CHANAKYA 2.0

For CA Foundation

One Shot | BUSINESS ECONOMICS

Theory of Demand and Supply

By- LOVE KAUSHIK SIR

TOPICS *to be covered*

1. Unit 1 : Law of Demand and Elasticity of Demand
2. Unit 2 : Theory of Consumer Behaviour
3. Unit 3 : Supply

Topic: Types of Goods

(1) Substitutes / Competing goods

(2) Complimentary goods

(3) Normal goods

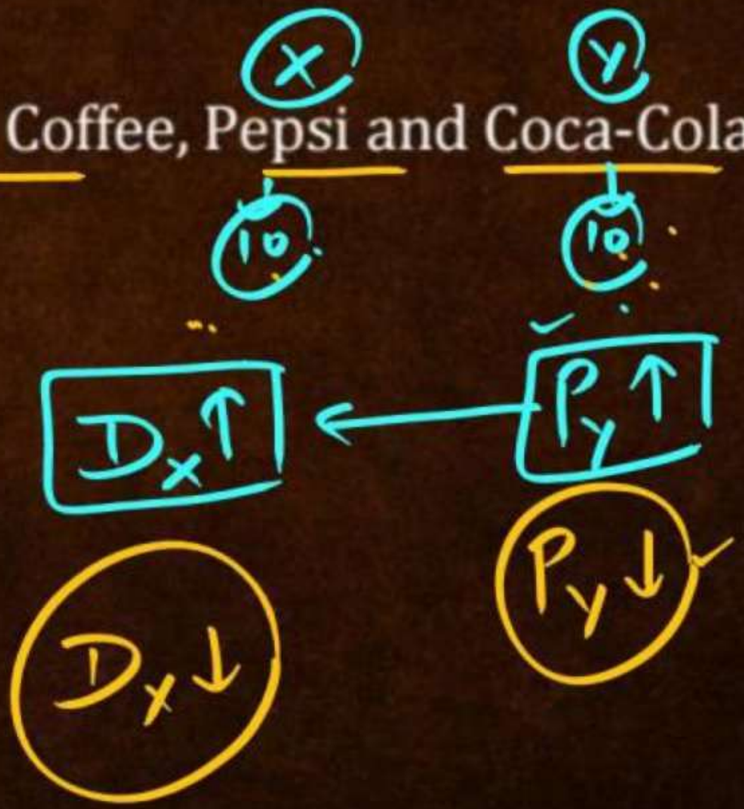
(4) Inferior goods

(5) Giffen goods

Topic: Substitute Goods

These goods are those goods which can be easily used in place of each other

For Example:- Tea and Coffee, Pepsi and Coca-Cola etc.

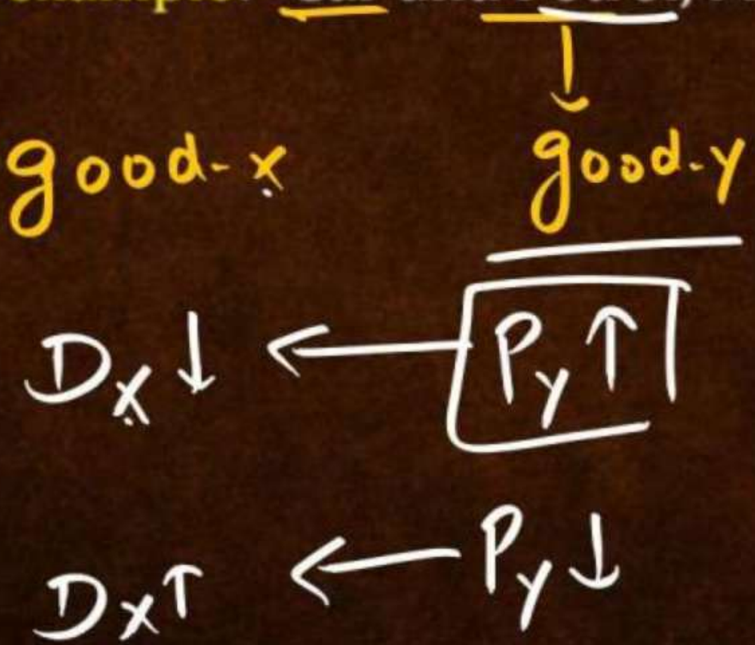



VS
COFFEE
TEA

Coke vs Pepsi

Topic: Complimentary Goods

- These goods are those goods which are used together | Jointly.
- For example:- Car and Petrol, Mobile Phone and Battery etc.

