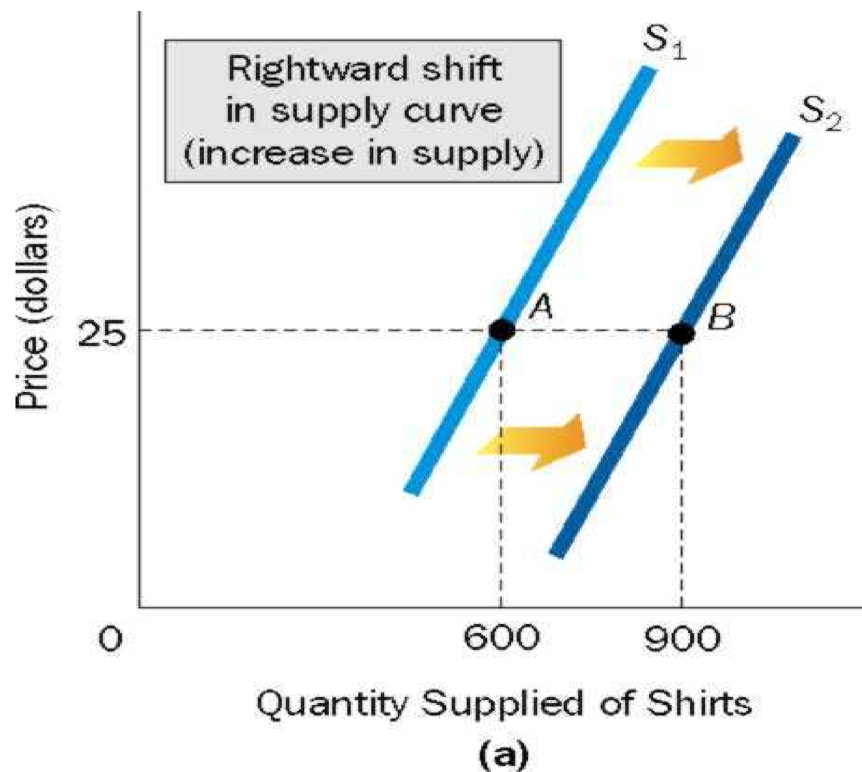
- Input prices
- Technology

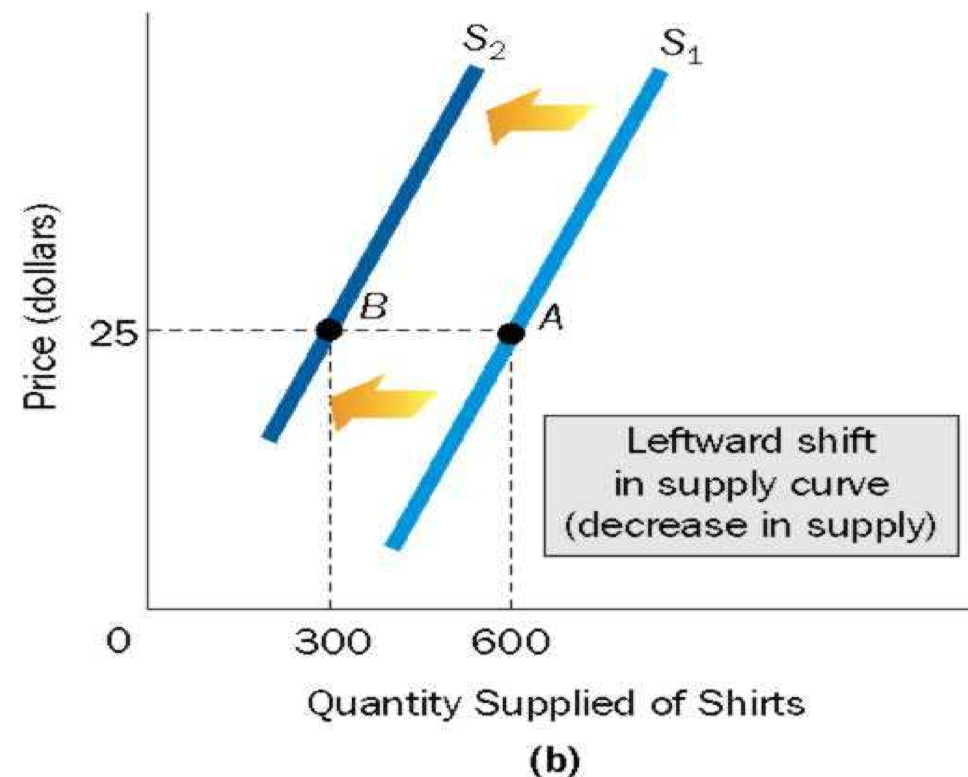
# Shifts in the Supply Curve



# Shifts in the Supply Curve

- A Change in the Supply Curve causes a shift in the Supply Curve, not merely moving up and down the same curve.
- If Supply increases, the curve shifts to the right.
- If Supply decreases, the curve shifts to the left.

