# Consumer Theory

## EC 201: Principles of Microeconomics

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# Prologue

# Demand and Supply

## Foundations

If goods and time were not scarce, then we would never have to choose among competing alternatives.

- **Consumer theory** characterizes consumers' choices in a systematic way.
- **Producer theory** characterizes producers' and sellers' choices in a systematic way.

# Demand

**Q:** What constrains our consumption of goods?

**A:** Lots of things!

- Our income or wealth.
- Price of the good.
- Legality of consuming the good.
- Cost of maintaining the good.
- Our health.
- Our finite existence.
- *etc.*

# Demand

**Q:** If we could measure those constraints for a group of individuals, could we predict the choices of those individuals?

- **A:** No. To predict behavior, we also need to consider individual tastes or preferences.

**Q:** Can we measure tastes or preferences?

- **A:** Not typically.

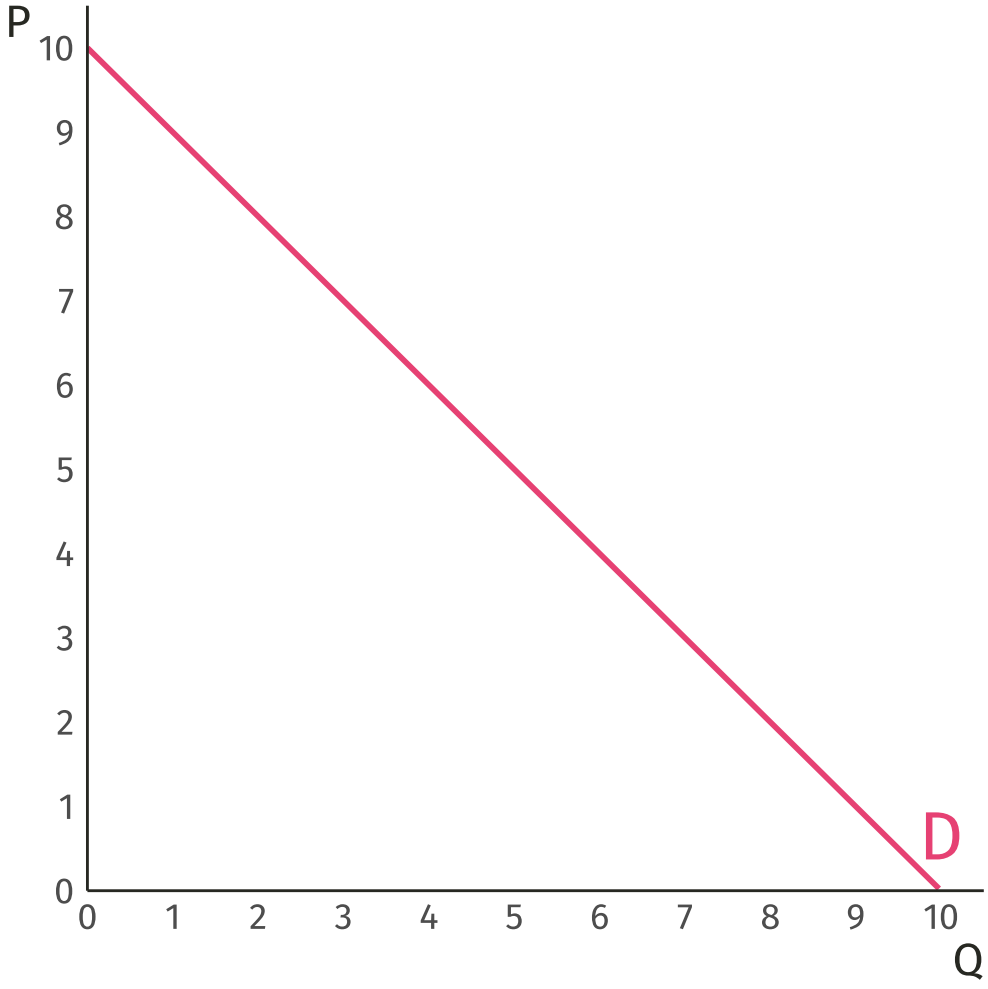
# Demand

Our inability to measure preferences requires us to make assumptions.

- However preferences are defined, they do not change during the course of the investigation.
- Preferences are such that individuals strive to reduce the adverse consequences of the constraints they face.

Given those assumptions, we can make refutable hypotheses about how individuals respond to *changes* in the constraints they face.

# Demand

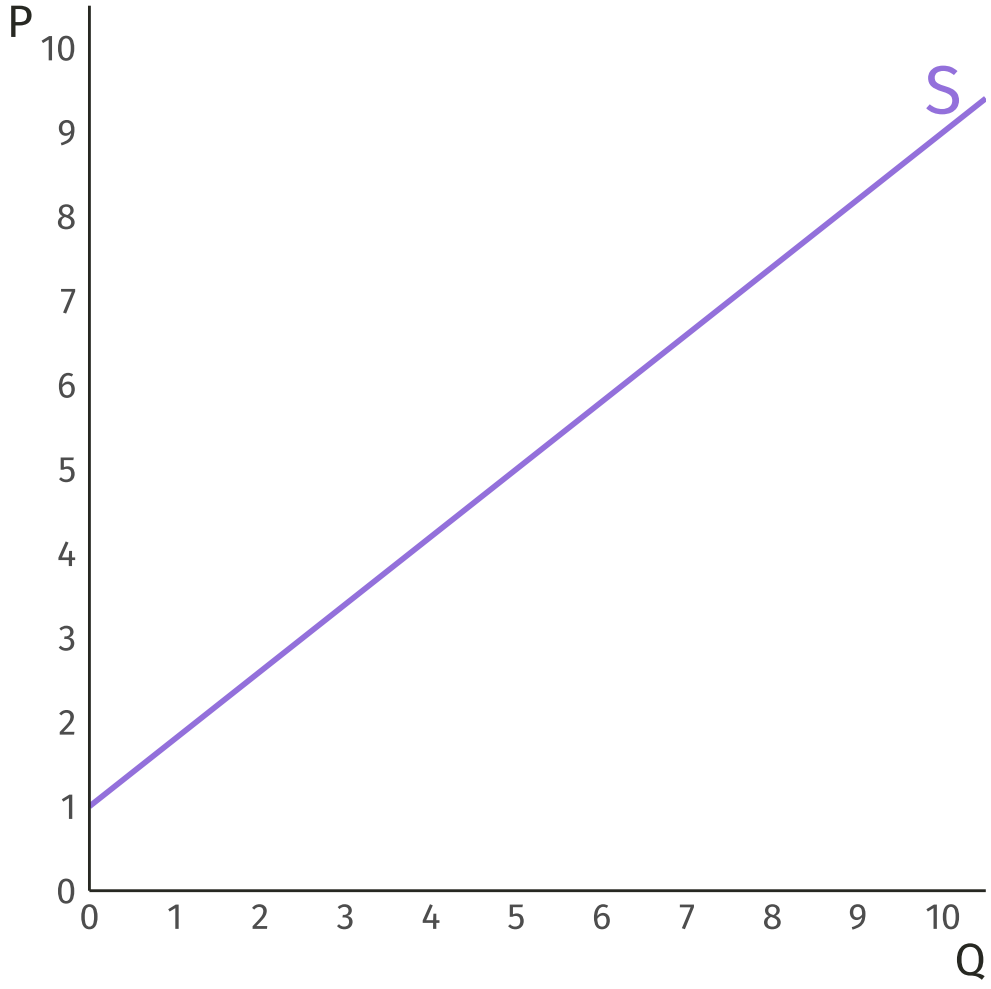



## Demand Curve

Shows the amount of a good consumers are willing and able to purchase at specified prices.

Downward sloping: P increases $\rightarrow$ $Q_D$ decreases.

