

Demand, Supply and Market Equilibrium

Module: 2

- ◆ Demand
- ◆ Supply
- ◆ Market Equilibrium

What is demand ?

○ Desire to buy

○ Willingness to pay

○ Ability to pay

Demand for a commodity

- Quantity demanded
- Price at which demanded
- Time period over which demanded
- Market area in which demanded

Example: ↗ **Time Period**

*Annual demand for Sony TV sets in Bangalore at
an average price of Rs 17,000 a piece is 65,000*

↘ **Price**

↗ **Market Area**
↘ **Quantity**

Demand Schedule

Demand Schedule:

A tabular representation of demand. The information it contains describes the quantity of a good that a buyer is willing to purchase at different prices.



Demand Schedule: An Example

Table 3.1

Demand Schedule for Bicycles (millions of bicycles per year)

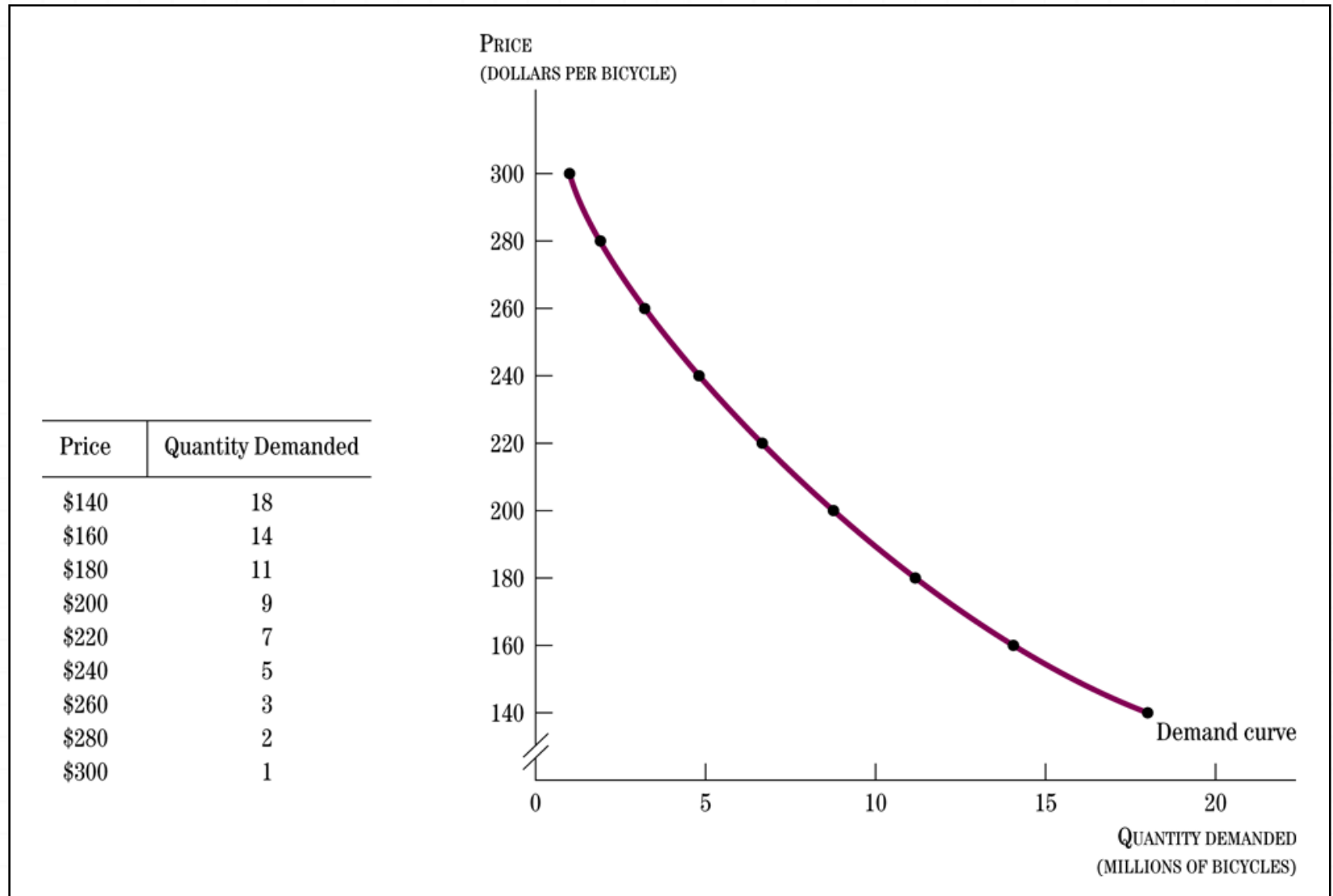
Price	Quantity Demanded	Price	Quantity Demanded
\$140	18	\$240	5
\$160	14	\$260	3
\$180	11	\$289	2
\$200	9	\$300	1
\$220	7		

Demand Curve

○ Demand Curve: The graphical representation of demand. The information it contains describes the quantity of a good that a buyer is willing to purchase at different prices.

Note: Both the demand curve and the demand schedule should describe the same information.

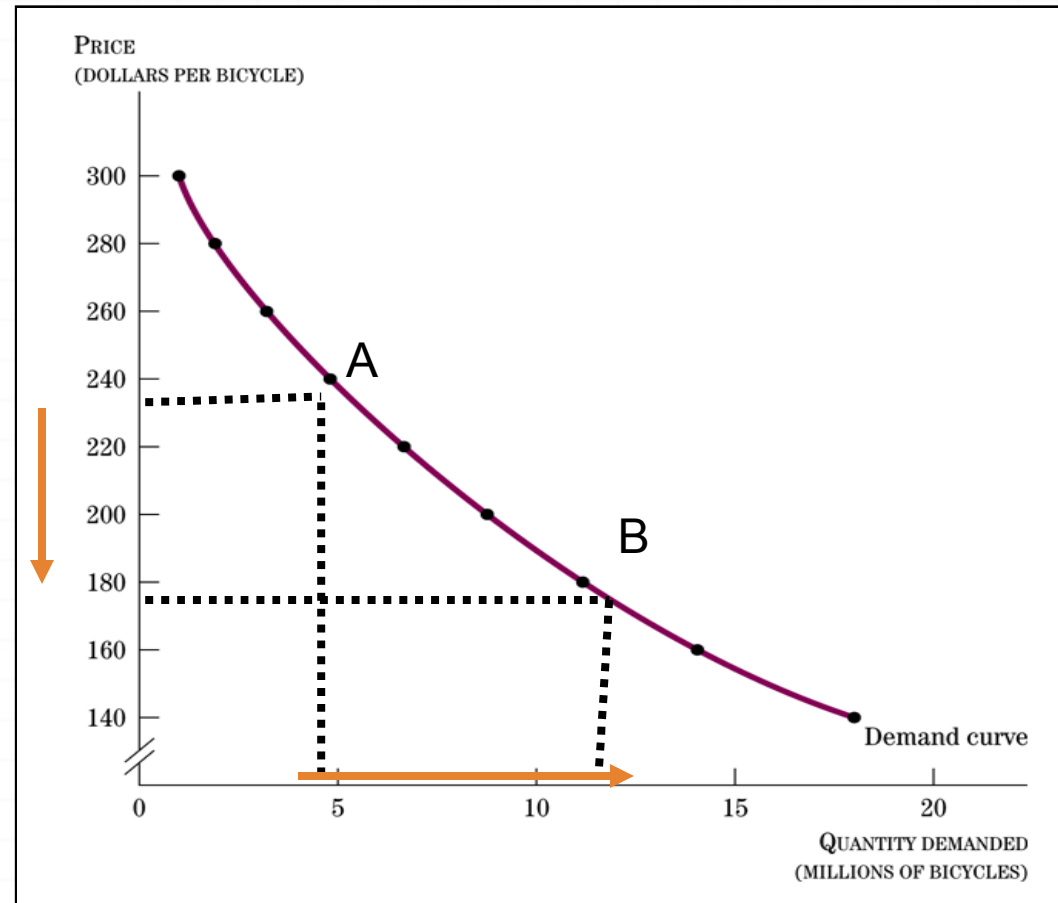
Demand Curve: An Example



The Demand Curve for Bicycles (Million Bicycles per Year)

The Law of Demand

According to the law of demand, a lower price will result in an increase in the quantity of the good that consumers are willing to buy, holding all else constant.



The Demand Curve for Bicycles (Million Bicycles per Year)

This scenario can be depicted as a movement from point A to point B in the Figure above.

Demand: Definition Revisited

- Demand: Relationship between price and the quantity demanded, ***all other things remaining constant.***
- What are the other things that we hold constant?

Consumer's Preferences

- Changes in consumer's preferences or tastes for a product (relative to another product) will change the amount purchased at a given price.
- Example: The demand for petrol increased as people chose to drive more to different destinations.

Consumer's Information

○ New information available to consumers can result in a change in the quantity that consumers buy of a good, even though the price does not change.

○ Example:

○ Demand for creamy doughnuts ~~declined~~ ^{*Increased} when people got information that eating fewer carbohydrates can facilitate weight loss

Consumer's Income

- An increase in income can result in an increase or a decrease in the quantity of goods/services demanded.

↪ **DEMAND proportional to INCOME**

- **Normal Goods:** Goods for which demand increases when the consumer's income rises and decreases when consumer's income falls.

○ **Examples:** Jewelry, luxury cars.

↪ **DEMAND inversely proportional to INCOME**

- **Inferior Goods:** Goods for which demand decreases when the consumer's income rises and increases when consumer's income falls.

○ **Examples:** used cars, bajra

Number of Consumers in the Market

- An increase in the number of consumers in the market is likely to result in an increase in the demand for the good or service, while a decline in the number of consumers is likely to result in a smaller demand for the good or service.



Number Of Consumer is proportional to Demand

- Example: The demand for electricity in your city increases as the population increases.

Consumer's Expectation of Future Prices

- If people expect the price of a good will increase, they will buy it before the price increases. If they expect the price of a good to decrease, they will wait before the price drops.
- Question: What will you do if you get to know that petrol price will go up by Re. 1.00 per lt. tomorrow?
 - ↳ Nothing 😊

Prices of Closely Related Goods

- Two goods are related if they are either substitutes or complements.
- Substitute: A good that has many of the same characteristics as and can be used in place of another good.
 - Example: Coke is a substitute for Pepsi, Coffee and tea
- Complement: A good that is consumed or used together with another good.
 - Examples: Milk is a complement to coffee

Complements and Substitutes

→ taken together

○ If two goods are complements, then an increase in the price of one good will result in a decrease in the demand for the other good.



→ taken as Alternative

○ If two goods are substitutes, then an increase in the price of one good will result in a increase in the demand for the other good.