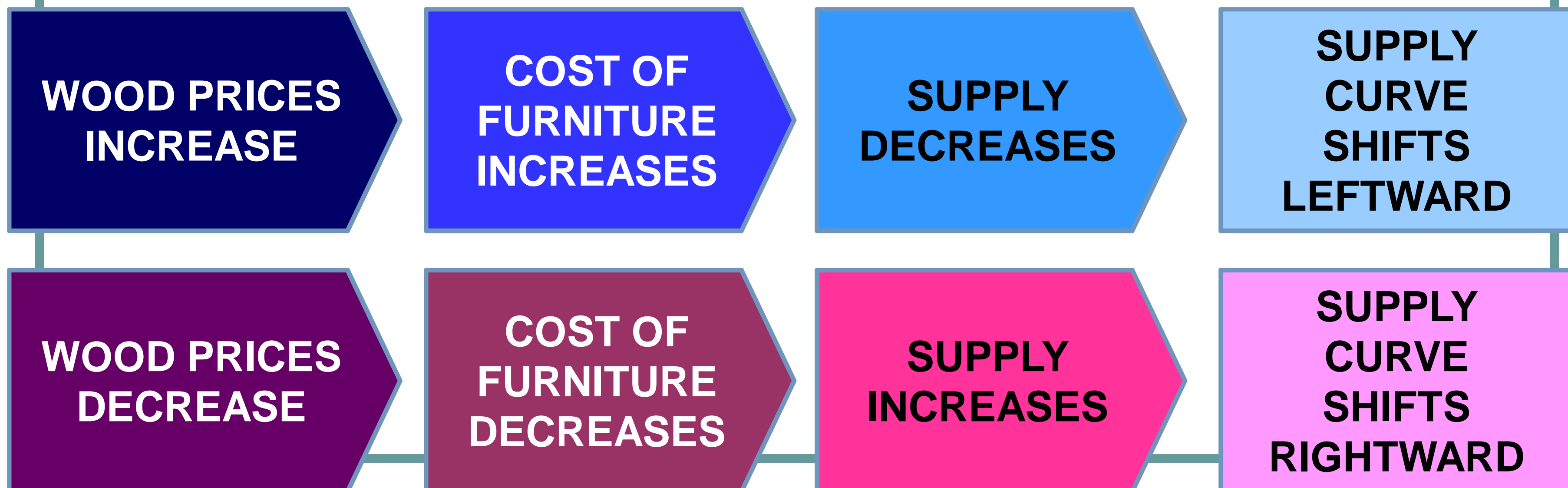


# Changes in Supply (Shifts in the Supply Curve)

**Input Prices** influence the supply of a product. If the price of a resource changes, the supply curve will shift.

EXAMPLES:



# Changes in Supply (Shifts in the Supply Curve)

A **technological improvement** can increase the quantity supplied of a product using the same amount of resources.

**TECHNOLOGICAL IMPROVEMENT** → **SUPPLY INCREASES** → **SUPPLY CURVE SHIFTS RIGHTWARD**

NOTE: The increase in quantity supplied is not caused by a change in price!!!

# Q & A

- Which way (if any) does the Supply Curve shift if the price of a relevant resource falls?
- Which way (if any) does the Supply Curve shift if there is a per-unit tax placed on the production of the product?
- Why do Supply Curves slope upward?
- Which way (if any) does the Supply Curve shift if there is a natural disaster destroying resources?

# Market Equilibrium

**Demand Schedule**

| Price of Ice-Cream Cone | Market |
|---|---|
| $0.00 | 19 |
| 0.50 | 16 |
| 1.00 | 13 |
| 1.50 | 10 |
| 2.00 | 7 |
| 2.50 | 4 |
| 3.00 | 1 |

**Supply Schedule**

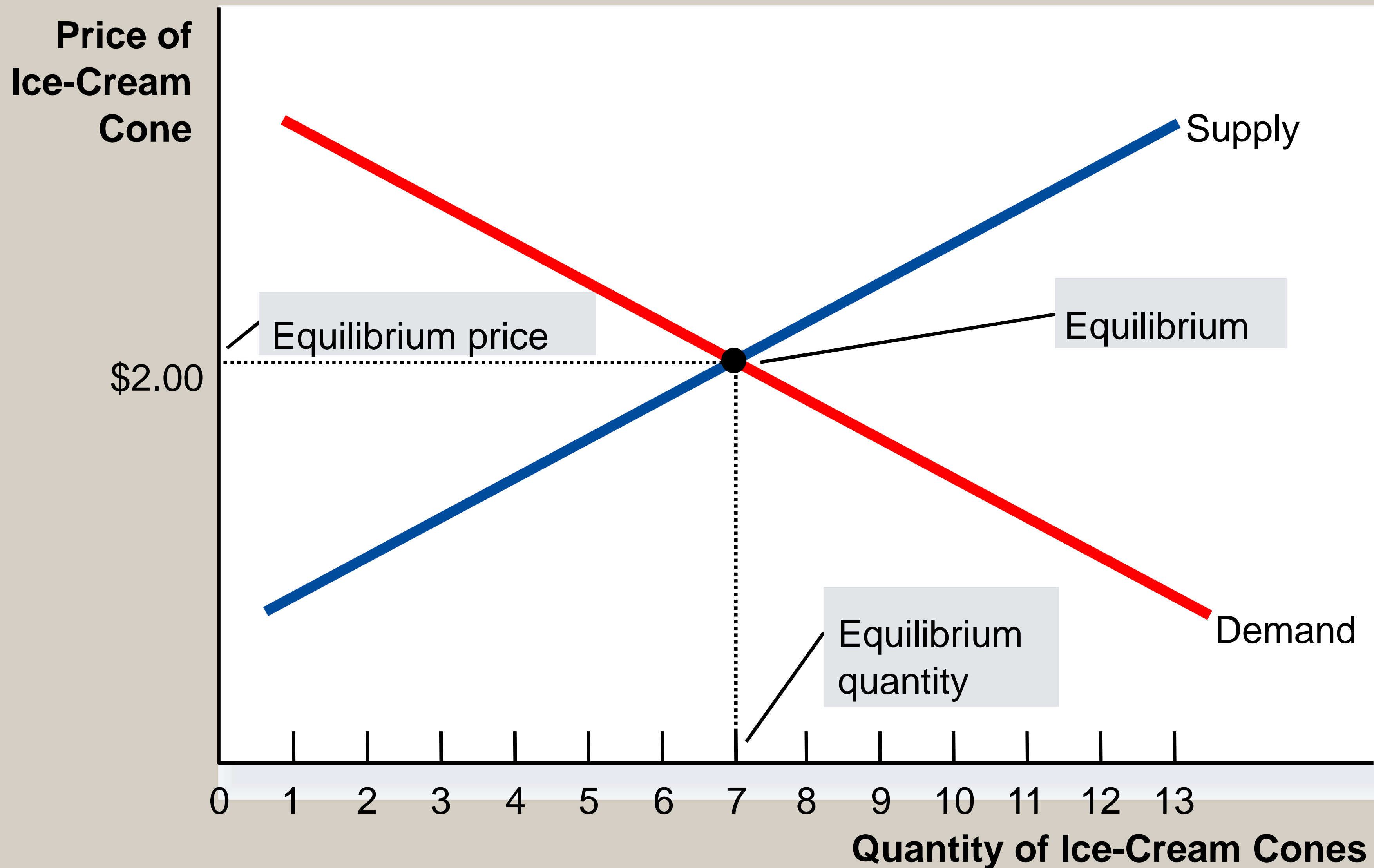
| Price of Ice-Cream Cone | Market |
|---|---|
| $0.00 | 0 |
| 0.50 | 0 |
| 1.00 | 1 |
| 1.50 | 4 |
| 2.00 | 7 |
| 2.50 | 10 |
| 3.00 | 13 |