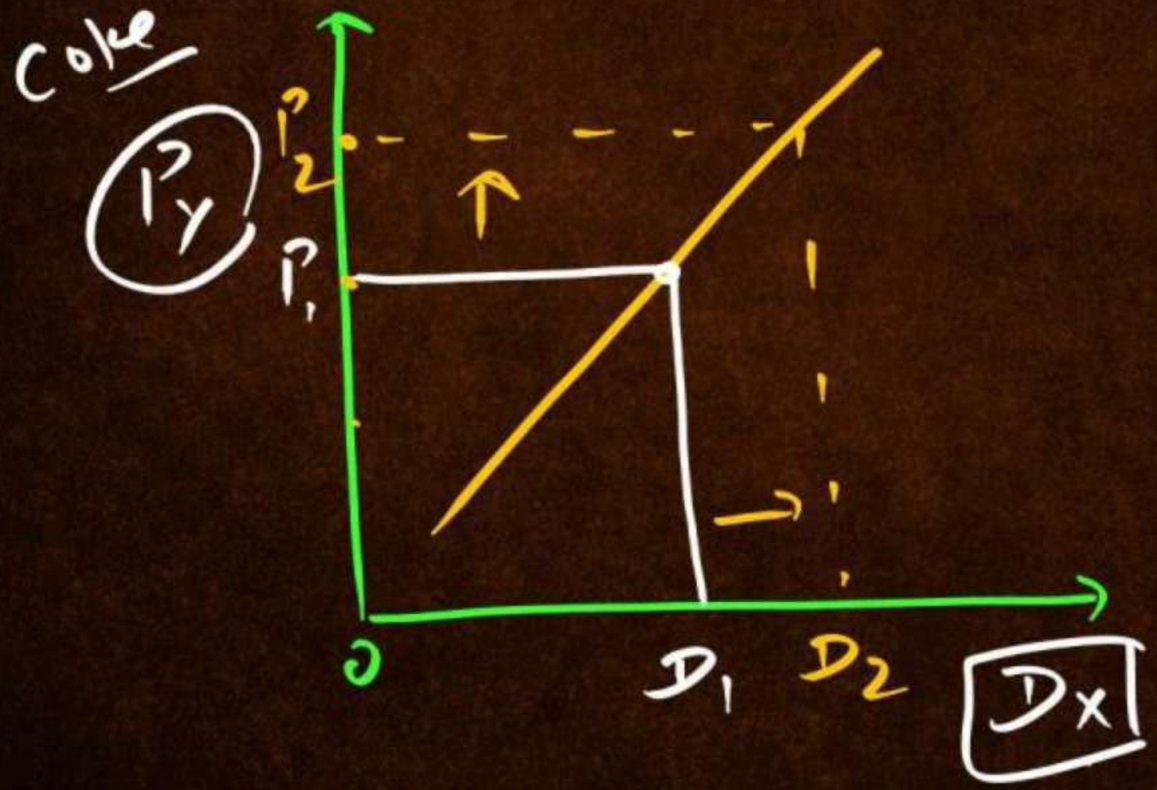


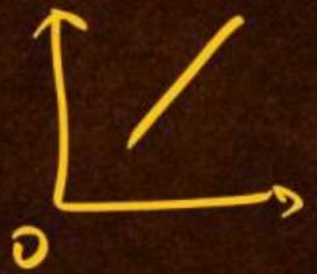
$P_x \uparrow \rightarrow D_y \downarrow$