Complements and Substitutes

(cont'd)

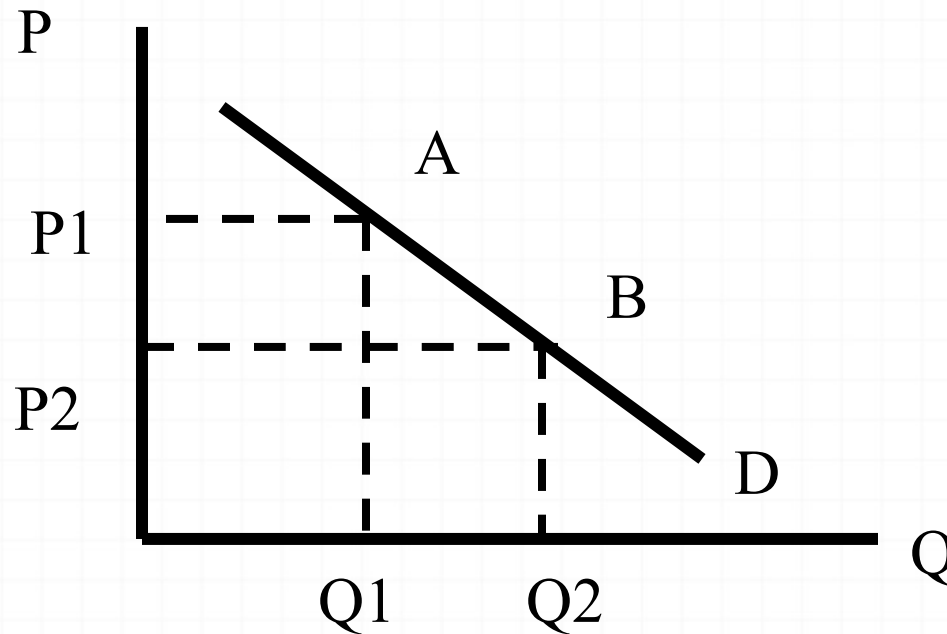
Examples

- 1) Since coffee and milk are complements, an increase in the price of milk will discourage consumers to buy coffee.
 **taken together**
- 2) Since Coke and Pepsi are substitutes, an increase in the price of Coke will encourage consumers to buy more Pepsi.
 **taken as Alternative**

Demand: All Other Things Constant

- Consumer's Preference
- Consumer's Information
- Consumer's Income
 - Normal goods \longrightarrow (Demand \rightarrow Income)
 - Inferior goods \longrightarrow (Demand \rightarrow 1/Income)
- Number of Consumers in the Market
- Consumer's Expectations of Future Prices
- Prices of Closely Related Goods
 - Substitutes \longrightarrow **taken as alternative**
 - Complements \longrightarrow **taken together**

Movement along the demand curve



A movement along the demand curve is brought about by a change in the price of the good.

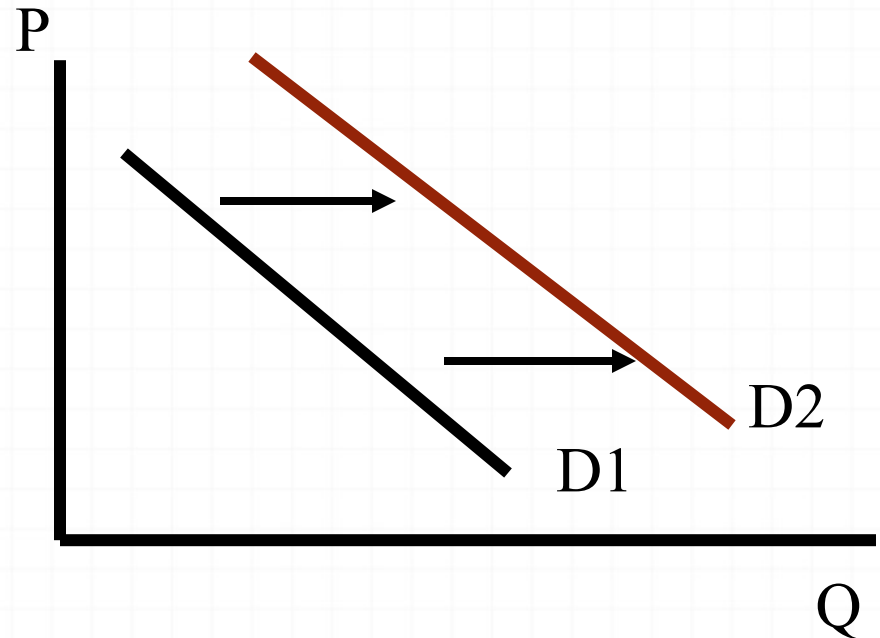
Shifts of demand curve

A shift in demand: a shift of the demand curve is brought about by a change other than the price of the good. The demand curve can shift left (a decrease in demand) or shift right (an increase in demand).

An Increase in Demand

Possible causes

- 1) Greater preference
- 2) More population
- 3) Incomes increase
(normal good) ←
- 4) Incomes decrease
(inferior good) ←
- 5) Expected future price increase.
- 6) More expensive substitute (**Alternative**)
- 7) Less expensive complement (**taken Together**)



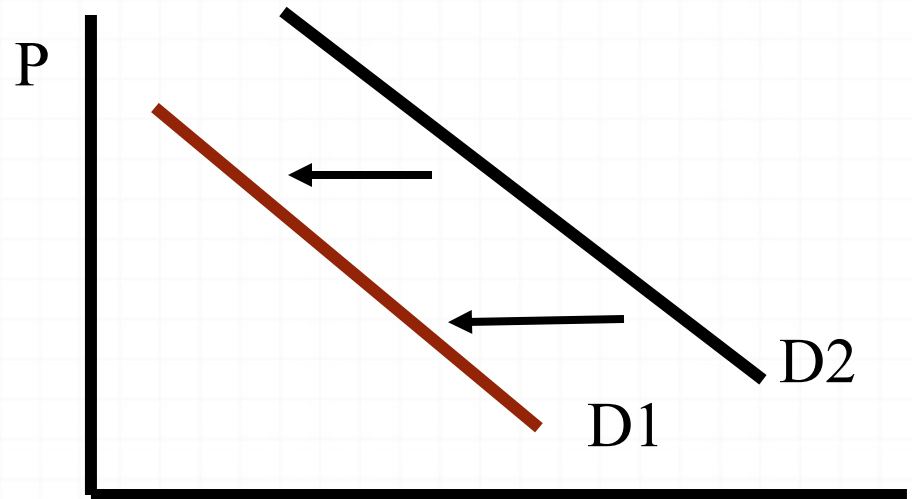
An increase in demand is illustrated as a shift in the demand curve to the right.



A Decrease in Demand

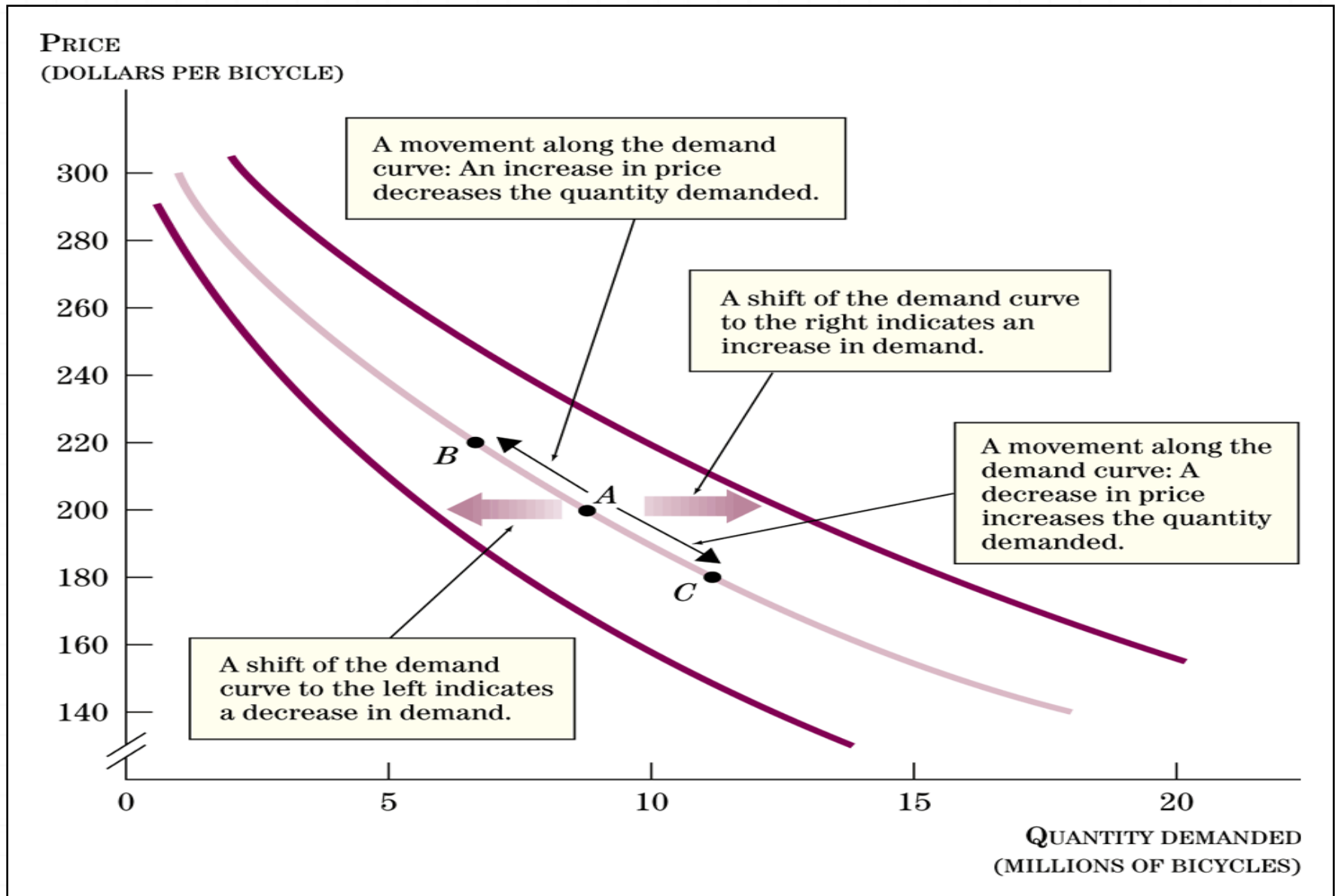
Possible causes

- 1) Less preference
- 2) Less population
- 3) Incomes decrease (normal good)
- 4) Incomes increase (inferior good)
- 5) Expected future price decrease.
- 6) Less expensive substitute
- 7) More expensive complement



A decrease in demand is illustrated as a shift in the demand curve to the left.

Shifts vs. Movements:



Supply: Definitions

- Supply: A relationship between price and the quantity supplied, all other things remaining constant.
- Quantity Supplied: The quantity of a good that sellers want to sell at a given price during a specific time period.

Supply Schedule

A tabular representation of the supply curve.

The information it contains describes the quantity of a particular good that a seller is willing to sell at different prices.