At $2.00, the quantity demanded is equal to the quantity supplied!

# Market Equilibrium

- *Equilibrium* refers to a situation in which the price has reached the level where the quantity supplied equals the quantity demanded.
- Market equilibrium is determined by the intersection of the supply and demand curves.
- The behavior of buyers and sellers naturally drives markets toward their equilibrium.

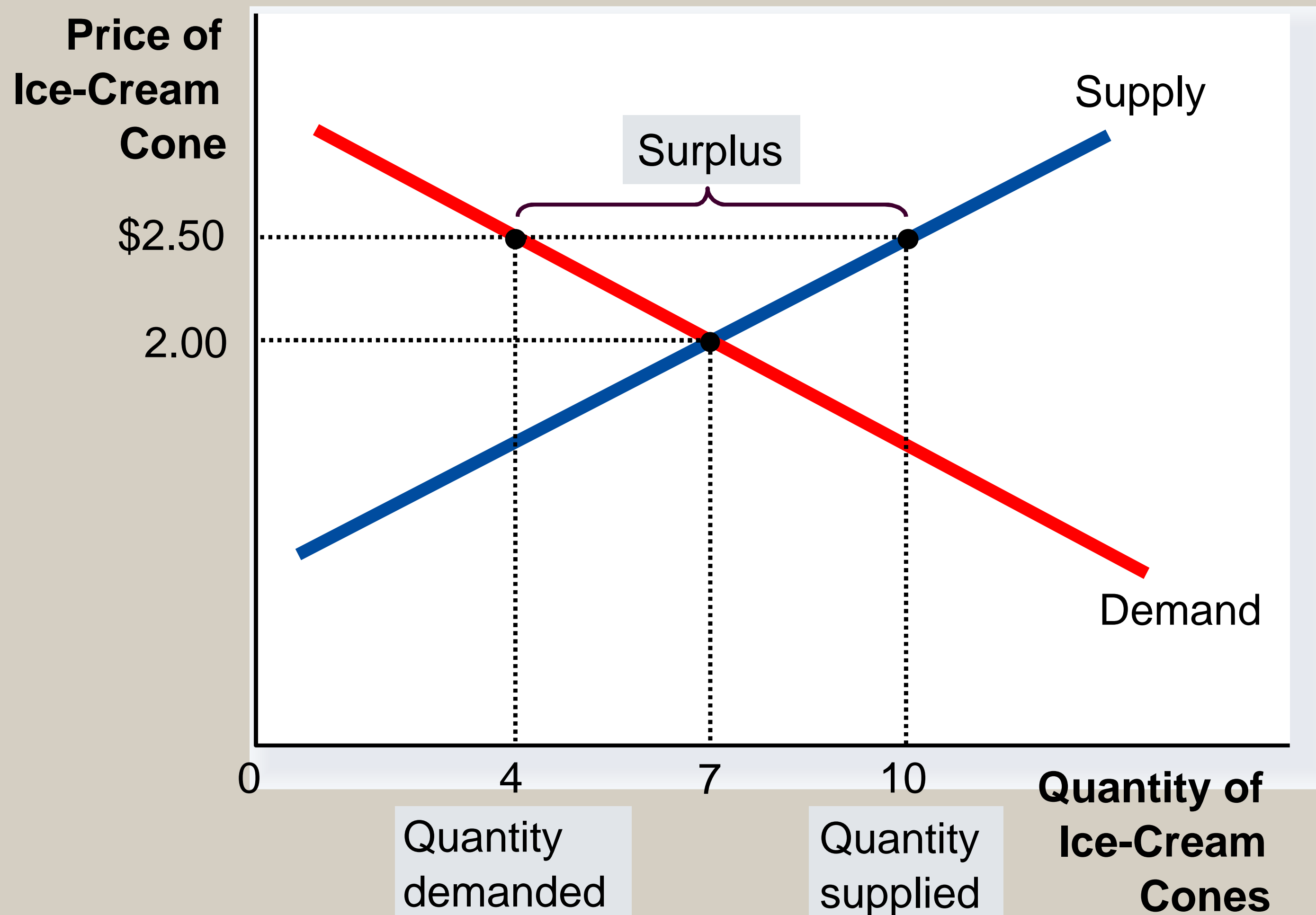
# The Equilibrium of Supply and Demand



# Market Equilibrium

- *Equilibrium Price*
  - The price that balances quantity supplied and quantity demanded.
  - On a graph, it is the price at which the supply and demand curves intersect.
- *Equilibrium Quantity*
  - The quantity supplied and the quantity demanded at the equilibrium price.
  - On a graph it is the quantity at which the supply and demand curves intersect.