$P_x \downarrow \rightarrow D_y \uparrow$

Substitute good

$P_y \uparrow \; D_x \uparrow$





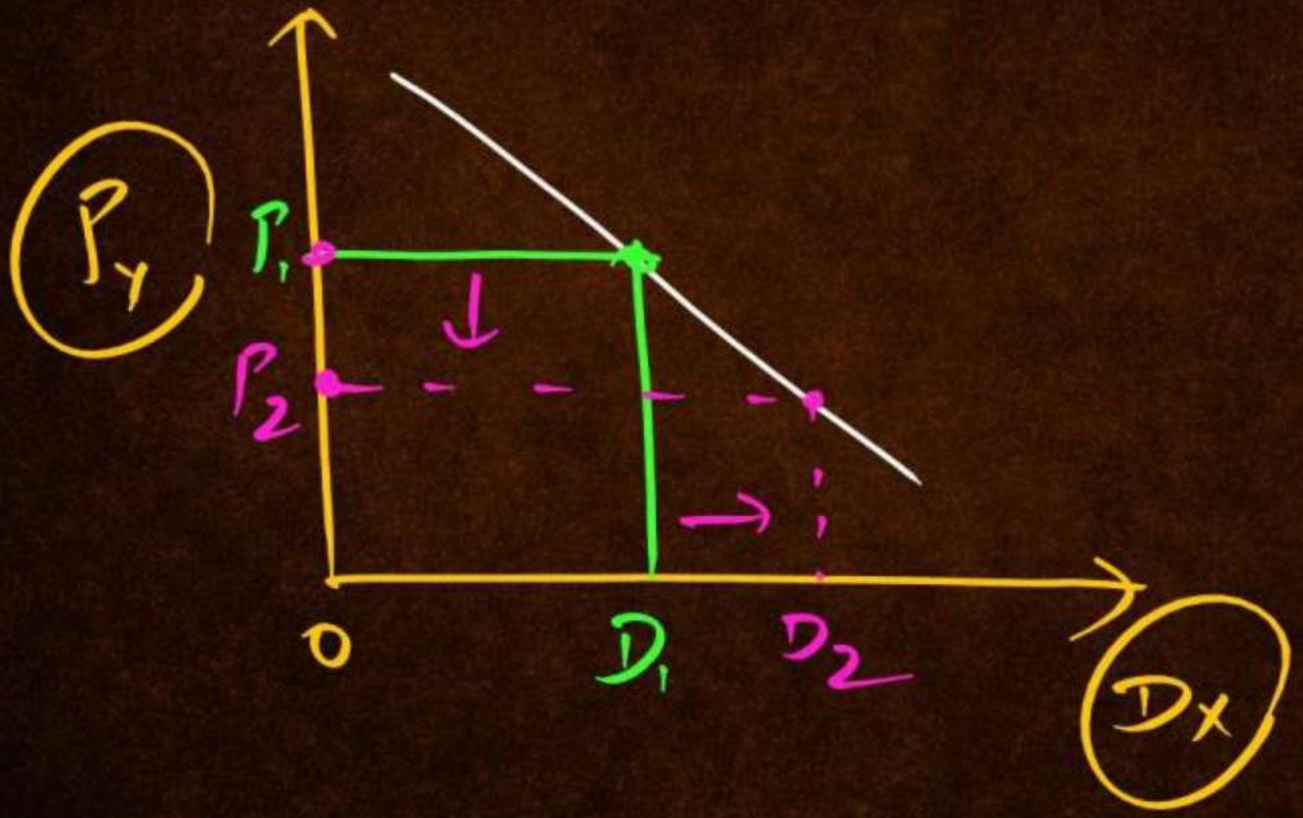
Positive

OR

Direct Relationship

∴

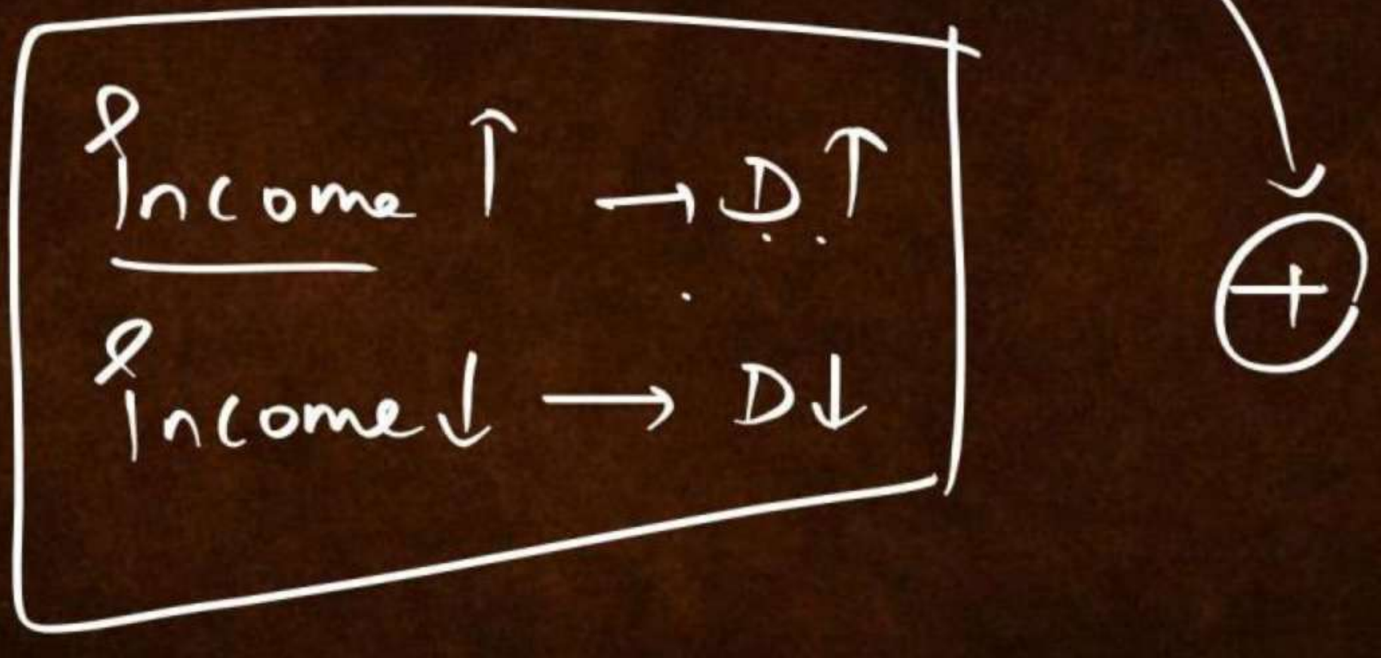
Complimentary goods $P_y \uparrow \rightarrow D_x \downarrow$