Supply Schedule

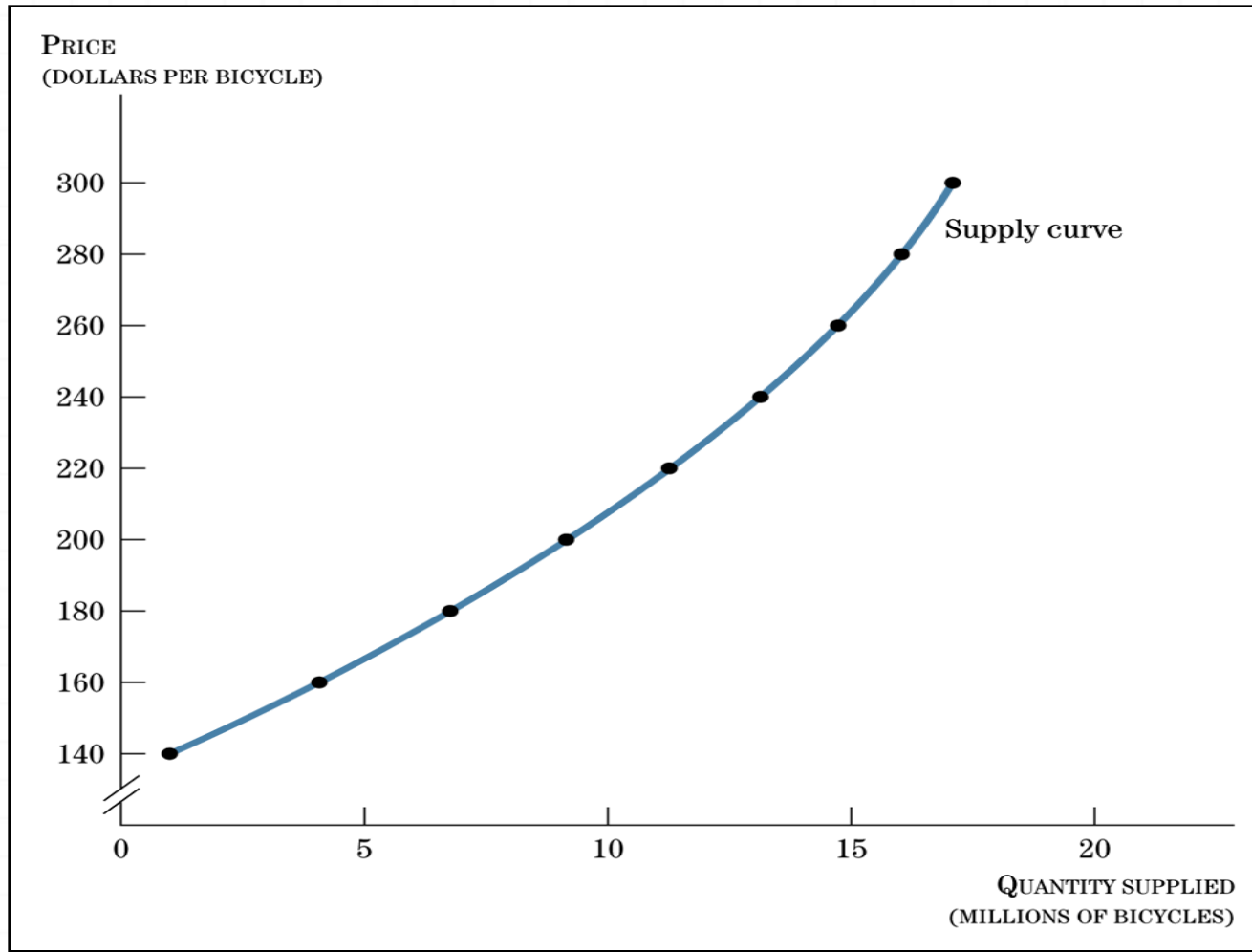
The Supply Schedule for Bicycles (Millions of Bicycles per Year)

Price	Quantity Supplied
140	1
160	4
180	7
200	9
220	11
240	13
260	15
280	16
300	17

Supply Curve

- The **graphical representation of supply**. The information it contains describes the quantity of a good that a seller is willing to sell at different prices.
- Note: Both the supply curve and the supply schedule should describe the same information.

Supply Curve: An Example



The Supply Curve for Bicycles (Million Bicycles per Year)

The Law of Supply

- The tendency for the quantity supplied of a good in a market to increase as its price rises.
- According to the law of supply, a higher price will result in an increase in the quantity of the good that sellers are willing to sell, holding all else constant.
- Note: For a supply curve to be consistent with the Law of Supply, the supply curve must be upward sloping.

Supply: Definition Revisited

- Supply: Relationship between price and the quantity supplied, *all other things constant*.
- What are the other things that we hold constant?

Technology


- Improvements in technology will encourage the firm to produce more at the same price.
- Examples: The introduction of high yielding varieties of corn will allow corn farmers to produce more corn, given the same amount of land, water, fertilizer and machinery.

The Price of Inputs

- More expensive inputs (raw materials, land and capital) increases the cost of production of goods and services, and may force the firm to sell less at a given price.
- Example: When fuel prices increase, some airlines chose to cut back on the number of flights on some routes.

The Number of Firms in the Market


○ More firms in the market lead to increase in supply, as more goods or services will be available for sale at each price.



Seller's Expectations of Future Prices

- If a firm expects the price of the good they are selling will increase in the future, they will sell less today and sell more in the future when prices are higher.
- Similarly, if a firm expects the price of the good they are selling will decrease in the future, they will sell more today.

Government Taxes, Subsidies and Regulations

- 
- Increases in taxes (payments by firms to the government) or decreases in subsidies (payment by the government to firms) can reduce the quantity that firms are willing to sell at a given price.
 - Decreases in taxes or increases in the subsidies can increase the quantity that firms are willing to sell at a given price.
 - Example: Govt. Colleges may decrease the number of courses offered when the Govt. reduces subsidies to the college system.

Government Taxes, Subsidies and Regulations

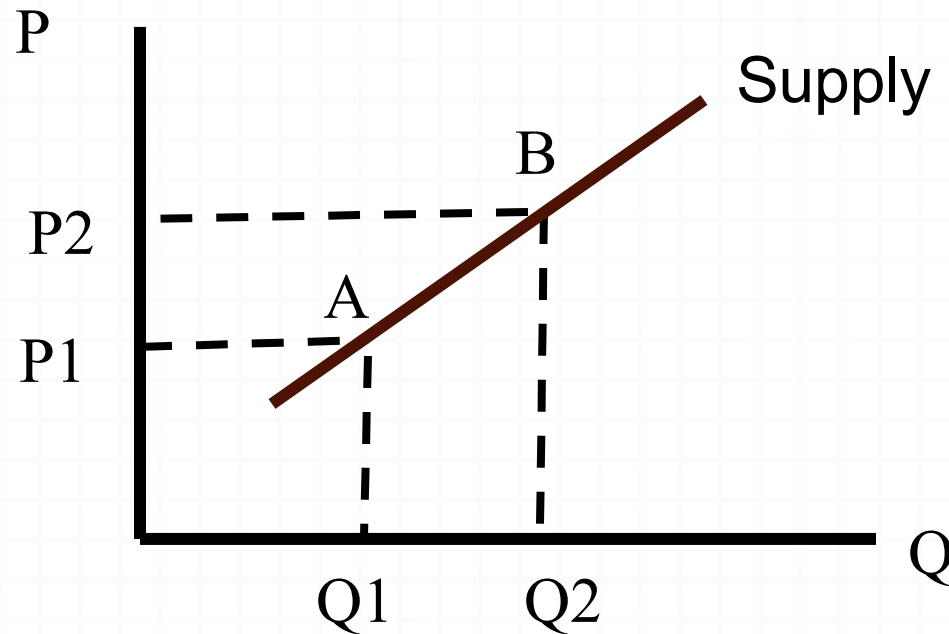
- Regulations: Government policies or rules that control the firm's behavior. These regulations can affect the firm's cost of production and thereby affect supply.
- Example: Government pollution regulation forces bus companies to seek alternative fuel sources (natural gas) that may raise costs and decrease supply.

Supply: All Other Things Constant

- Technology
- The price of goods used as an input in production
- Number of firms in the market
- Seller's expectations of future prices
- Government taxes, subsidies and regulations



Movement



Movement along the supply curve:

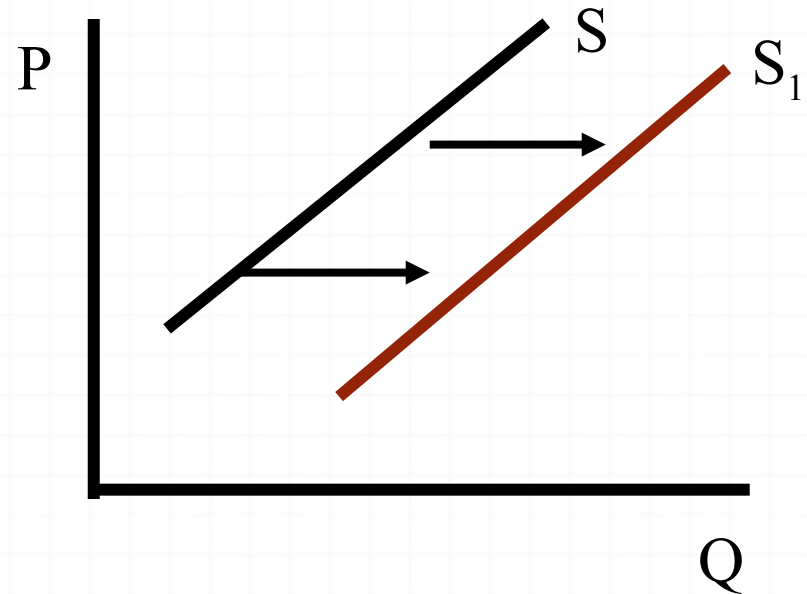
A change in the quantity supplied of a good is brought about by a change in its price.



An Increase in Supply

Possible causes

- 1) Better technology
- 2) Less expensive inputs
- 3) More firms
- 4) A lower expected price in the future
- 5) More subsidies or less taxes



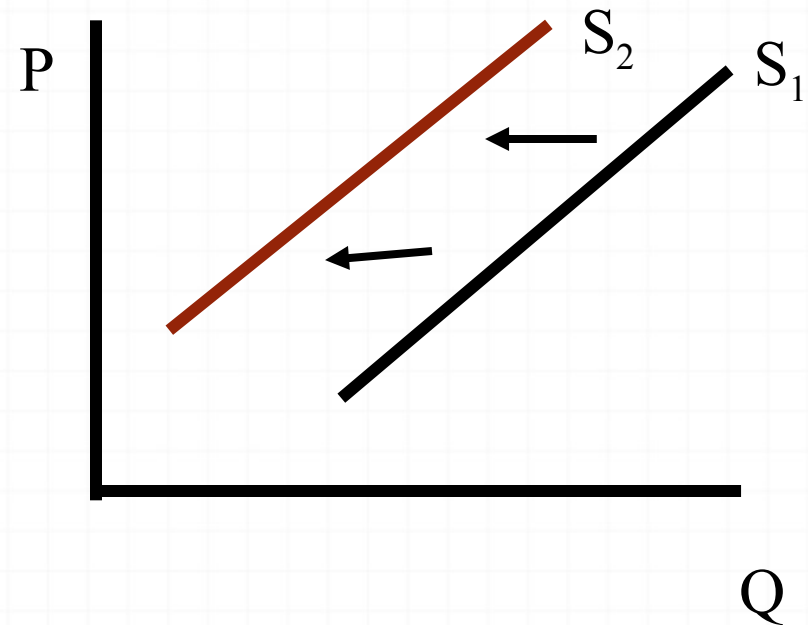
An increase in supply is illustrated as a shift in the supply curve to the right.