# Markets Not in Equilibrium



# Market Equilibrium

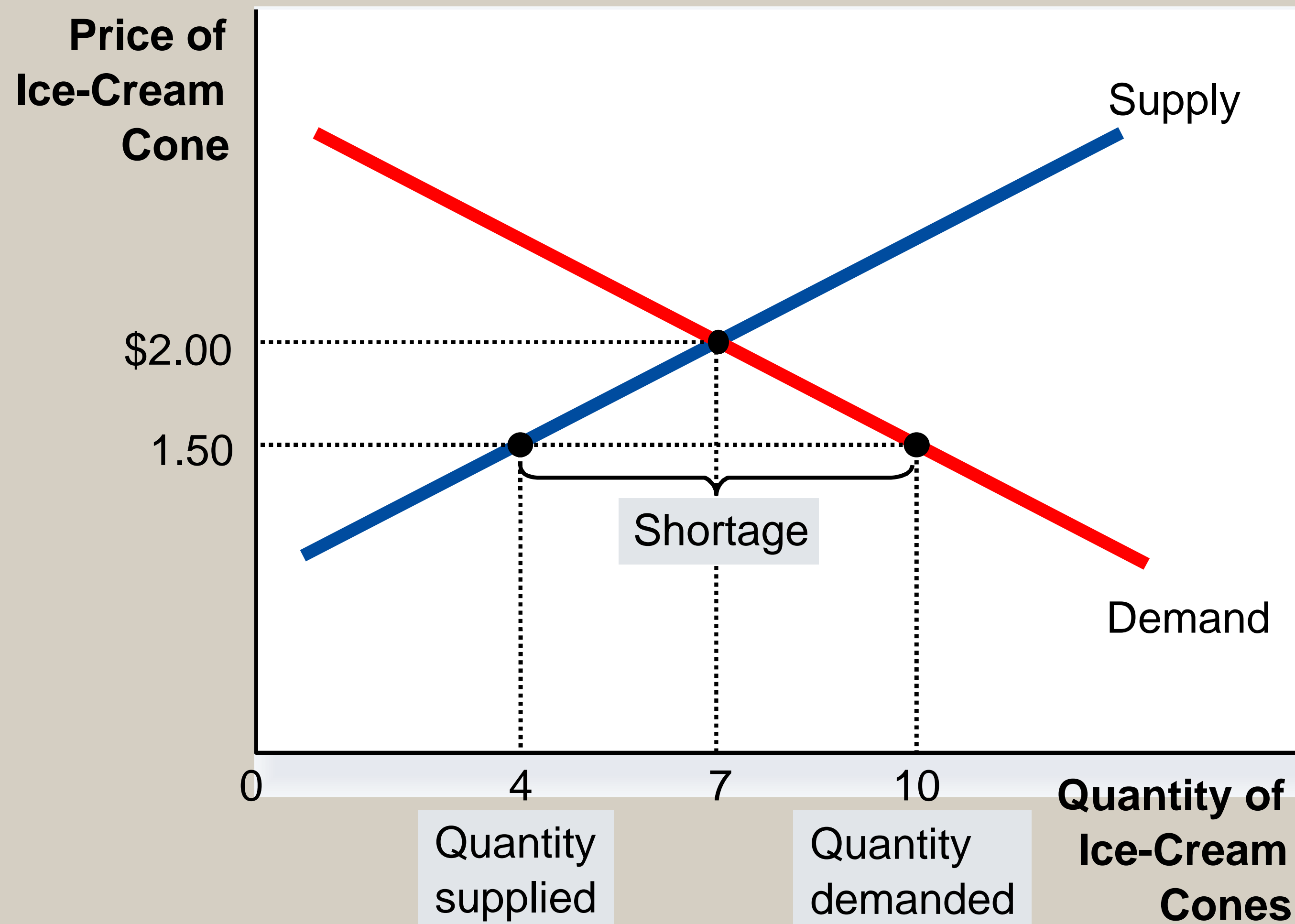
- *Surplus*
  - When price > equilibrium price, then quantity supplied > quantity demanded.
    - There is **excess supply** or a **surplus**.

**QUESTION:**
What will suppliers do?

Suppliers will lower the price to increase sales

**NEW EQUILIBRIUM WILL BE REACHED**

# Markets Not in Equilibrium



# Market Equilibrium

- *Shortage*
  - When price < equilibrium price, then quantity demanded > the quantity supplied.
    - There is excess demand or a shortage.