Negative
OR
opposite
OR
& inverse
OR
& indirect
relationship


BiC round stic fine USA

Topic: Normal Goods



Topic: Inferior Goods

घटिया Quality

(−)

↑ Income ⟶ Demand ↓

↓ Income ⟶ Demand ↑

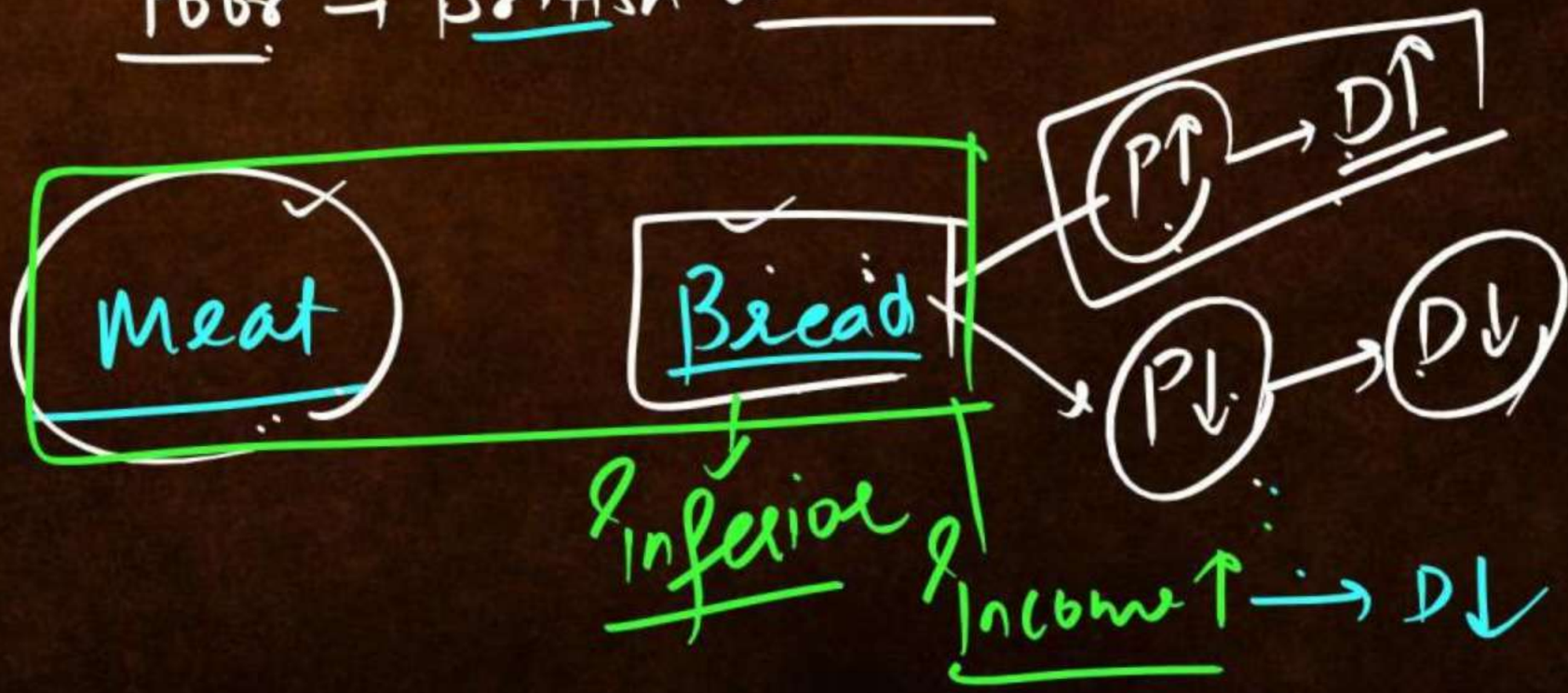
Topic: Giffen Goods

Price → Direct relation

Robert Giffen

Poor → British workers

Substantial



Giffen goods — P ⊕ (price +)
↓
Bread
Inferior

Income ⊖

Price – Demand

→ Direct relation

(A) Substitute → $P_y \uparrow \longrightarrow D_x \uparrow$

(B) Giffen goods → (B) ↑↑ ↓↓

Topic: Unit 1 : Law of Demand and Elasticity of Demand

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LOUIS VUITTON

HERMÈS PARIS

GUCCI

THE LUXURY BRAND

ROLEX

Cartier

CHANEL

Desire +

ability +

willingness

$\Rightarrow$ Demand

Price ↑ → Demand ↓

P ↓ → DT

P	Q.D
10	300
20	200
30	100