A Decrease in Supply

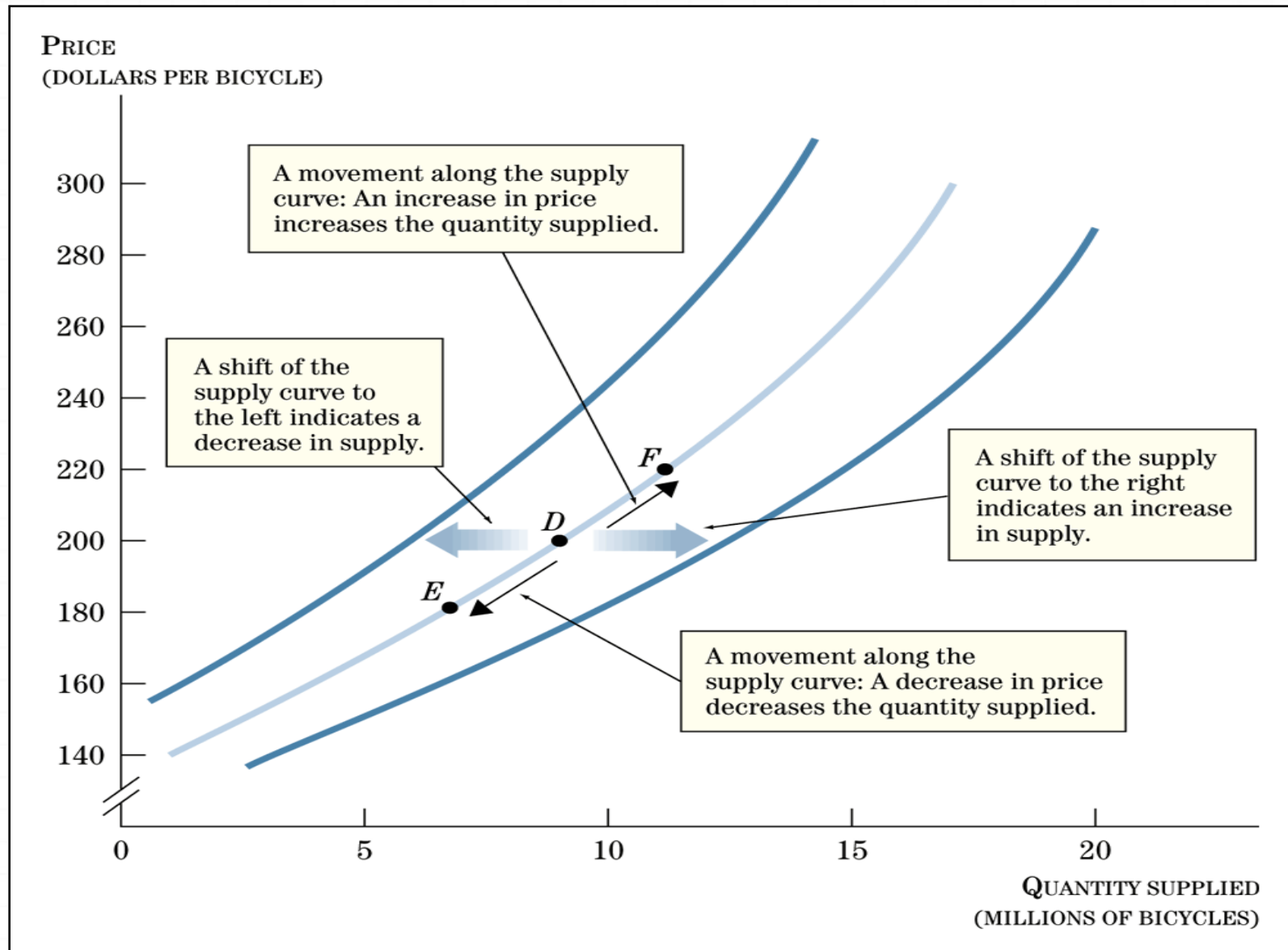
Possible causes

- 1) Deteriorating technology
- 2) More expensive inputs
- 3) Fewer firms
- 4) A higher expected price in the future
- 5) Less subsidies or more taxes



An decrease in supply is illustrated as a shift in the supply curve to the left.

Movements Vs. Shifts: Summary

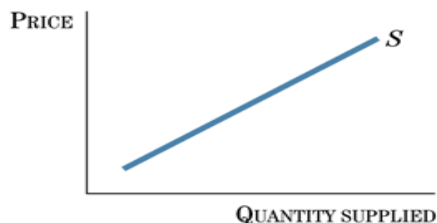


Supply and Demand: A Review

SUPPLY

Supply describes firms.

The supply curve looks like this:



Law of Supply

Price and quantity supplied are positively related.

Movements along supply curve occur

when price rises and quantity supplied rises
or
when price falls and quantity supplied falls.

Shifts in supply are due to:

Technology (new inventions)

Number of firms in market

Price of goods used in production (inputs such as fertilizer, labor)

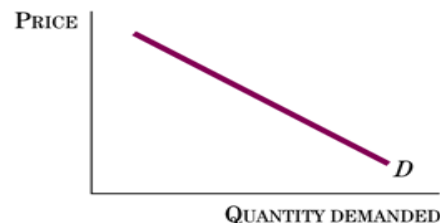
Expectations of future prices (firms will sell less now if prices are expected to rise; for example, farmers may store goods to sell next year)

Government taxes, subsidies, regulations (commodity taxes, agricultural subsidies, safety regulations)

DEMAND

Demand describes consumers.

The demand curve looks like this:



Law of Demand

Price and quantity demanded are negatively related.

Movements along demand curve occur

when price rises and quantity demanded falls
or
when price falls and quantity demanded rises.

Shifts in demand are due to:

Preferences (nice weather or fitness craze changes tastes)

Number of consumers in market

Consumers' information (about cholesterol or smoking, for example)

Consumers' income (normal goods versus inferior goods)

Expectations of future prices (consumers will buy more now if prices are expected to rise in the future)

Price of related goods (both substitutes, like butter and margarine, and complements, like coffee and sugar)

Market Equilibrium: Combining Supply and Demand

- When consumers buy goods and producers sell goods, their interaction lead to the determination of an equilibrium price in the market.
- Equilibrium price: The price at which the quantity that sellers are willing to sell equals the quantity that consumers are willing to purchase.

Market Not in Equilibrium

- **Shortage** (**excess demand**): A situation in which the quantity demanded is greater than the quantity supplied. This occurs when the price in the market is below the equilibrium price.
- **Surplus** (**excess supply**): A situation in which the quantity supplied is greater than the quantity demanded. This occurs when the current price in the market is above the equilibrium price.

Finding the Equilibrium: An Example

Supply and Demand Schedule for Bicycles (millions per year)

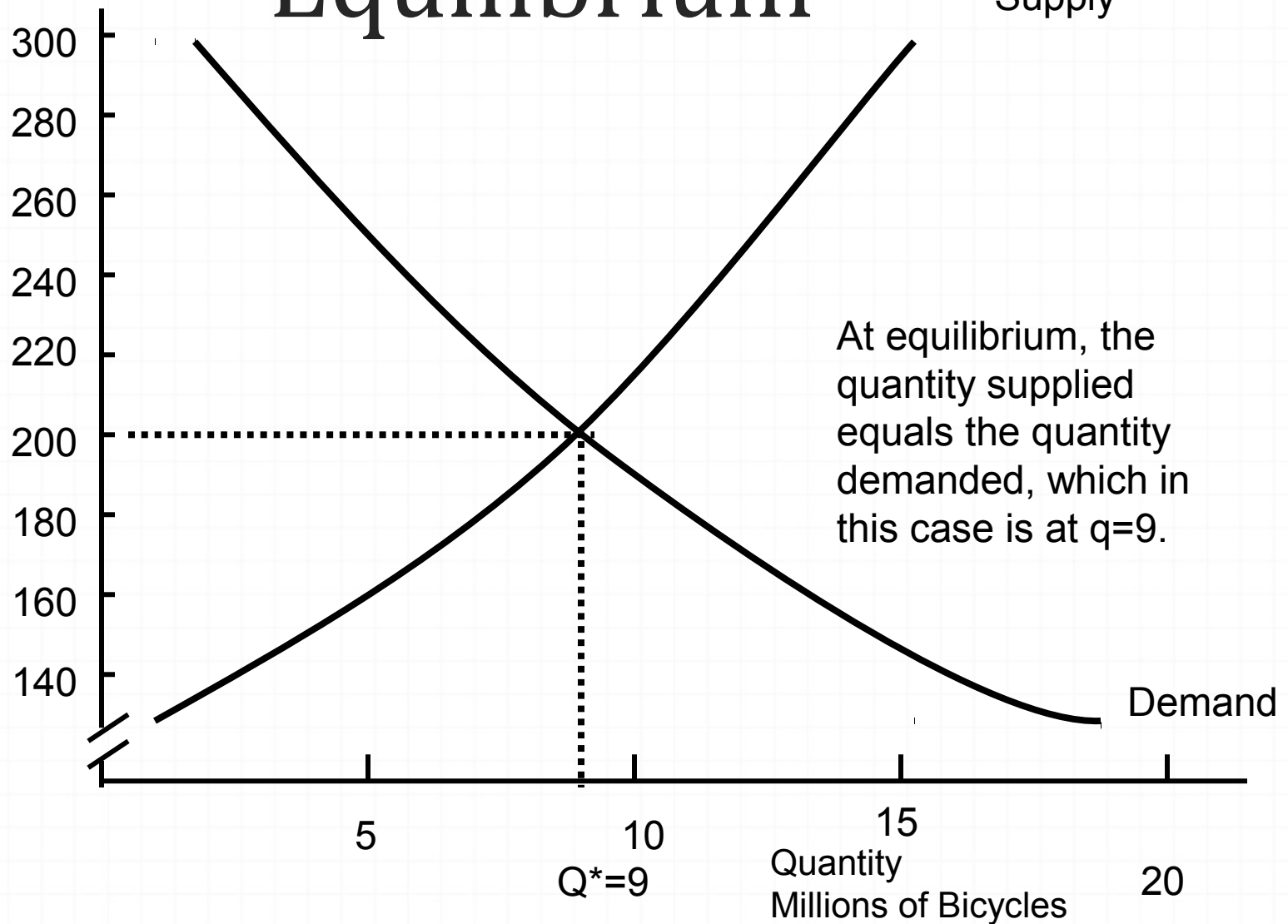
Price	Quantity Demanded	Quantity Supplied	Surplus, Shortage or Equilibrium	Price rises or Falls
140	18	1	Shortage=17	Price rises
160	14	4	Shortage = 10	Price rises
180	11	7	Shortage = 4	Price rises
200	9	9	Equilibrium	No Change
220	7	11	Surplus = 4	Price falls
240	5	13	Surplus = 8	Price falls
260	3	15	Surplus = 12	Price falls
280	2	16	Surplus = 14	Price falls
300	1	17	Surplus = 16	Price falls



Equilibrium

Price
(Dollars per Bicycle)