# Supply

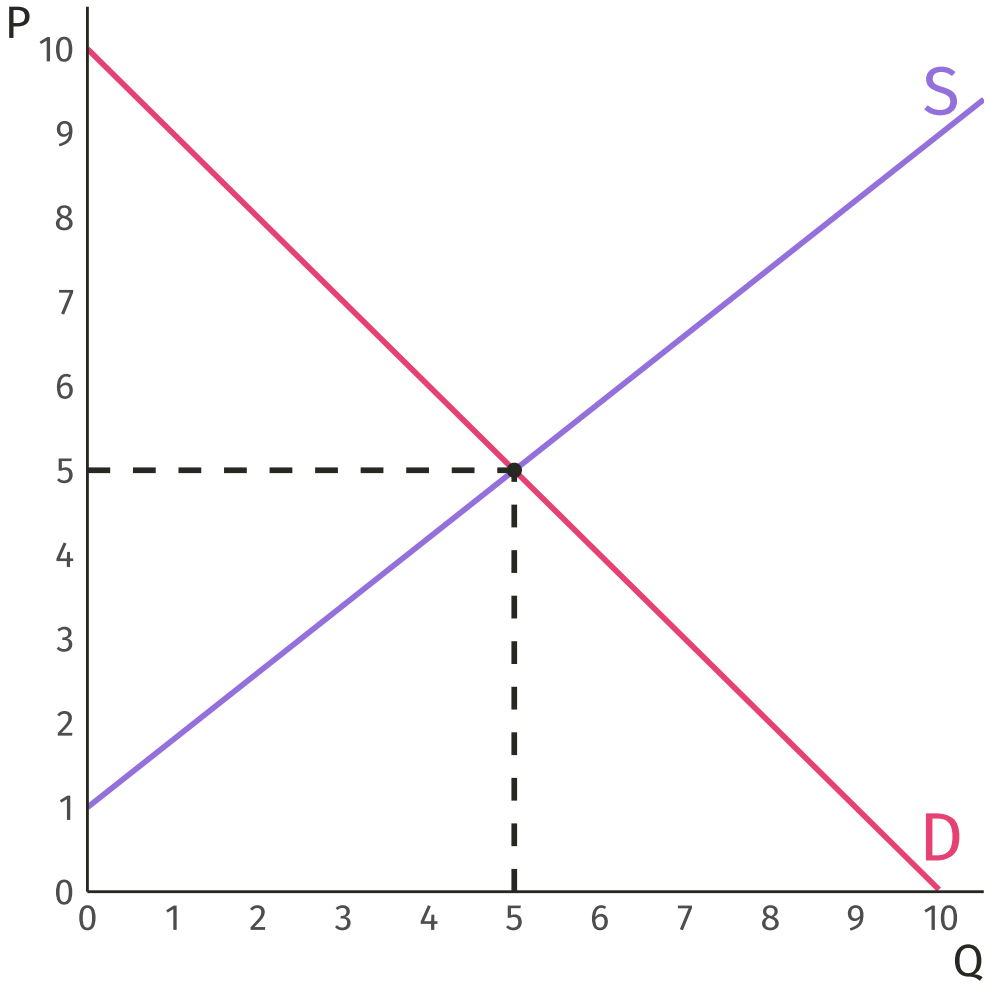



## Supply Curve

Shows the amount of a good producers or sellers are willing and able to sell at specified prices.

Upward sloping: P increases $\rightarrow$ $Q_S$ increases.

# Equilibrium

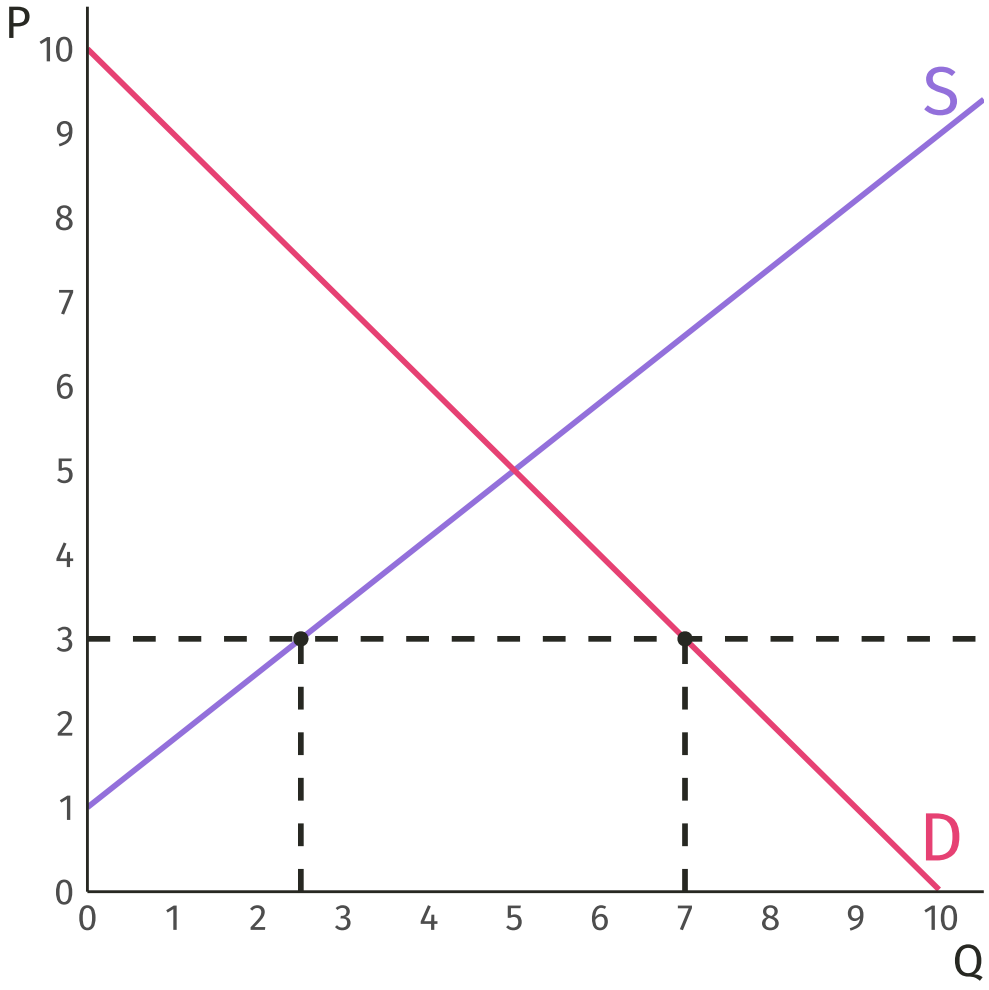



## Market Clearing

Quantity demanded equals quantity supplied: $Q_D = Q_S$.

No tendency for prices to change.