P	Q.D
10	300
20	200
30	100

Qty. Demanded

Topic: Unit 1 : Law of Demand and Elasticity of Demand

Definition of Demand

- Quantity of a good or service that buyers are willing and able to purchase at various prices during a given period.
- More than just desire; it involves the ability to pay and the willingness to use that means for a purchase.

Elements of Effective Demand

- Desire, means to purchase, and willingness to use those means.
- Desire alone isn't enough; it must be backed by purchasing power.

Quantity Demanded

- Always expressed at a given price.
- Represents a continuous flow of purchases over a period of time.

Balance sheet

Stock

↓

Exact time

4 o'clock ✓

Sunday ✓

31-03-2032

P&L A/c

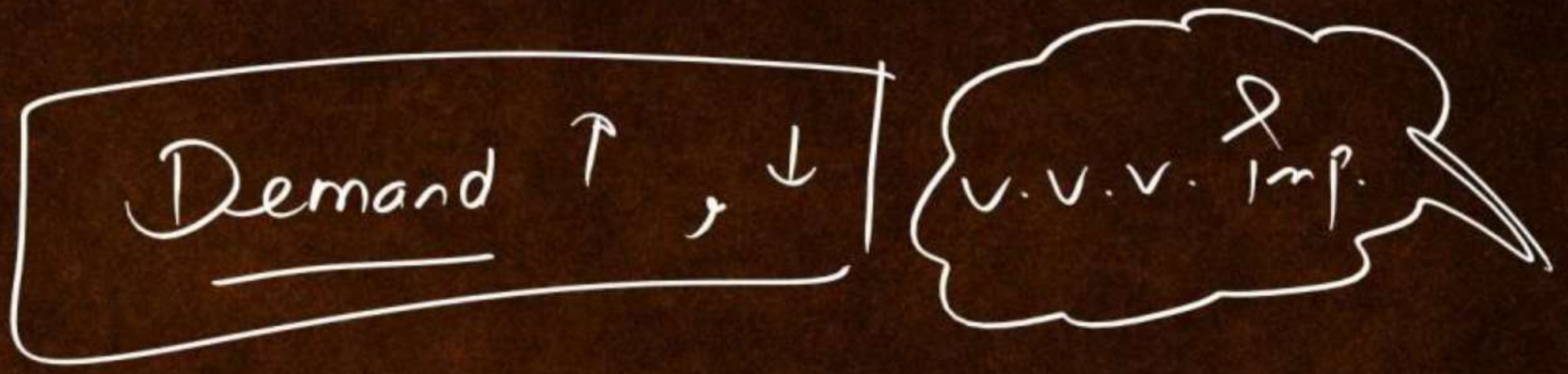
flow

↓

per week

per month

per year


Demand ↑ , ↓
V.V.V. Imp.