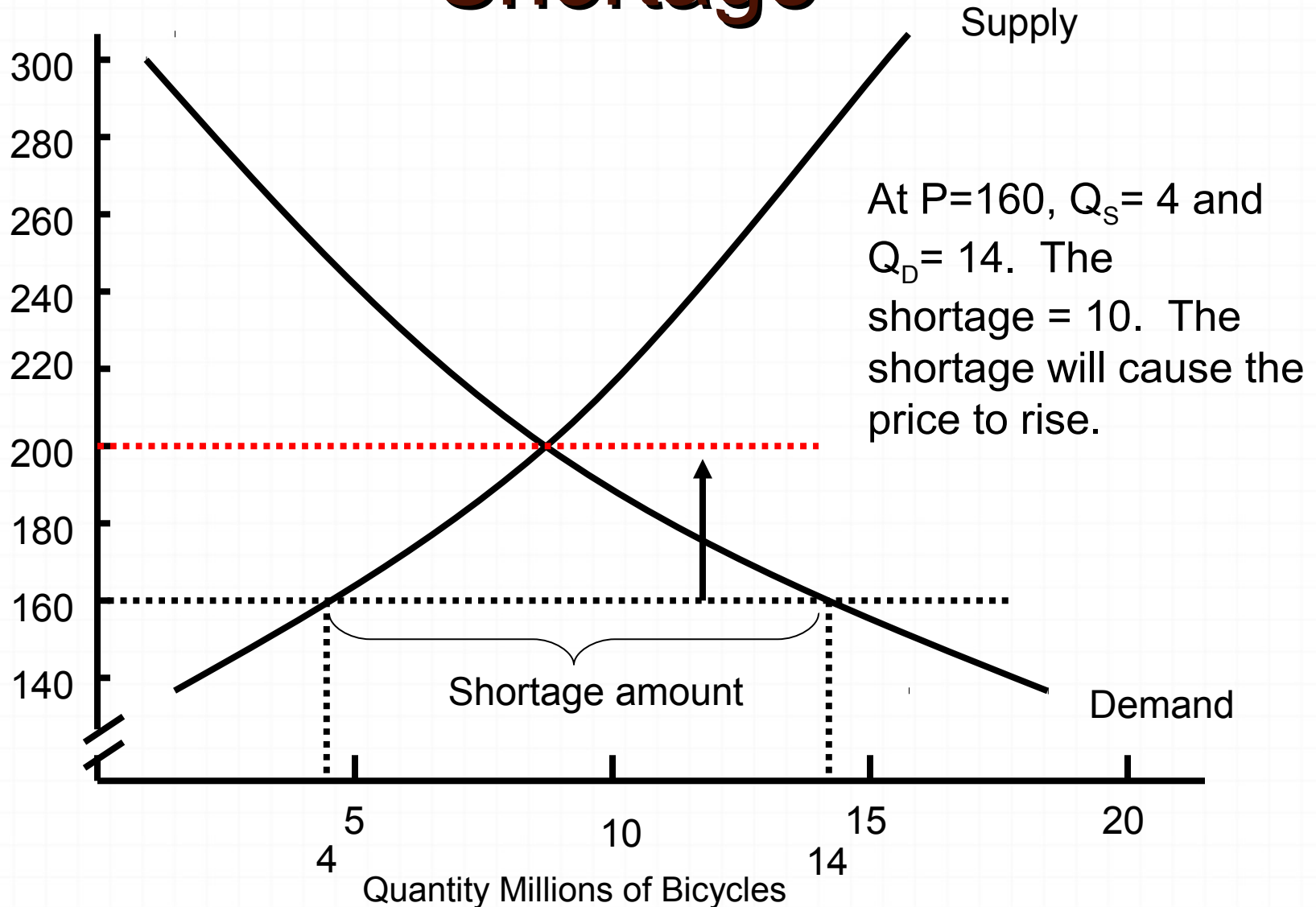
Supply





Price
(Dollars per Bicycle)

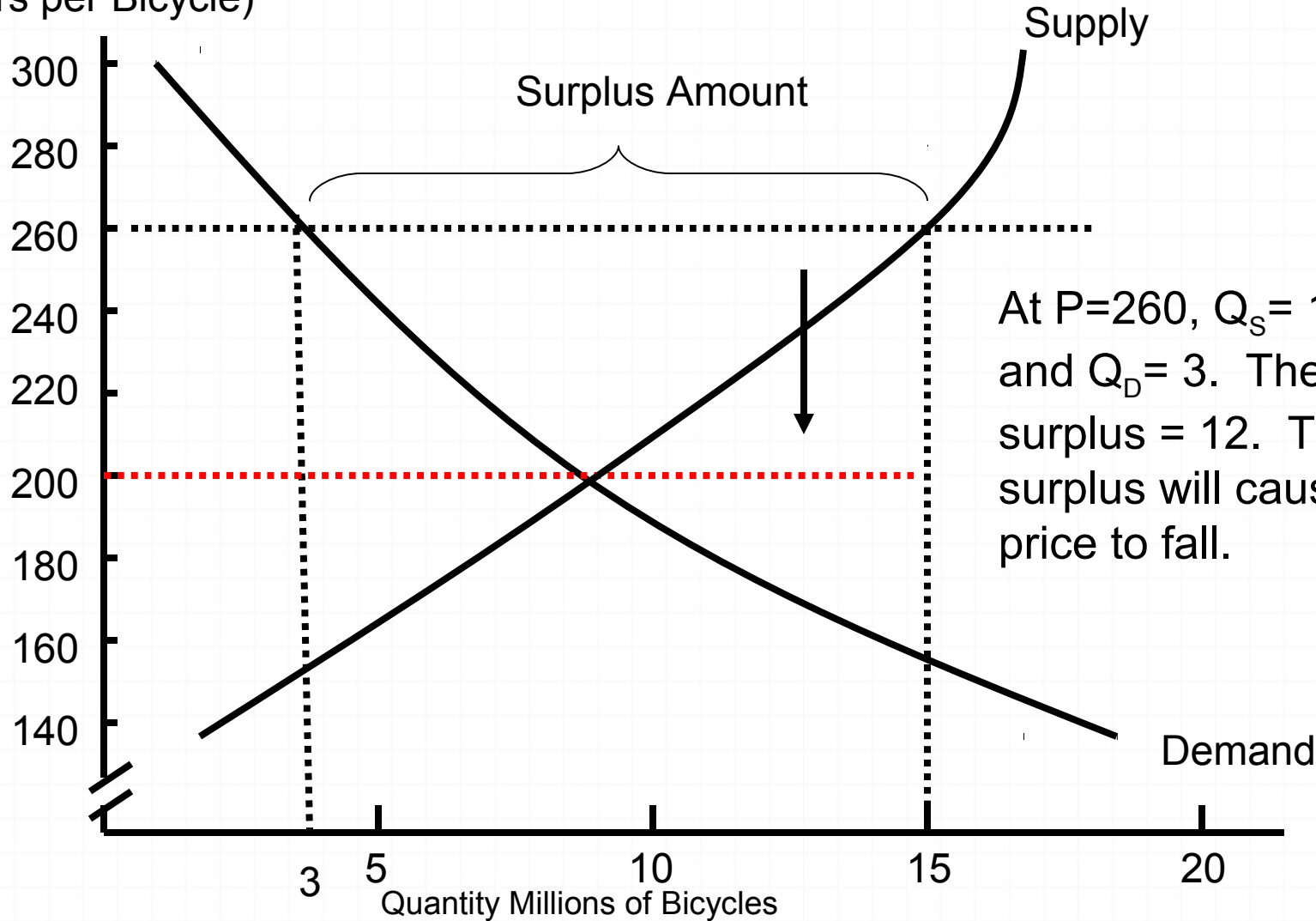
Shortage





Surplus

Price
(Dollars per Bicycle)

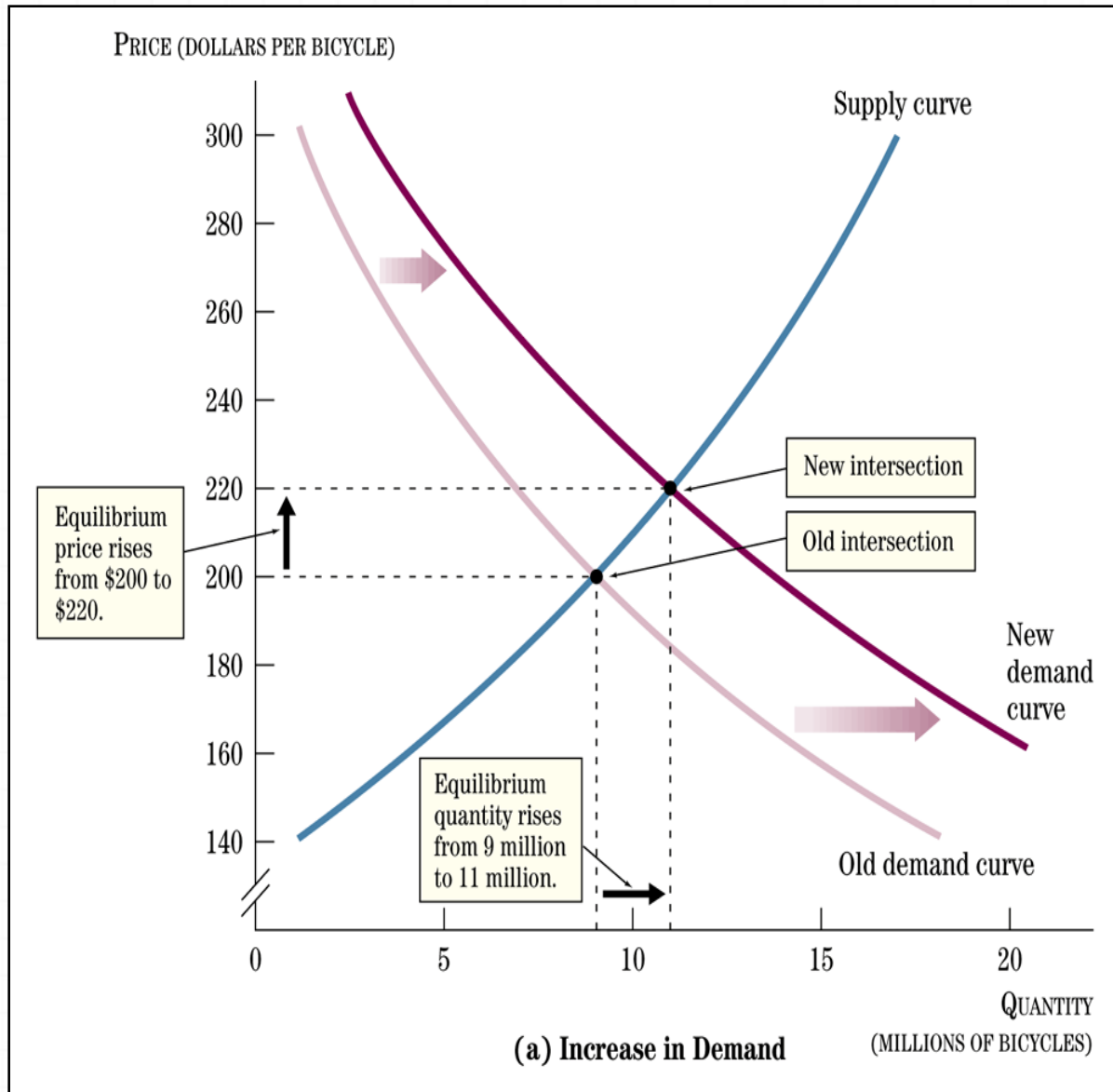


At $P=260$, $Q_S=15$ and $Q_D=3$. The surplus = 12. The surplus will cause the price to fall.