# Disequilibrium

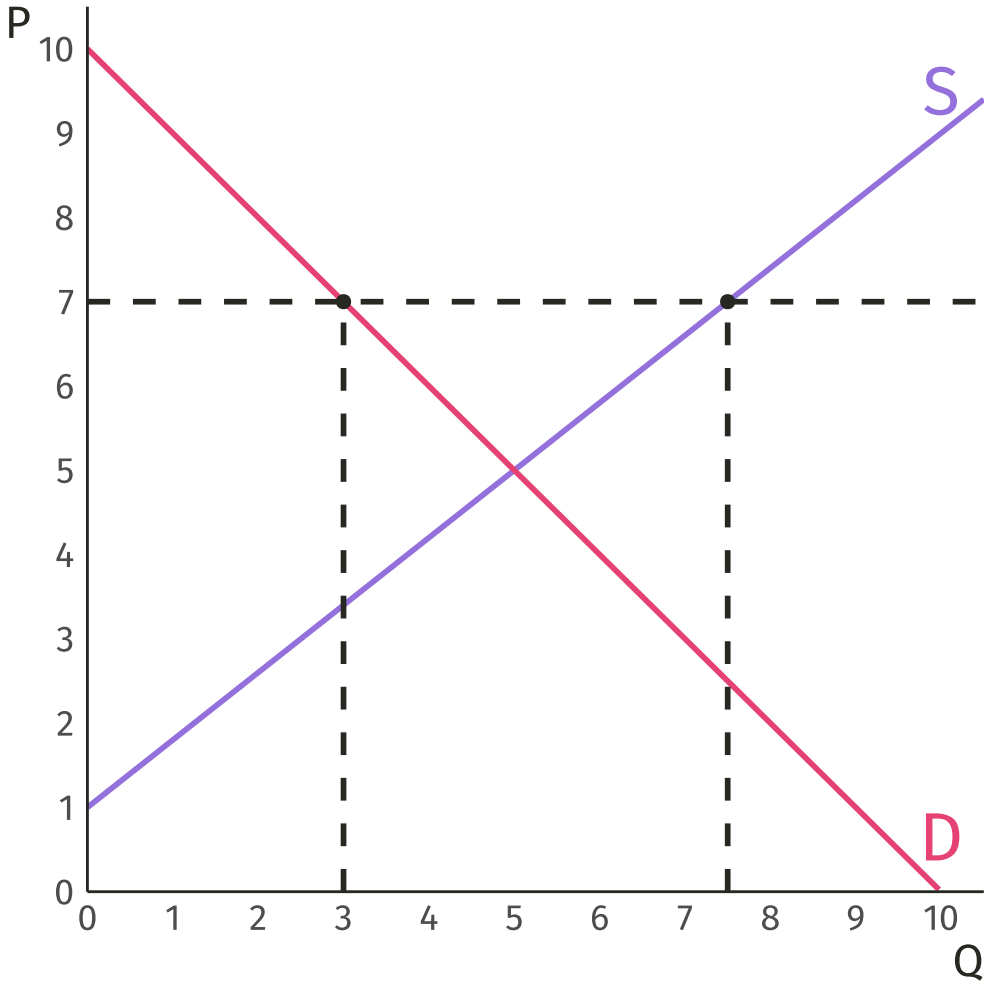



## Shortage

Quantity demanded exceeds quantity supplied: $Q_D > Q_S$.

Prices tend to rise.

# Disequilibrium




## Surplus

Quantity supplied exceeds quantity demanded: $Q_S > Q_D$.

Prices tend to fall.

# Consumer Choice

# Individual Preferences

Economists seek to understand the combined actions of individuals.

However, the forthcoming behavioral assumptions concern individual preferences.

- Why? Because describing the preferences of a group is extraordinarily difficult.

# Group Preferences

**Scenario:** Three officials in the current administration have preferences over three ways to respond to recent US-Iran tensions.

- **Official 1:** *bomb them* > *impose sanctions* > *do nothing*
- **Official 2:** *impose sanctions* > *do nothing* > *bomb them*
- **Official 3:** *do nothing* > *bomb them* > *impose sanctions*

**Q:** How do we define preferences for this group?

- What does "the group" prefer?

**A:** 🤷

- For any course of action, a majority would rather do something else!

# Behavioral Assumptions

Four assumptions buy us the ability to model consumer behavior:

1. People have preferences.
2. People prefer more over less.
3. People are willing to substitute.
4. The marginal value of a good decreases as one consumes more of it.

**Note:** These assumptions may rule out some realistic behaviors.

# Valuation

The value of a good = what you are willing to give up to obtain it.

- If you give up $30,000-worth of other goods to buy a car, then you value the car at a minimum of $30,000.

We will maintain that an object's value is limited to what people are willing to pay for the right to control the object.

# Total Value

## Definition 1

> The maximum amount of money a consumer is willing to pay to acquire a specific quantity of a good.

*Example:* The highest price you would pay for 3 pounds of Stumptown coffee.

## Definition 2

> The minimum amount of money a consumer is willing to accept to give up a specific quantity of a good.

*Example:* The lowest amount of money for which you would willingly part with 3 pounds of Stumptown coffee.

# Marginal Value

## Definition 1

> The maximum amount of money a consumer is willing to pay to acquire one more unit of a good.

*Example:* The highest price you would pay for a cup of Stumptown coffee.

## Definition 2

> The minimum amount of money a consumer is willing to accept to give up one more unit of a good.

*Example:* The lowest amount of money for which you would willingly part with a cup of Stumptown coffee.

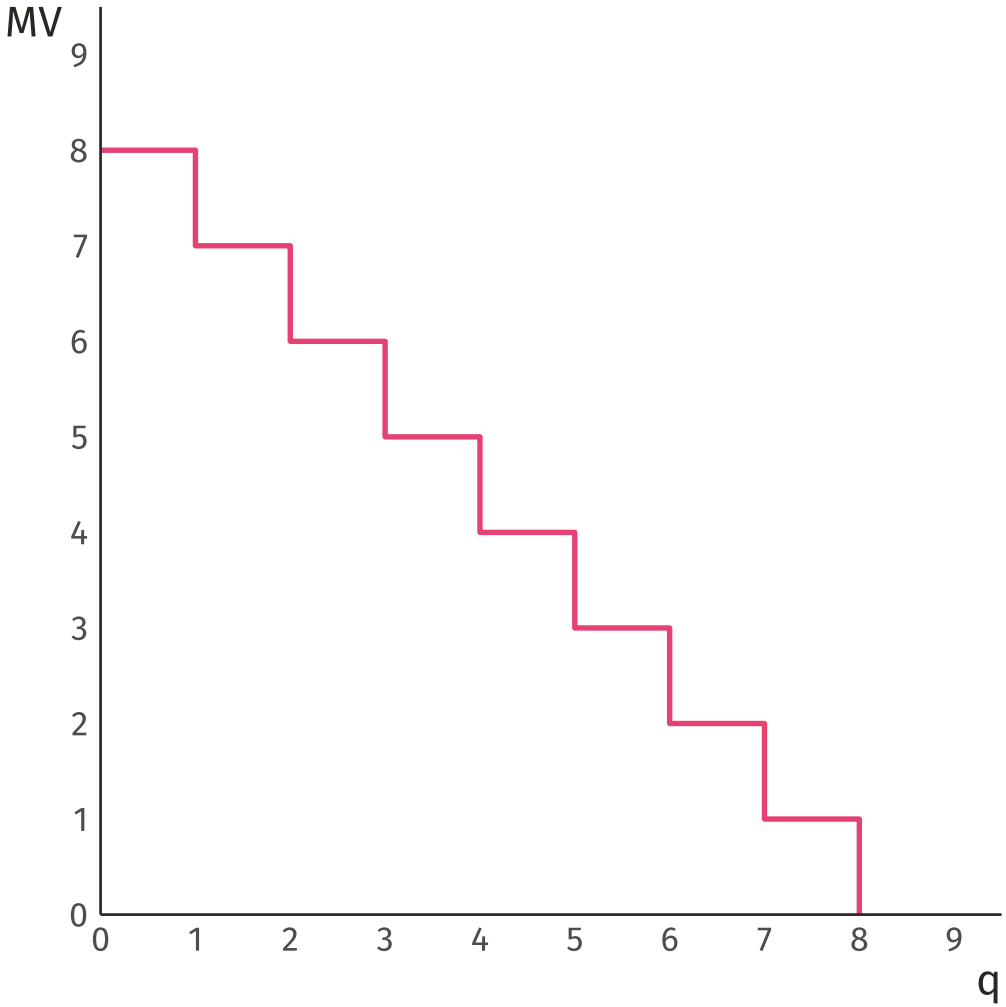
**Q:** After running a marathon, how might you value the first glass of water?

- How might you value the second glass relative to the first?

**Assumption 4:** Diminishing marginal value.

- *All else being equal*, the marginal value of a good decreases as you consume more of it.
- Applies to all goods and all individuals.

# Diminishing Marginal Value




## Marginal Values Schedule

MV = Marginal value.

q = Quantity of a good.

q increases → MV decreases.