Short Definition:

"Demand is the various quantities of a commodity or service consumers would buy in one market during a given period, at various prices or incomes."

Factors Determining Demand

1. **Price of the Commodity:**
   - Inverse relationship between price and demand.

2. **Price of Related Commodities:**
   - Complementary goods (e.g., tea and sugar) and substitutes (e.g., tea and coffee) impact demand. Complementary goods' prices affect each other inversely; substitutes' prices have a direct relation.

Related goods

Substitute

$P_y \uparrow \rightarrow D \times P$

Complimentary

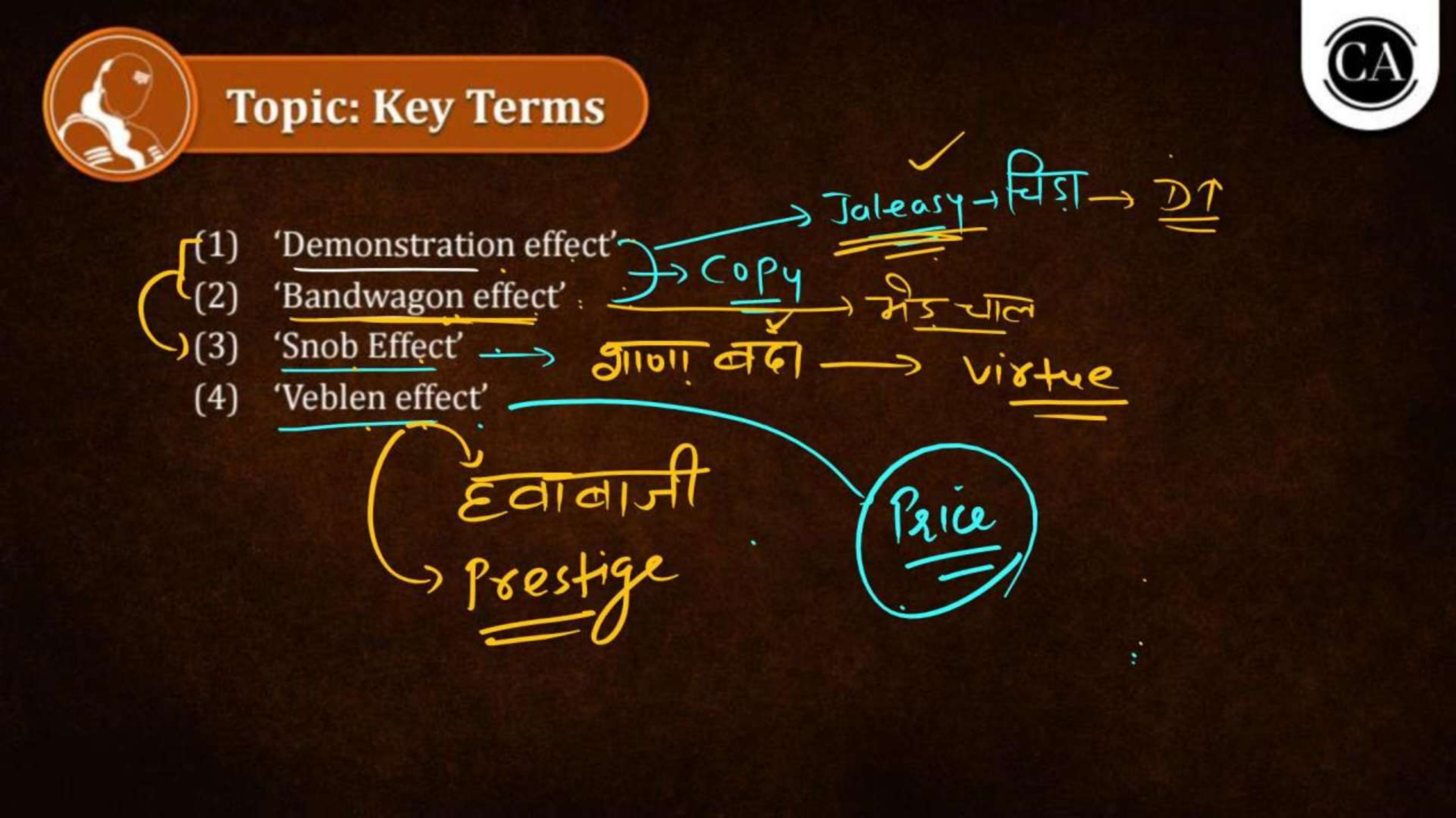
$P_y \uparrow \quad D \times l$

Income	=	100 ✓
− Fine	=	2
		98
− Tax		1
		97

3. **Disposable Income:**
   - Increase in disposable income generally increases demand for goods.
   - Normal goods' demand rises with income; inferior goods' demand falls.
4. **Tastes and Preferences:**
   - Modern or fashionable goods have higher demand.
   - ★ External effects like demonstration, bandwagon, and snob effects influence demand.