Effects of a Change in Demand and/or Supply

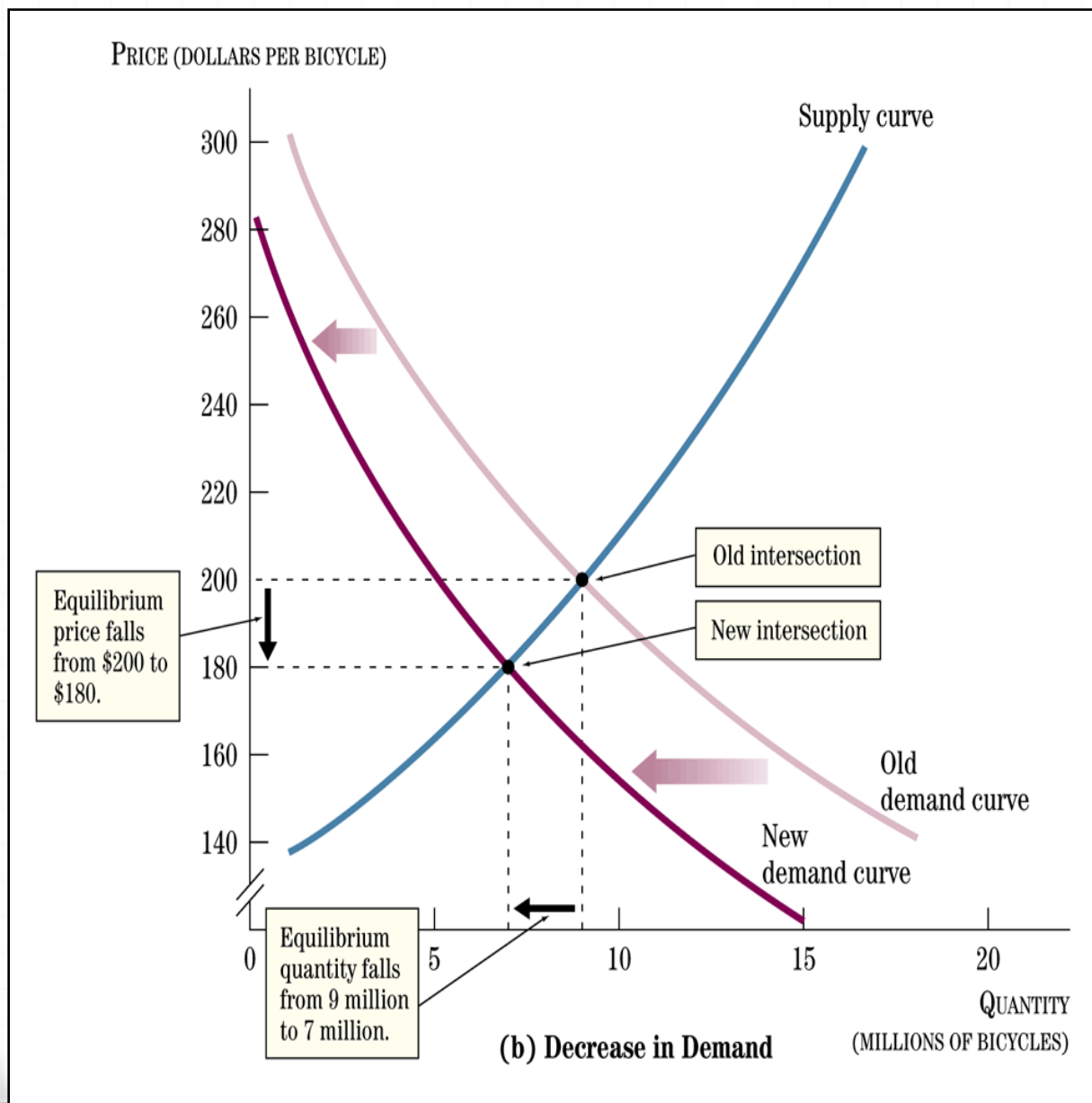
- Changes in either supply or demand (or both) will result in shifts in either the supply curve or the demand curve (or both), respectively.
- Shifts in the supply curve and the demand curve will result in the change in prices and quantities.

CASE: 1a) Effects of an Increase in Demand



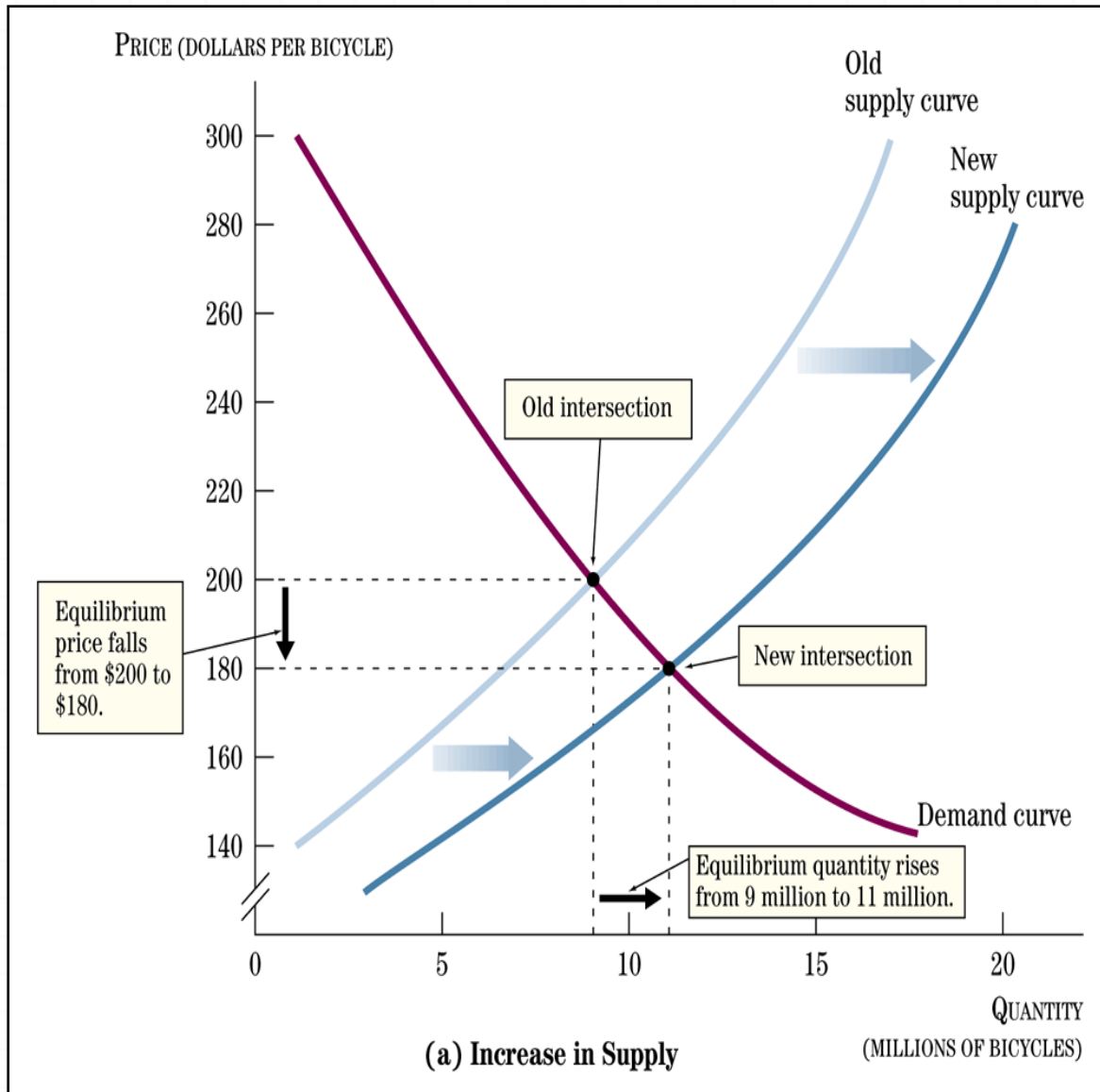
An increase in demand will shift the demand curve to the right, resulting in a higher equilibrium price and quantity

CASE: 1b) Effects of a Decrease in Demand



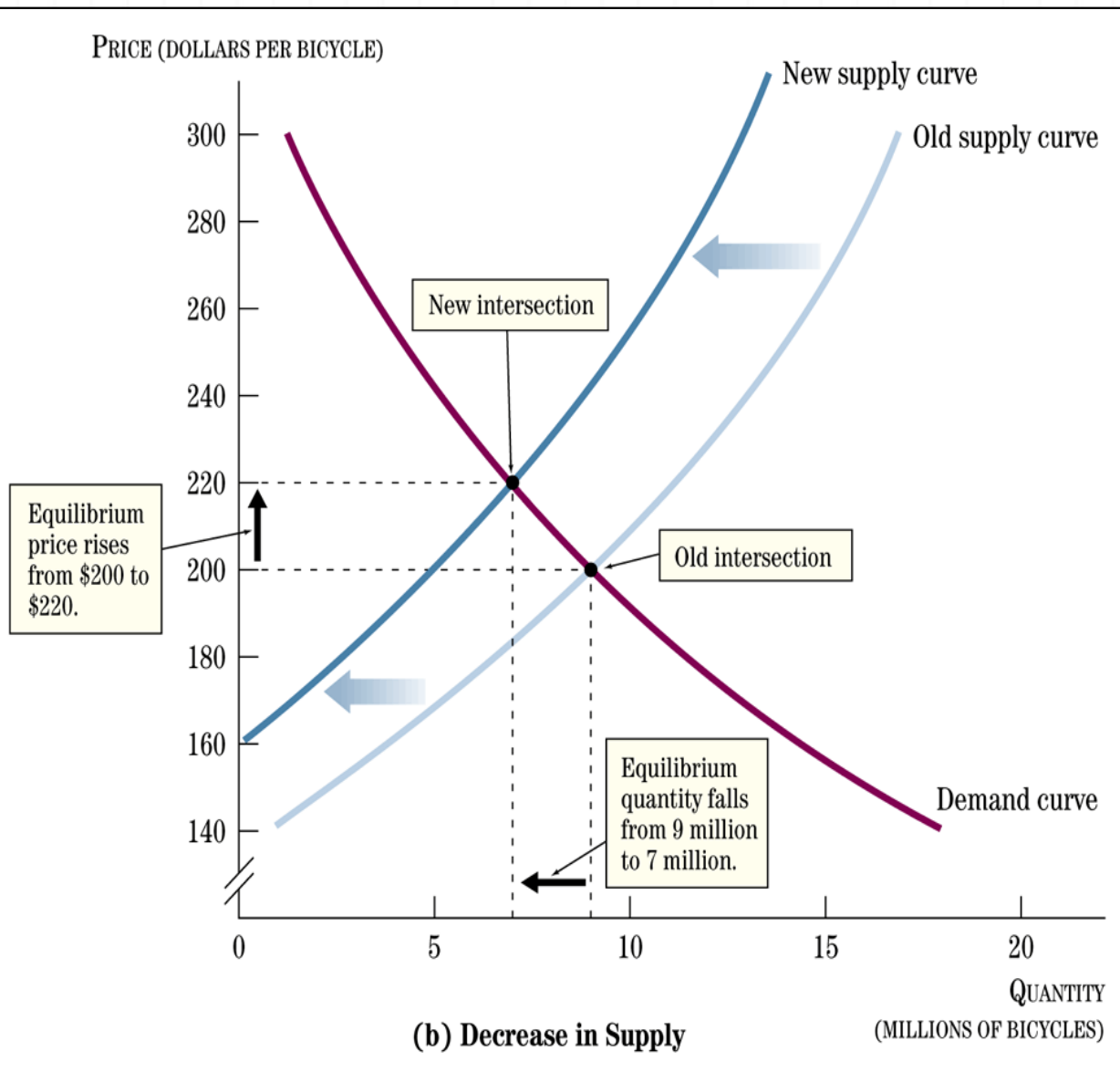
A decrease in demand will shift the demand curve to the left, resulting in a lower equilibrium price and quantity.

CASE: 2a) Effects of an Increase in Supply



An increase in supply will shift the supply curve to the right, resulting in a lower equilibrium price and a higher equilibrium quantity.