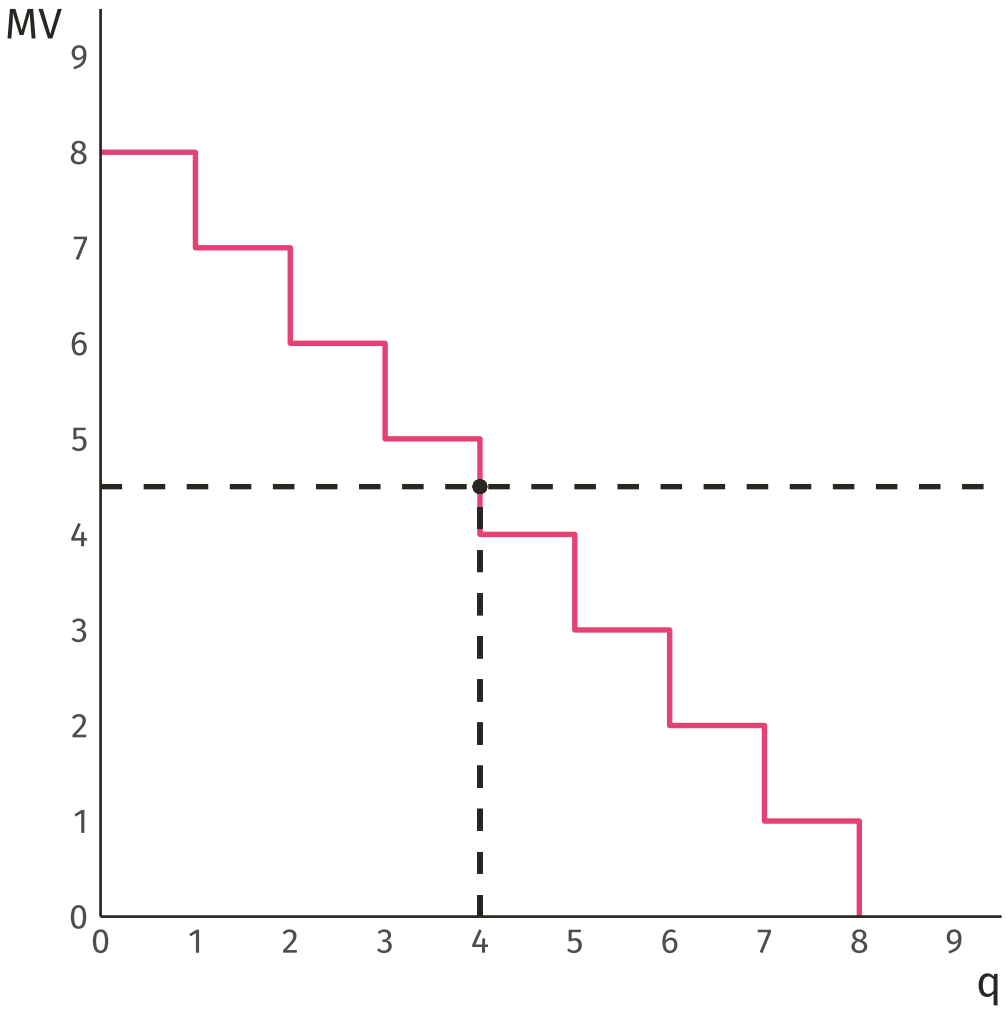
# Optimal Purchase

**Q:** How does a consumer decide how much of a good to purchase?

**A:** The consumer makes a decision *at the margin*.

- Purchase an additional unit if the marginal value of the additional unit exceeds the price.
- Do not purchase an additional unit if the price of the additional unit exceeds the marginal value.
- Keep purchasing until marginal value equals the price.

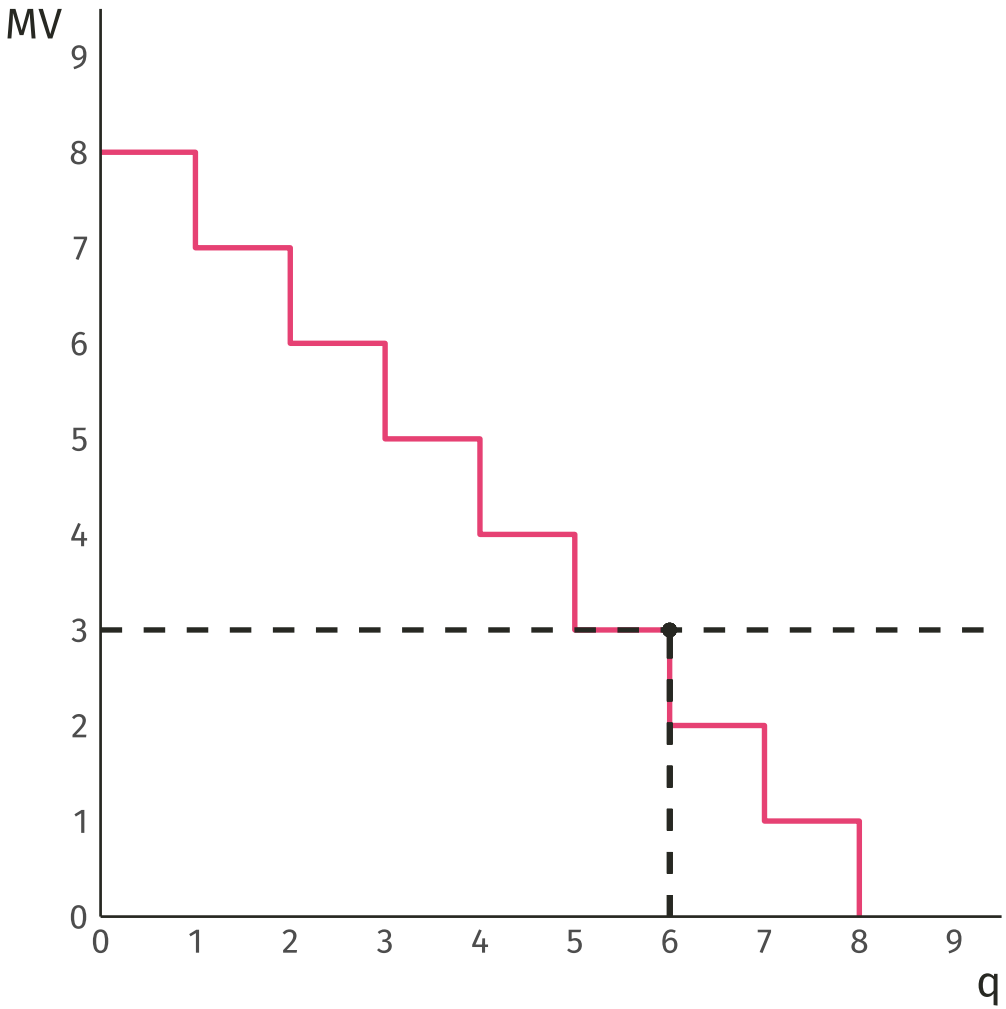
# Optimal Purchase




**Q:** How many units does the consumer purchase if the price is $4.50?

> **A:** 4 units.