Topic: Key Terms

(1) 'Demonstration effect'
(2) 'Bandwagon effect'
(3) 'Snob Effect'
(4) 'Veblen effect'



Bandwagon effect refers to the extent to which the demand for a commodity is increased due to the fact that others are also consuming the same commodity. It represents the desire of people to purchase a commodity in order to be fashionable or stylish or to conform to the people they wish to be associated with.

By **'snob effect'** we refer to the extent to which the demand for a consumers' good is decreased owing to the fact that others are also consuming the same commodity. This represents the desire of people to be exclusive; to be different; to dissociate themselves from the "common herd."

For example, when a product becomes common among all, some people decrease or altogether stop its consumption.

Highly priced goods are consumed by status seeking rich people to satisfy their need for conspicuous consumption. This is called **'Veblen effect'** (named after the American economist Thorstein Veblen). For example, expensive cars and jewels.

★ The difference between the snob effect and the Veblen effect is that the former is a function of the consumption of others and the later is a function of price.

5. Consumers' Expectations:

- Expectations about future prices, income, and supply influence current demand.
- Positive expectations lead to higher demand; negative expectations reduce it.
- Example: Expecting a sale in the future may decrease current demand.

Future Price ↑ → Current D ↑

Other Factors:

Population size, age distribution, national income, consumer-credit facilities, government policies, and various external factors play roles in influencing demand.

↑ DT

→ Pop^{n} ↑ → DT

even → DT

uneven → DL

? ↓ → Loan ↑ → DT

Tax ↑ → DL

Subsidy ↑ → DT

Ban → Restriction

? ↑ → Loan ↓ → DL

Topic: What Determines Demand?

Remember Your Short Trick –TIPPER A CNG

(1) Price of the commodity:
(2) Price of related commodities:
(3) Disposable Income of the consumer:
(4) Tastes and preferences of buyers:
(5) Consumers' Expectations
(6) Other factors: Size of population, Age Distribution of population, The level of National Income and its Distribution, Consumer-credit facility and interest rates , Government policies and regulations

QUESTION

#Q1 All of the following are determinants of demand except:

TIPPER A CNG

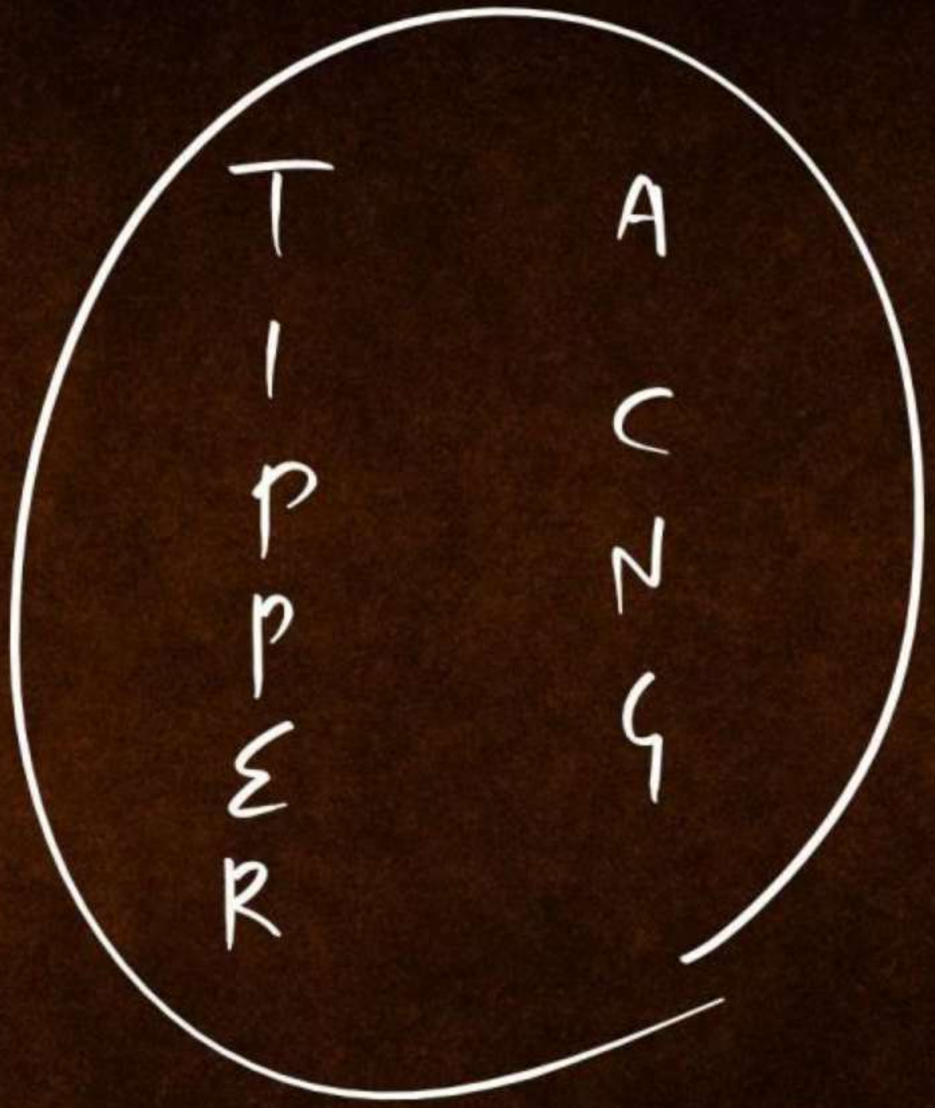
A Tastes and preferences (T)