CASE: 2b) Effects of a Decrease in Supply

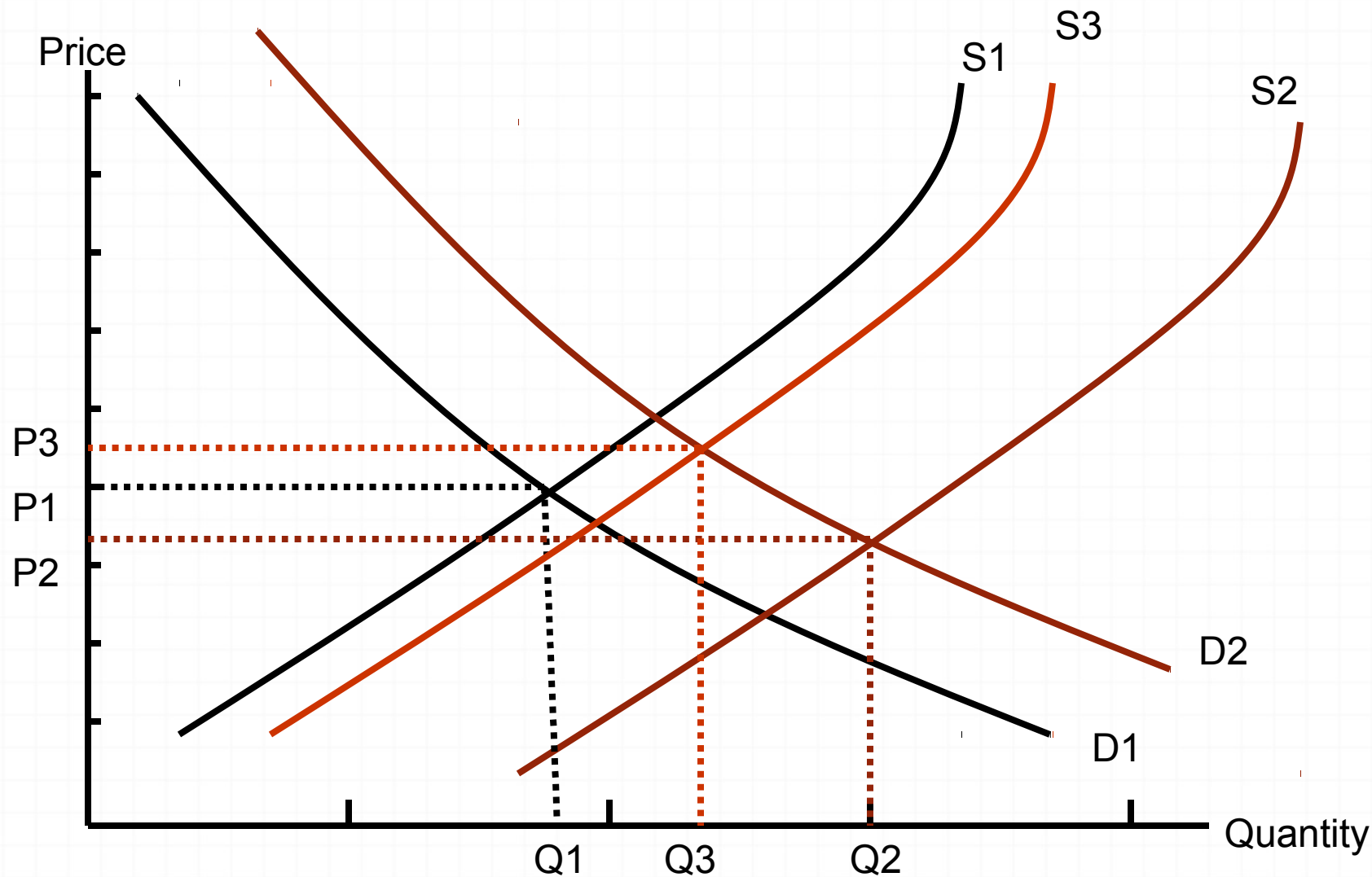


A decrease in supply will shift the supply curve to the left, resulting in a higher equilibrium price and a lower equilibrium quantity.

CASE 3: Both demand and supply change

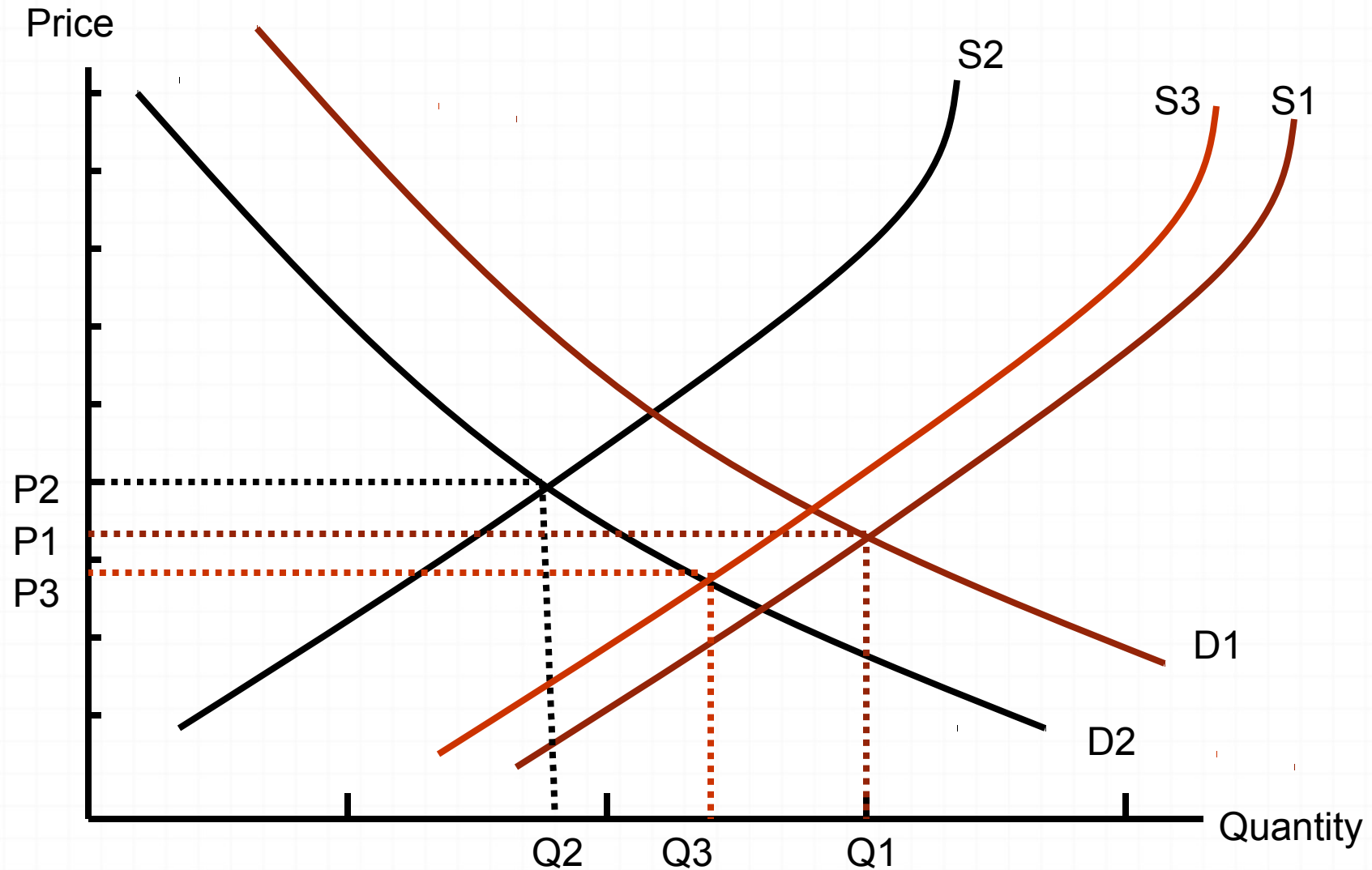
- a) Both demand and supply increase
- b) Both demand and supply decrease
- c) Demand increases and supply decreases
- d) Demand decreases and supply increases

Case: 3a) Both demand and supply increase



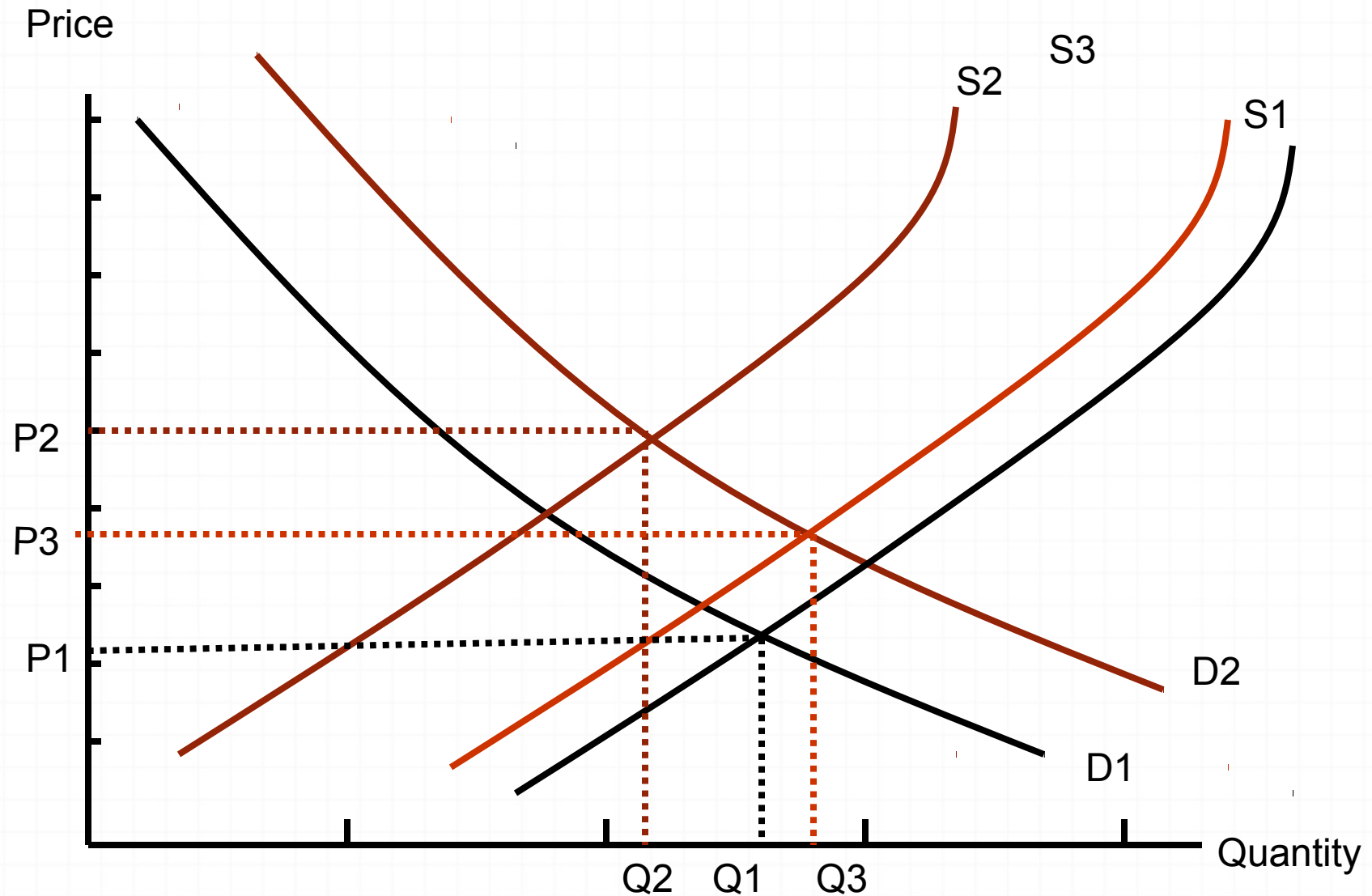
Quantity increases but price indeterminate