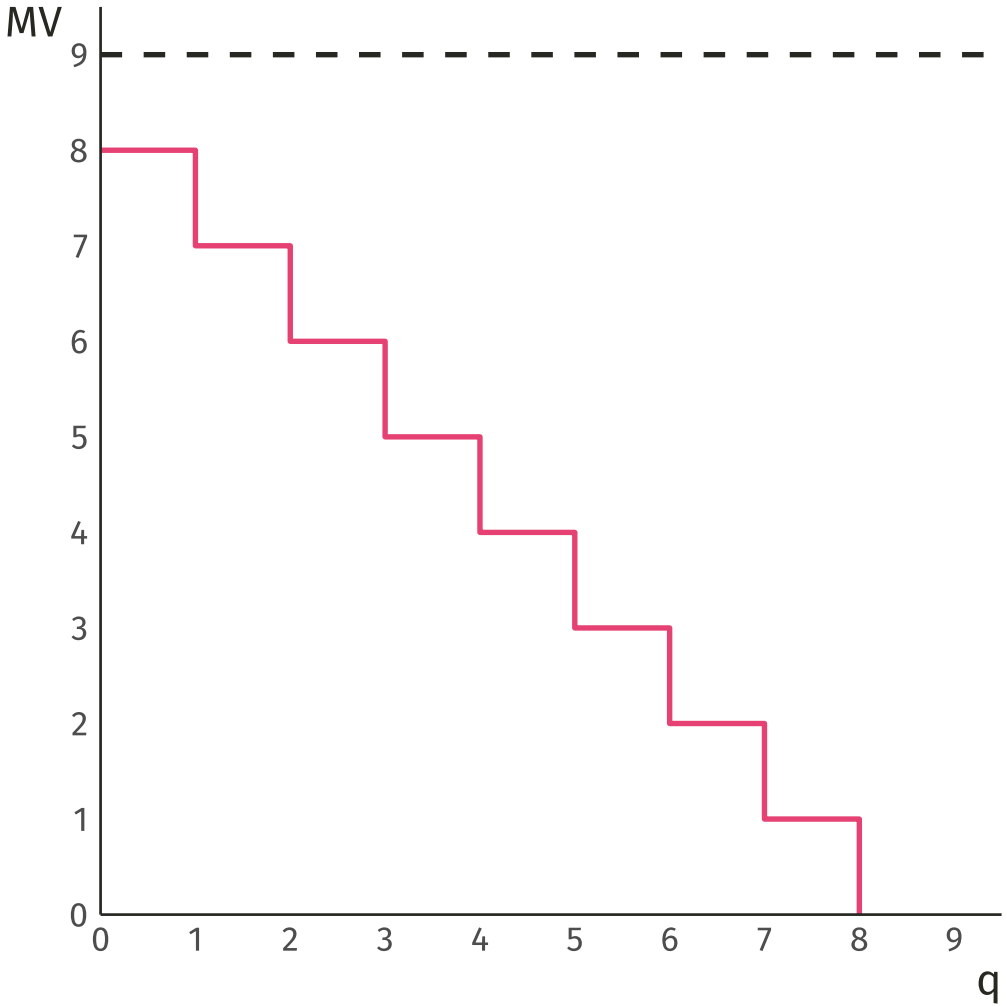
# Optimal Purchase




**Q:** How many units does the consumer purchase if the price is $3.00?

> **A:** 6 units.

# Optimal Purchase




**Q:** How many units does the consumer purchase if the price is $9.00?

> **A:** 0 units.

# Optimal Purchase

## Rule

> A consumer selects her optimal purchase **q* s.t. MV = P**.

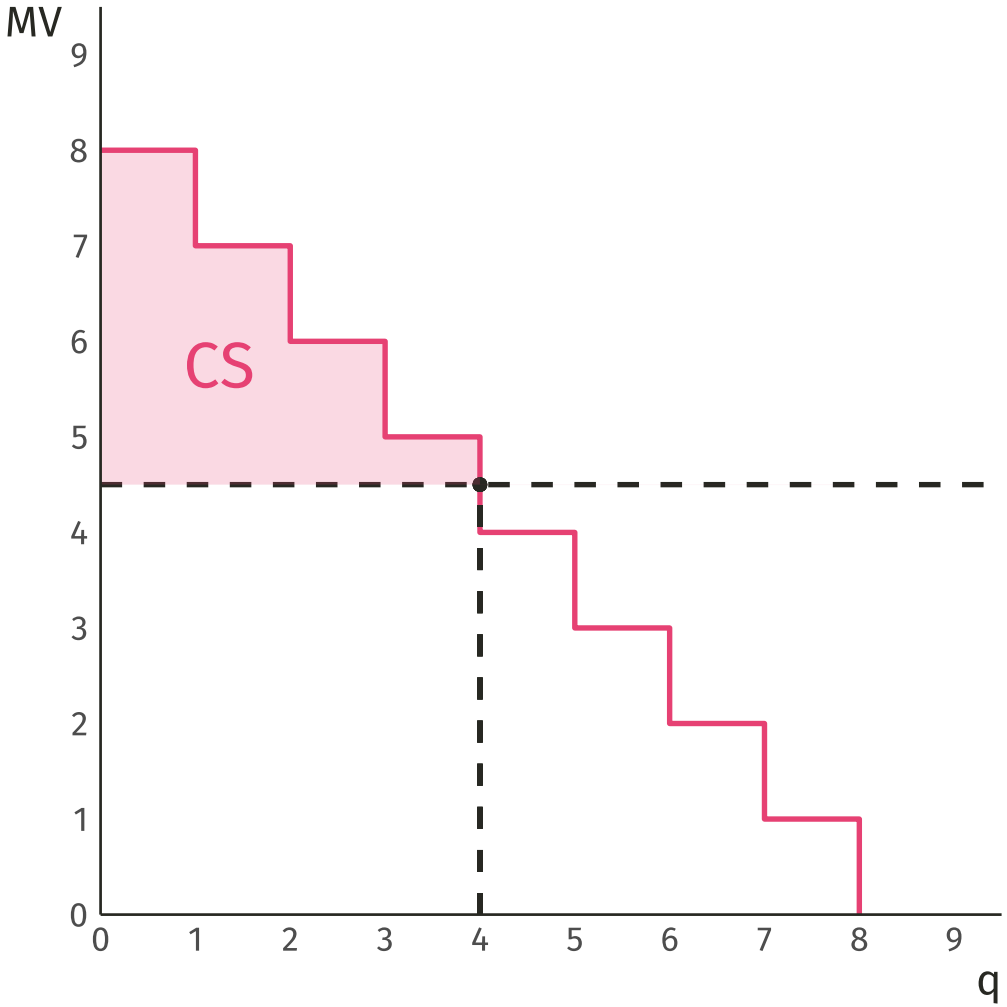
If the consumer

- Stops purchasing where $MV > P \implies$ she bought **too little**.
- Stops purchasing where $MV < P \implies$ she bought **too much**.
- Makes a purchase where $MV = P \implies$ she made the **optimal purchase**.

Do you follow such a rule?

- What matters is not that you do, but that you **behave as though you do.**

# Living Your Best Life

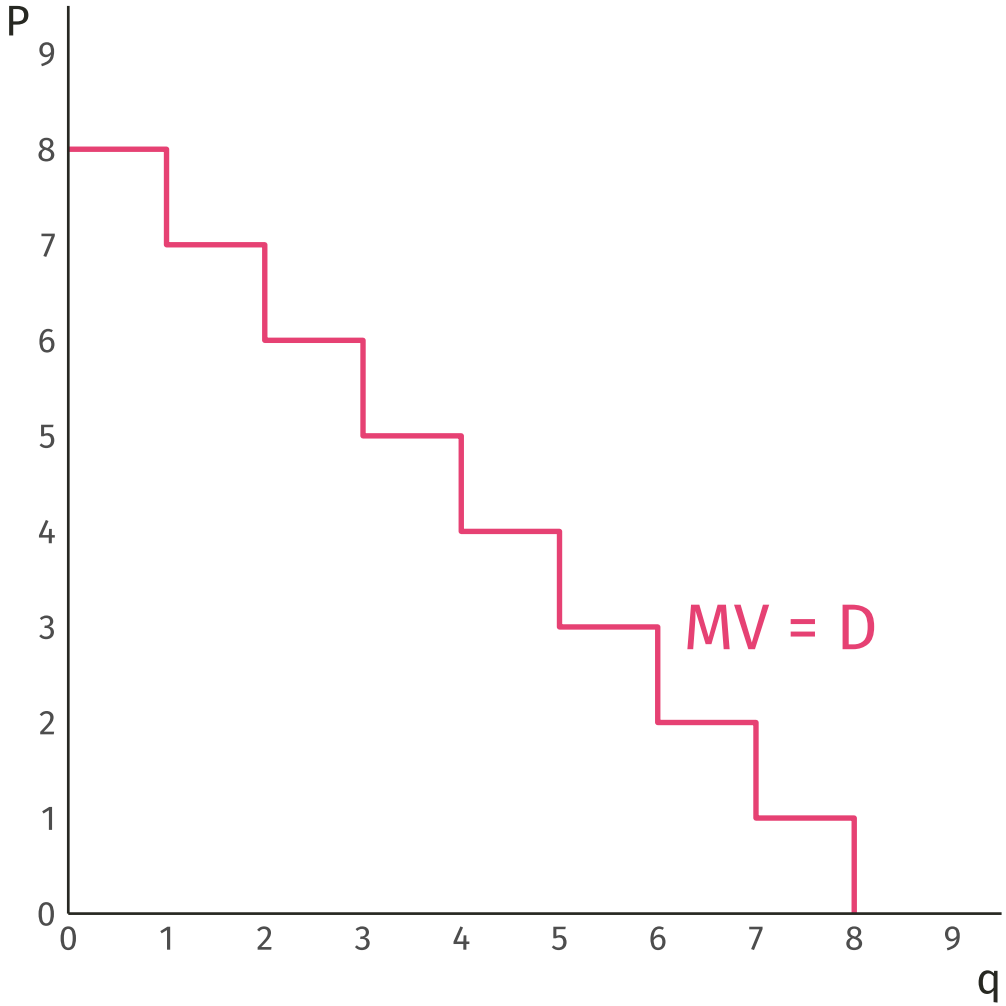



## Consumer Surplus

The total value of the consumer's purchase in excess of the cost of the purchase.