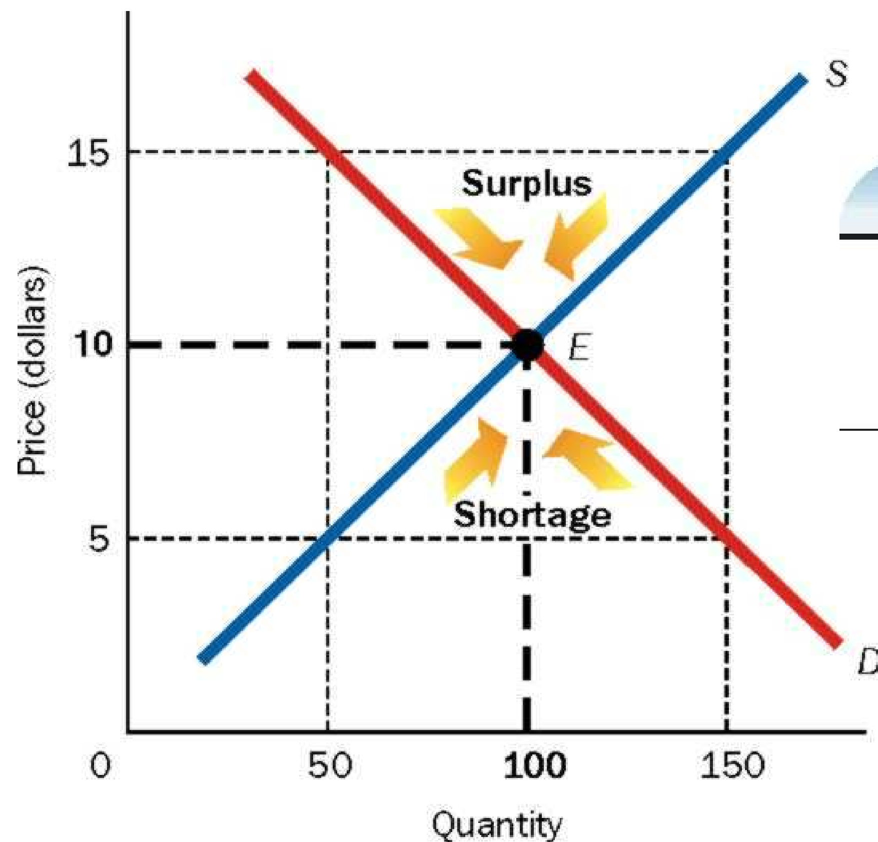
**QUESTION:**
What will suppliers do?

Suppliers will raise the price

**NEW EQUILIBRIUM WILL BE REACHED**

# Moving to Equilibrium

- Why does the price fall when there is a surplus?
- Why does the price rise when there is a shortage?
- Mutually beneficial trade drives the market towards equilibrium.




| Price | $Q_s$ | $Q_d$ | Condition |
|---|---|---|---|
| $15 | 150 | 50 | Surplus |
| 10 | 100 | 100 | Equilibrium |
| 5 | 50 | 150 | Shortage |