Case: 3b) Both demand and supply decrease



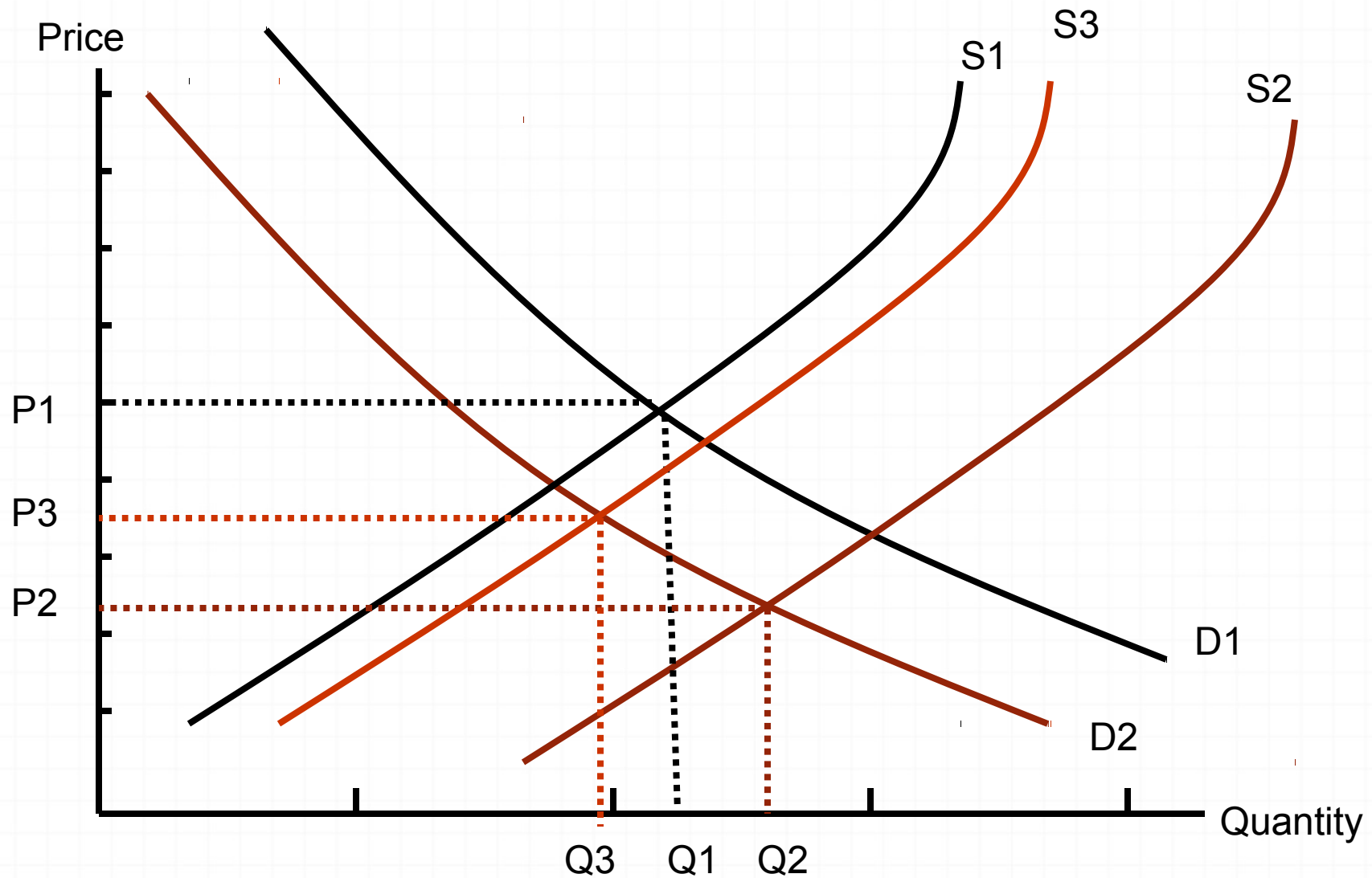
Quantity decreases but price indeterminate

Case 3c) Demand increases and supply decreases



Price increases but quantity indeterminate

Case 3 d) Demand decreases and supply increases



Price decreases but quantity indeterminate

Example ??

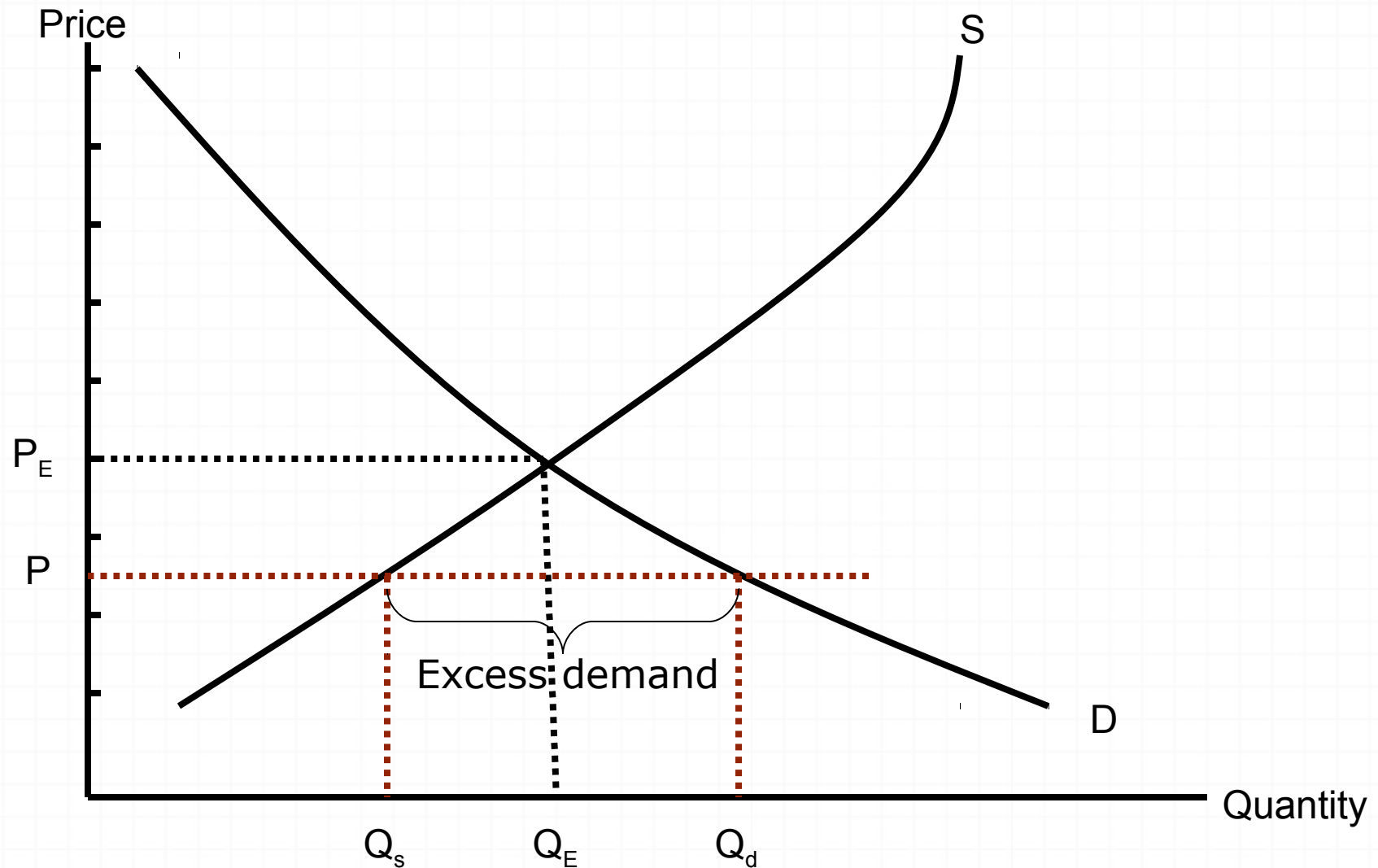
Class work:

Analyse the market for bread if price of butter increases substantially and price of wheat also increases



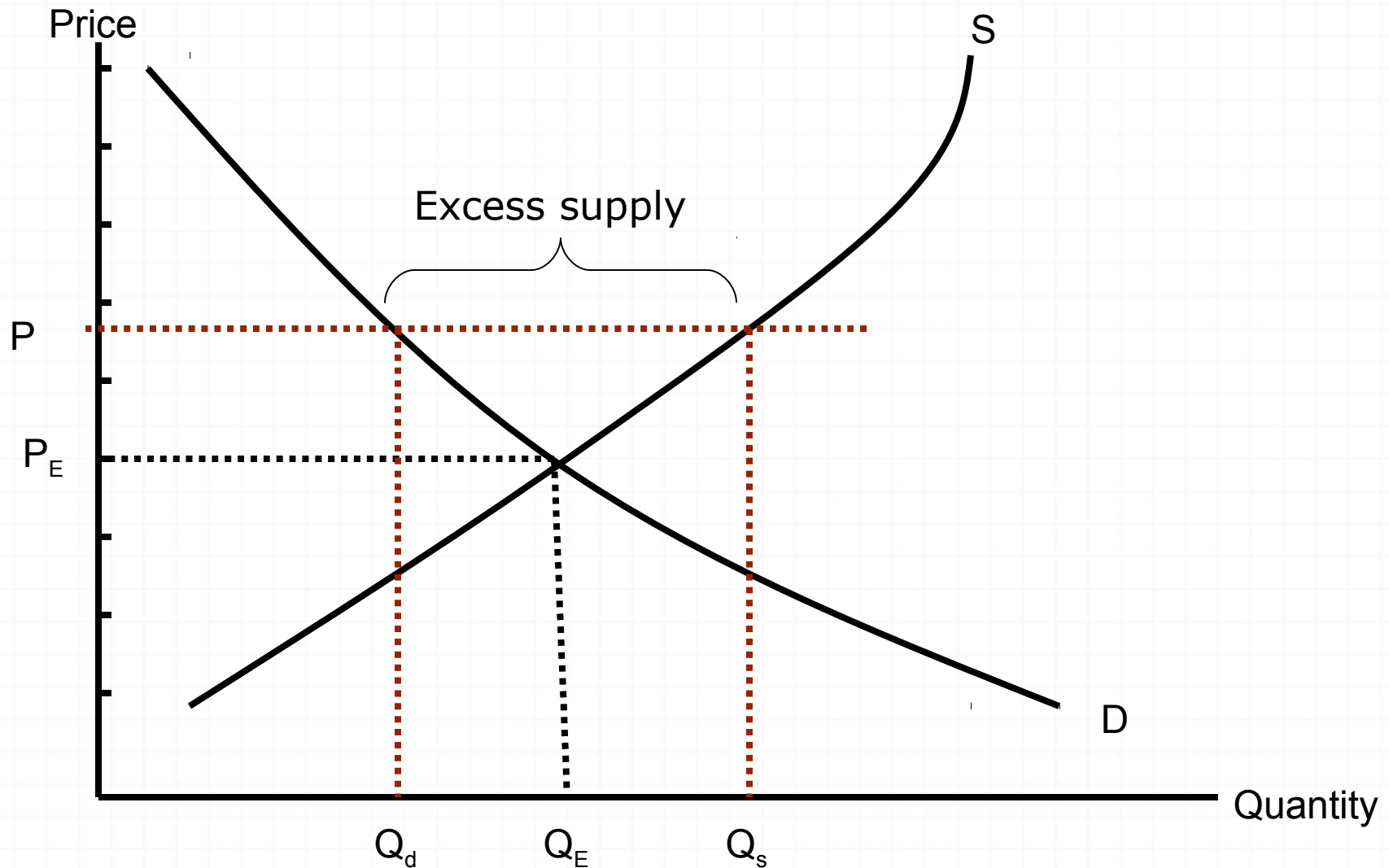
Price ceiling

No bidding up of price allowed



Price Floor (price support)

No price reduction is allowed



Recap

- Demand, demand curve and the law of demand
- Supply, supply curve and the law of supply
- Equilibrium
- Shift in supply vs. movement along the supply curve
- Shift in demand vs. movement along the demand curve
- Surpluses and shortages