Measures the gains to the consumer from the transaction.

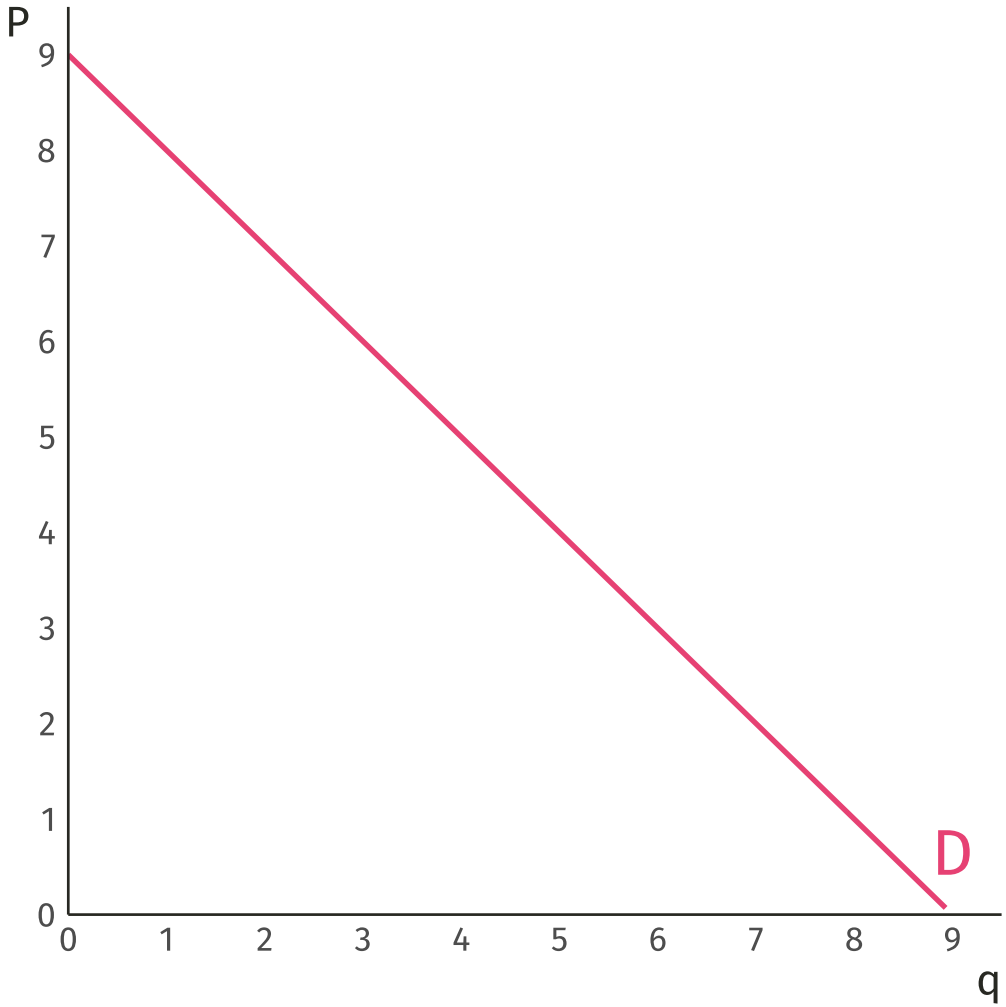
# Individual Demand




Marginal values schedule $\Longleftrightarrow$ demand curve!

Both show how the quantity demanded changes as the price changes, *holding all other determinants of demand constant.*

# Individual Demand




Due to diminishing marginal value, we depict the relationship between P and $q_D$ as downward sloping.