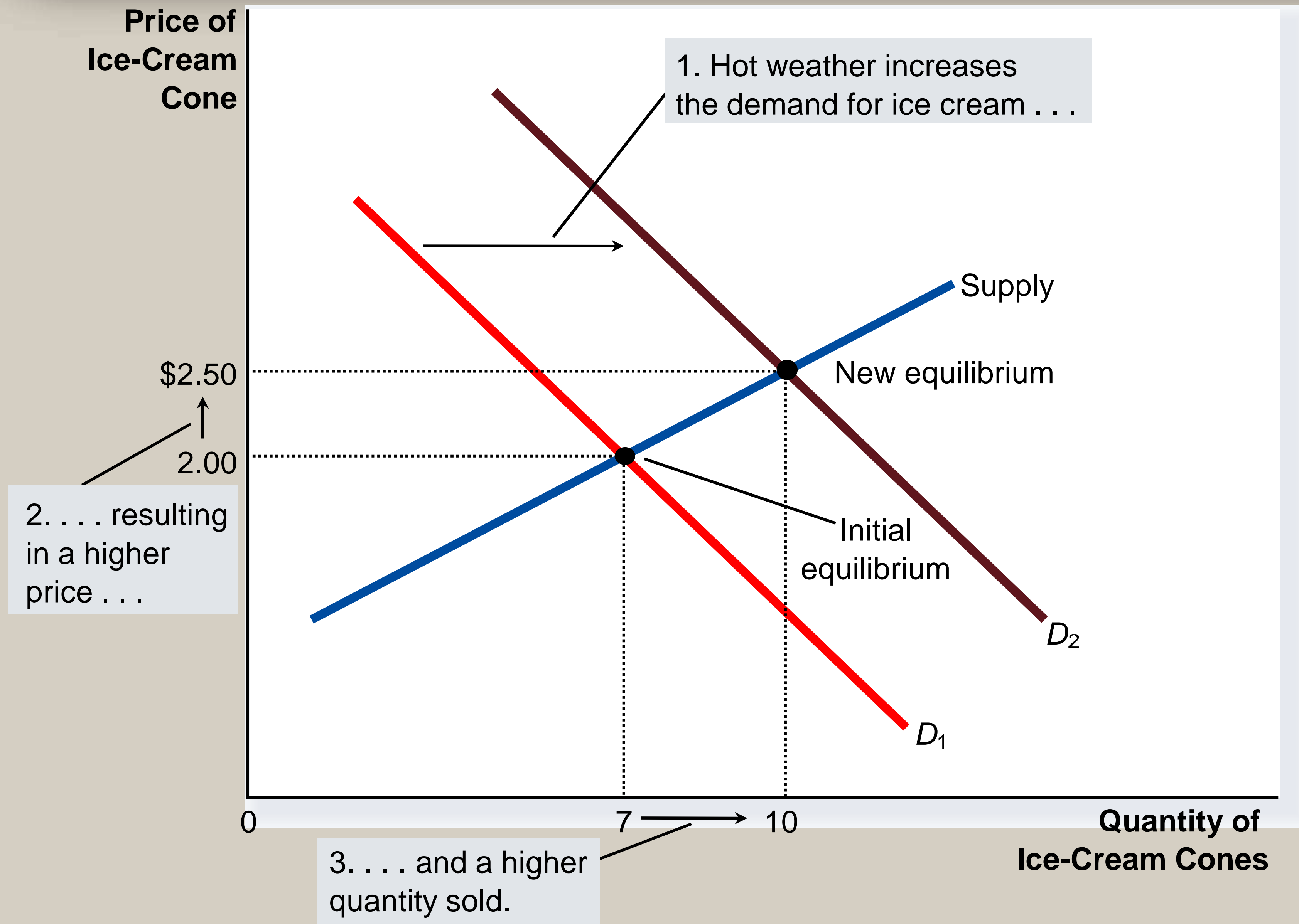
# Market Language

- If the quantity supplied is greater than the quantity demanded, the good has a **surplus** or excess supply.
- If quantity demanded is greater than quantity supplied, a **shortage** or excess demand exists.
- The price at which a quantity demanded equals the quantity supplied is the **equilibrium price**, or the **market-clearing price**.
- A market that has too much of a product or too little of a product is considered to be in **disequilibrium**.

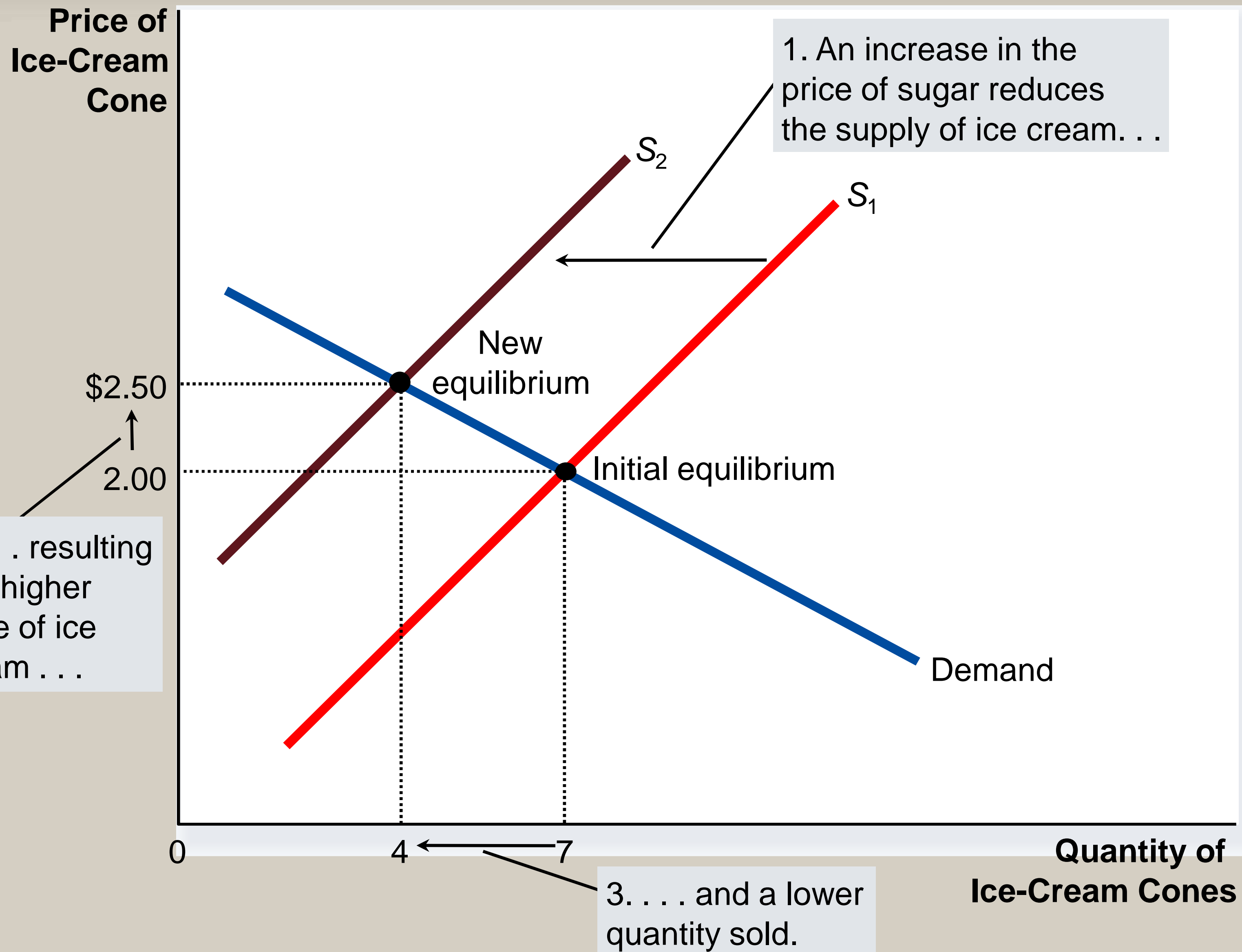
# More Market Language

- The quantity that corresponds to the equilibrium price is the **equilibrium quantity**.
- Any price at which quantity demanded is not equal to quantity supplied is a **disequilibrium price**.
- A market in which quantity demanded equals quantity supplied is said to be in **equilibrium**.
- A market that exhibits either a surplus or a shortage is said to be in **disequilibrium**.

# How an Increase in Demand Affects the Equilibrium



# How a Decrease in Supply Affects the Equilibrium



# What Happens to Price and Quantity When Supply or Demand Shifts?

| | No Change in Supply | An Increase in Supply | A Decrease in Supply |
|---|---|---|---|
| No Change in Demand | *P* same<br>*Q* same | *P* down<br>*Q* up | *P* up<br>*Q* down |
| An Increase in Demand | *P* up<br>*Q* up | *P* ambiguous<br>*Q* up | *P* up<br>*Q* ambiguous |
| A Decrease in Demand | *P* down<br>*Q* down | *P* down<br>*Q* ambiguous | *P* ambiguous<br>*Q* down |

## Three Steps to Analyzing Changes in Equilibrium

- Decide whether the event shifts the supply or demand curve (or both).
- Decide whether the curve(s) shift(s) to the left or to the right.
- Use the supply-and-demand diagram to see how the shift affects equilibrium price and quantity.

# Q & A

- The price of a given-quality personal computer is cheaper today than it was 5 years ago.  Is this a result of lower demand for computers?  Why or why Not?

  Make a graph that represents the situation and explain your conclusions.

# What Would Happen If Marihuana Were Legalized?

- Assume the purchase and sale of marihuana were legalized. What would happen to the price?
  - Supply would increase, as farmers began to grow marihuana instead of corn or other products.
  - Demand would increase, as the number of people who want to buy and consume Marihuana increases.
  - The Supply curve shifts to the right. The Demand curve shifts to the right: The effect on price is uncertain but quantity exchanged will increase

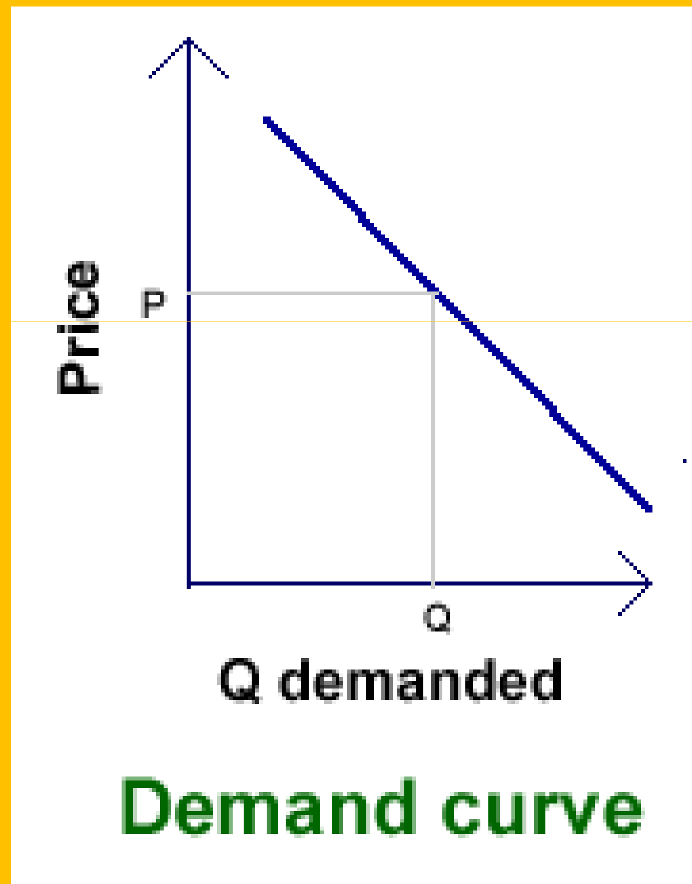
# Do You Pay For Things Even When There Is No Explicit Price?

- There is no weather market.
- But to enjoy the weather in San Diego, California, you must be there, either living there or visiting.
- If there were only bad weather in San Diego, the demand to live there would be lower and the cost of living there would be lower.
- Therefore you're actually paying for good weather in San Diego if you live there.