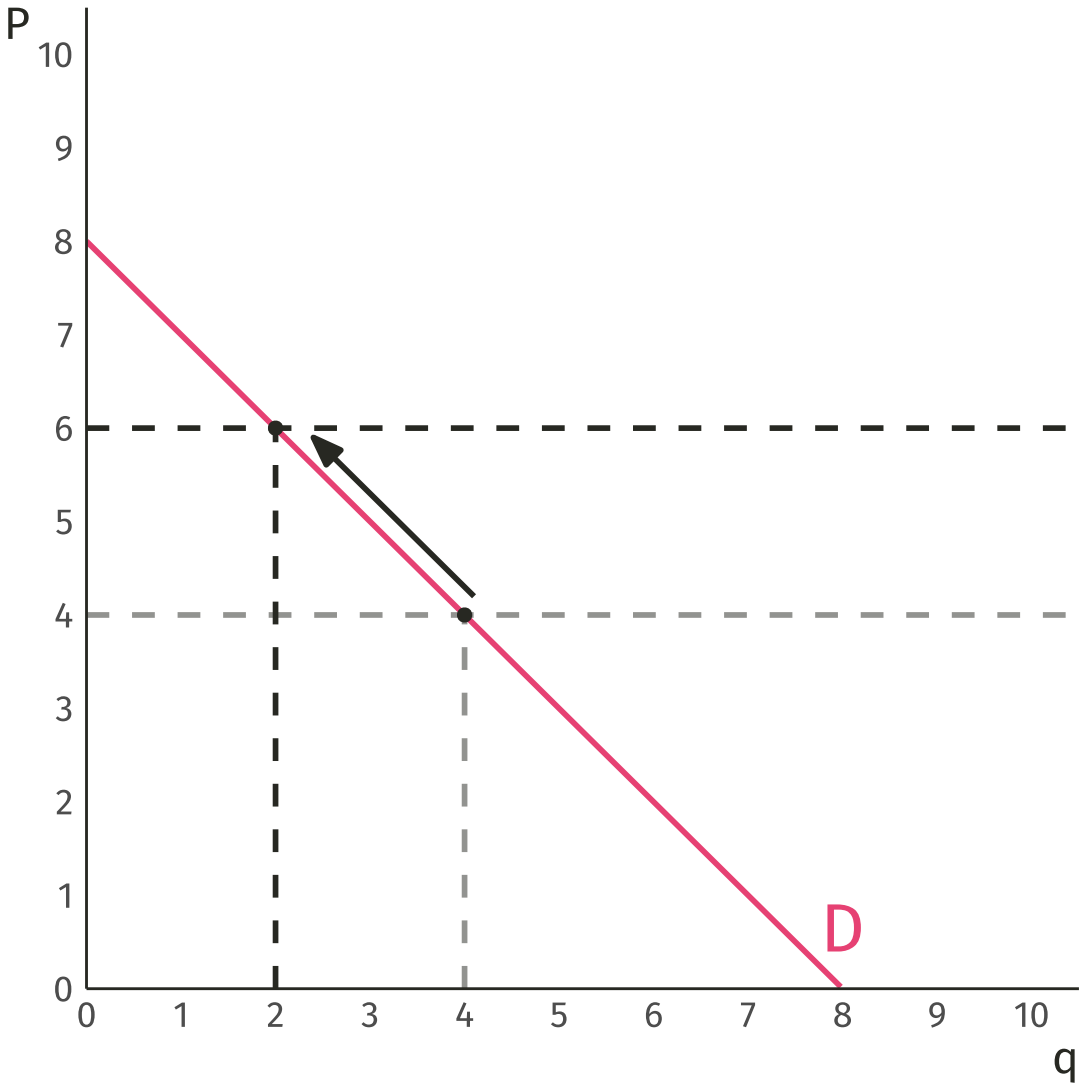
# The "Law" of Demand

## Definition

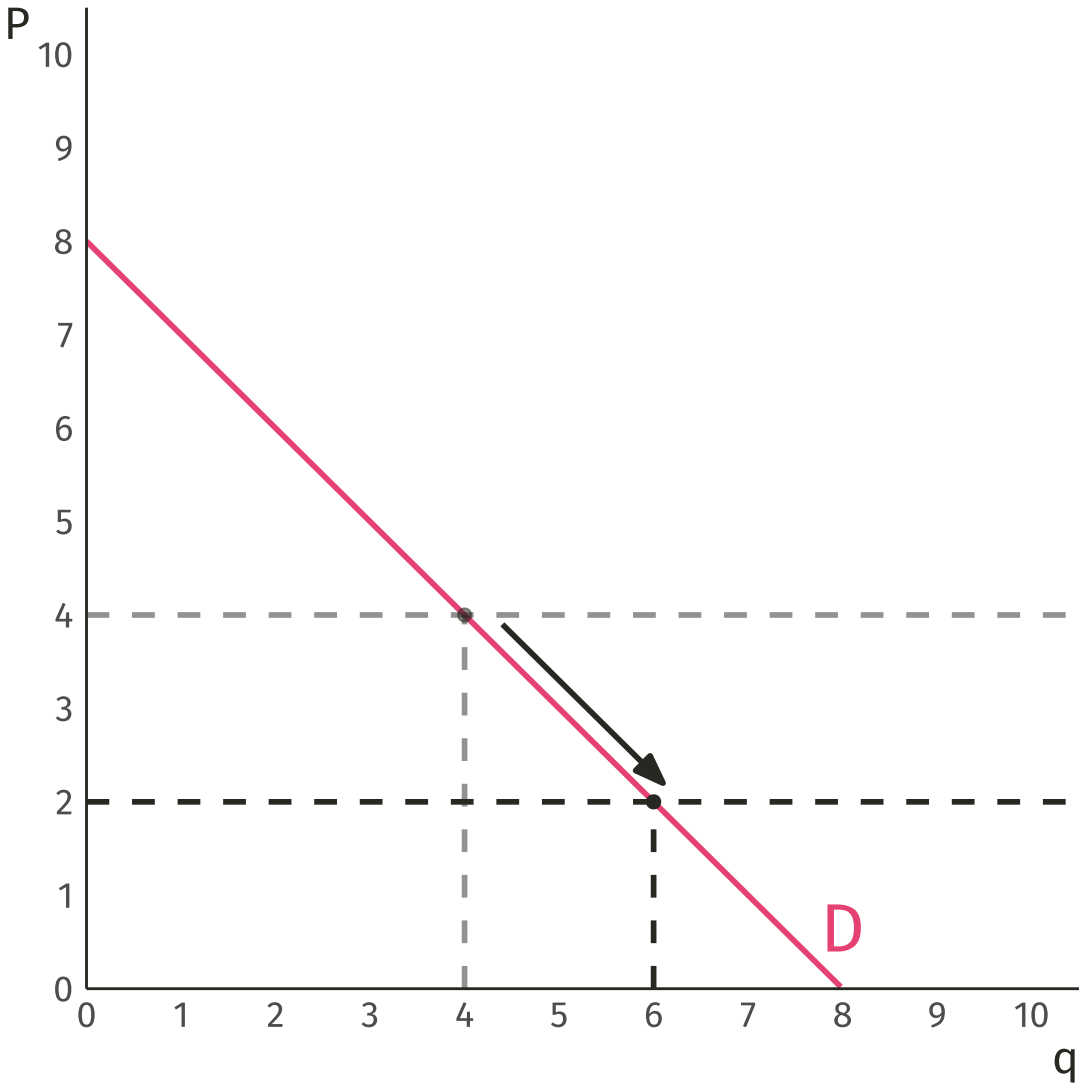
> *All else being equal*, the quantity demanded of a good falls as its price rises.

*All else being equal* = income, prices of other goods, tastes, quality, age, season, advertising, and other determinants of demand **do not change!**

## Increase in Price → Decrease in $q_D$



## Decrease in Price → Increase in $q_D$



# An Important Distinction

## Demand

> The schedule of quantities of a good that a consumer will buy per unit of time at various prices, everything else held constant.

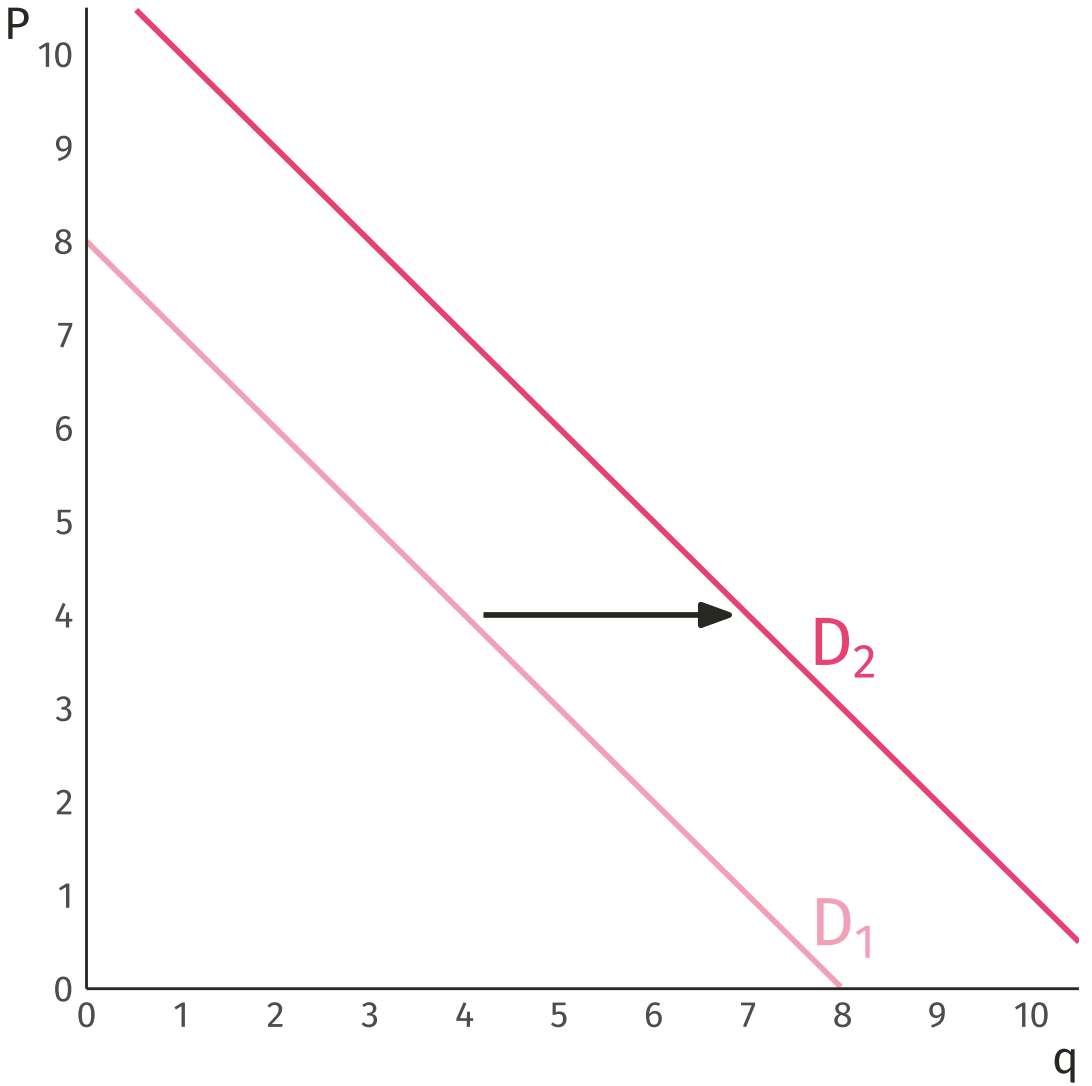
A change in demand *shifts* the demand curve.