# Supply and Demand Multiple Choice Exercise

1. The demand curve illustrates that…

a) As demand falls, price rises

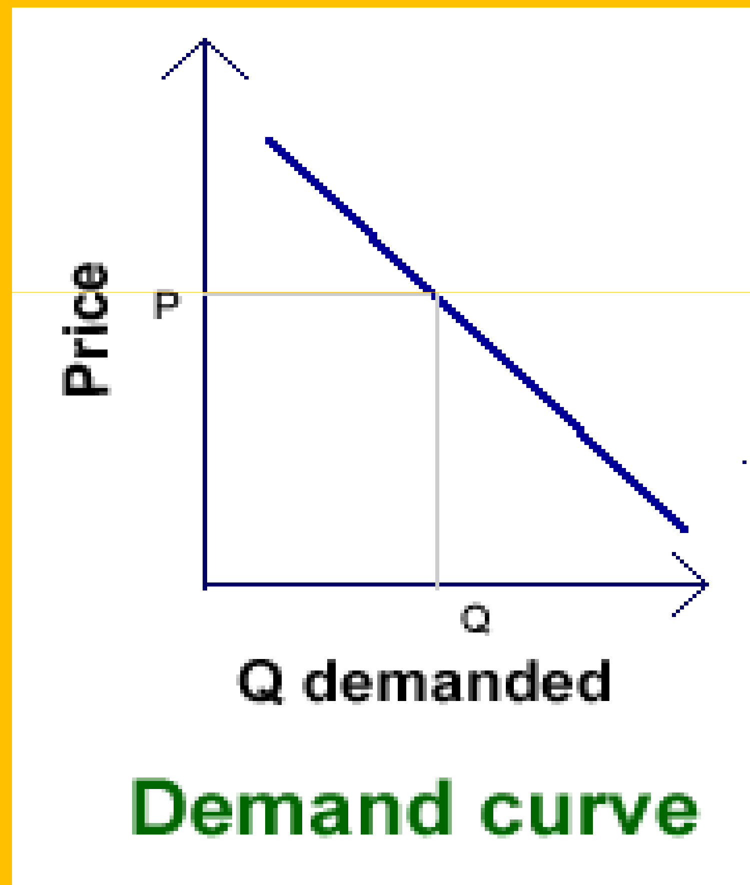



b) As price rises, quantity demanded falls

c) As price changes, so does demand

d) As price rises, demand increases

2. This shift of the demand curve would happen if…



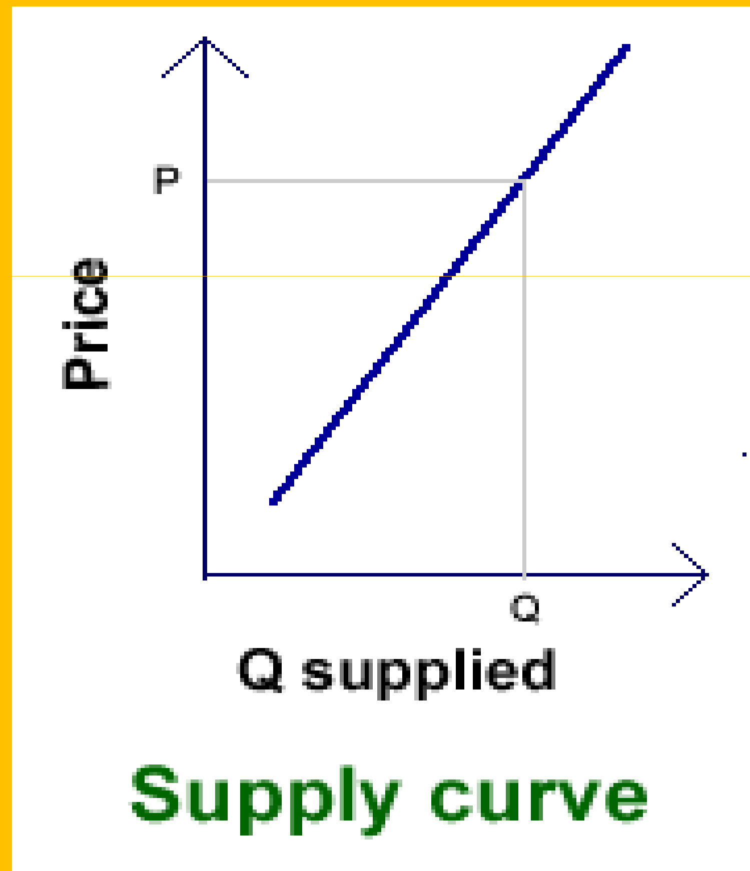

a) A new use is found for the product

b) Research reveals that the product can significantly improve intelligence

c) A popular football player is photographed wearing the product

d) A corrupt politician is seen wearing the product

3. This shift of the supply curve would happen if…




a) A drought resulted in very poor harvests

b) Ideal growing conditions lead to a bumper crop

c) The product is recommended by a very popular football player

d) Wal Mart includes it in a half price promotion

4. What effect would this promotion have on the supply or demand curves for sun lotion?

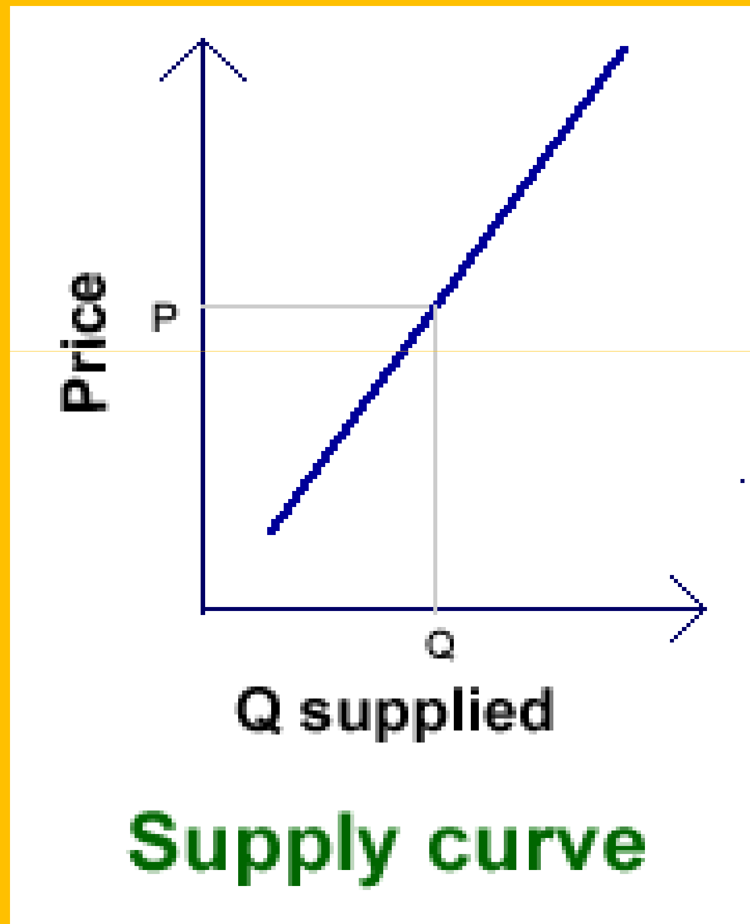
a) Increase quantity demanded

b) Increase supply

c) Increase quantity supplied

d) Reduce demand

5. This supply curve shows that...




a) The higher the price, the greater the quantity supplied

b) The greater the quantity supplied, the higher the price

c) Price is dependent on supply

d) The lower the supply, the lower the price