## Quantity demanded

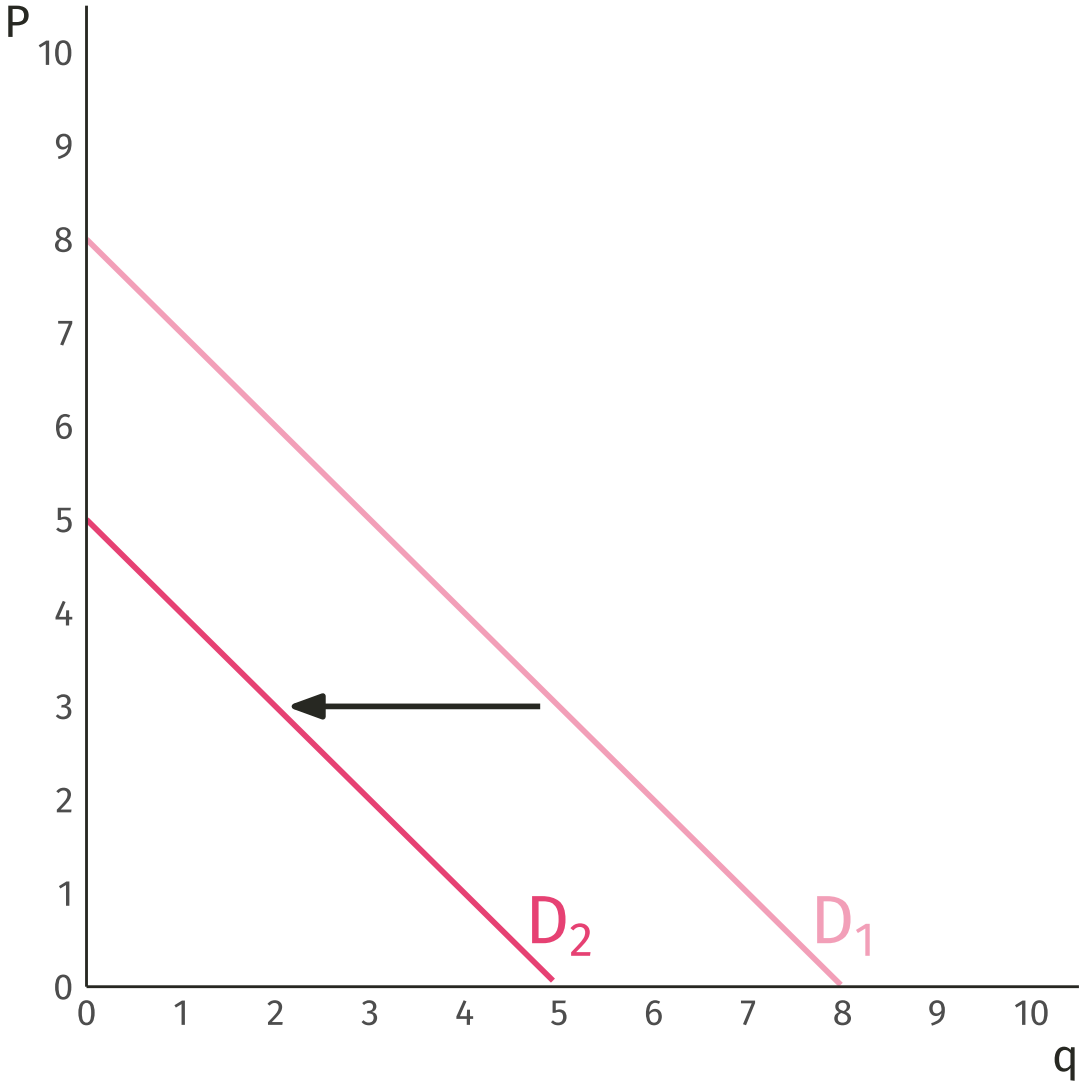
> The specific quantity that a consumer will buy per unit of time at a specific price, everything else held constant.

A change in price leads to *movement along* the demand curve.

# An Increase in Demand



# A Decrease in Demand



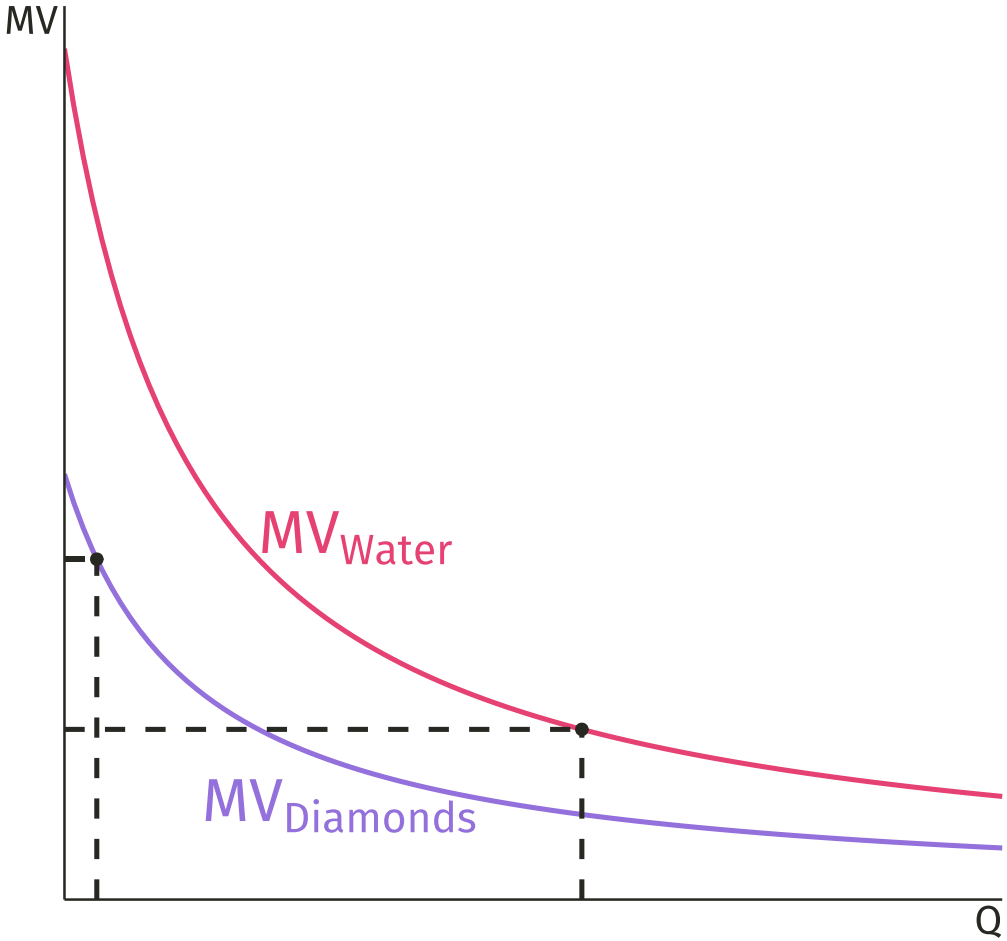
# The Diamond-Water Paradox

**Q:** Why are diamonds, mere frivolities, so much more expensive than water, which is essential to all life?

What resolves the paradox?

- Market prices reflect consumers' marginal values of those goods and not their total values.

# The Diamond-Water Paradox




$TV_{Water} > TV_{Diamonds}$

$MV_{Diamonds} > MV_{Water}$

**Q:** Can you think of other similar situations?

# Sale Prices

**Q:** Why do firms offer "buy one, get one free" or "buy one, get one half off" sales?

Suppose $MV_1$ = \$4, $MV_2$ = \$2, and $MV_3$ = \$1. If the price of the item is \$5, how many units would the individual buy?

- Zero $\Longrightarrow$ the firm gets \$0 in revenue.

What if the deal was "buy one at \$5, get a second free?"

- The individual makes the exchange $\Longrightarrow$ the firm gets \$5 in revenue.

**A:** Induce consumers who wouldn't otherwise purchase to make a purchase $\longrightarrow$ more revenue.

# Practice

**Q:** Based on the the table below, how many units would a consumer purchase if the price is $59? By how much is she better off by purchasing that amount?

| Unit | Marginal Value | Total Value |
|---|---|---|
| 1 | 90 | |
| 2 | 85 | |
| 3 | | 235 |
| 4 | 55 | |
| 5 | 40 | |
| 6 | | 360 |
| 7 | 20 | |

**A:** She purchases 3 units. Her consumer surplus is $235 - 3 \times 59 = 58$.