B Quantity supplied (B)

C Income of the consumer (I)

D Price of related goods (R)

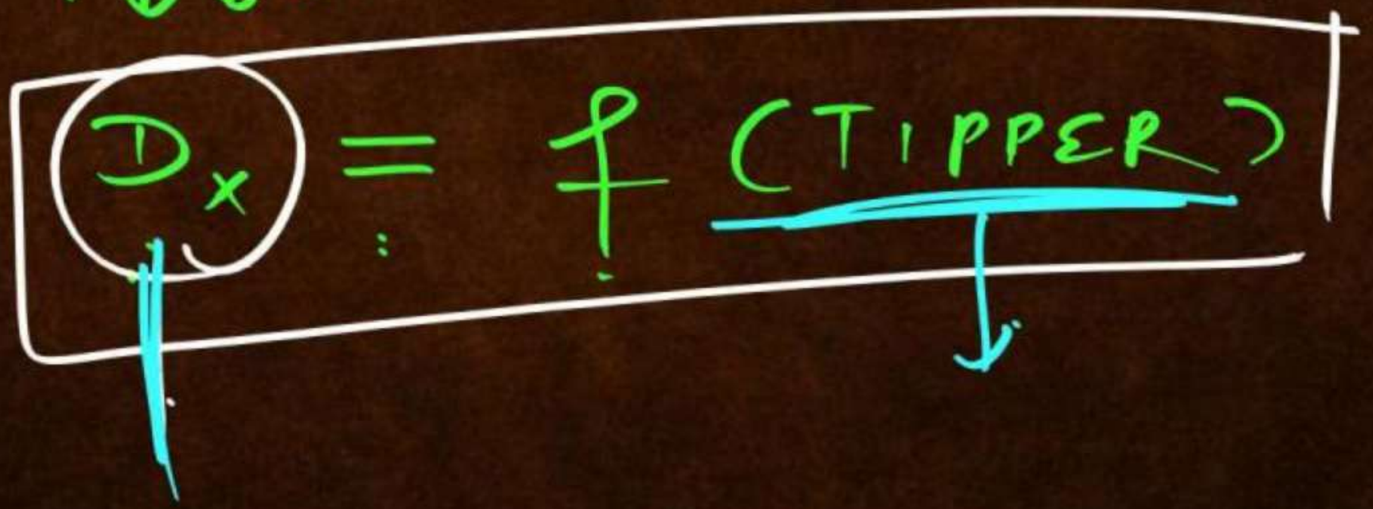
Demand



Demand Function:

1. It refers to the functional relationship between the demand for a product (the dependent variable) its determinants (the independent variables) is called demand function

$D_x = f(P_x, Y, P_y, T, \text{etc.})$



P	Q.D.
10	300
20	200
30	100

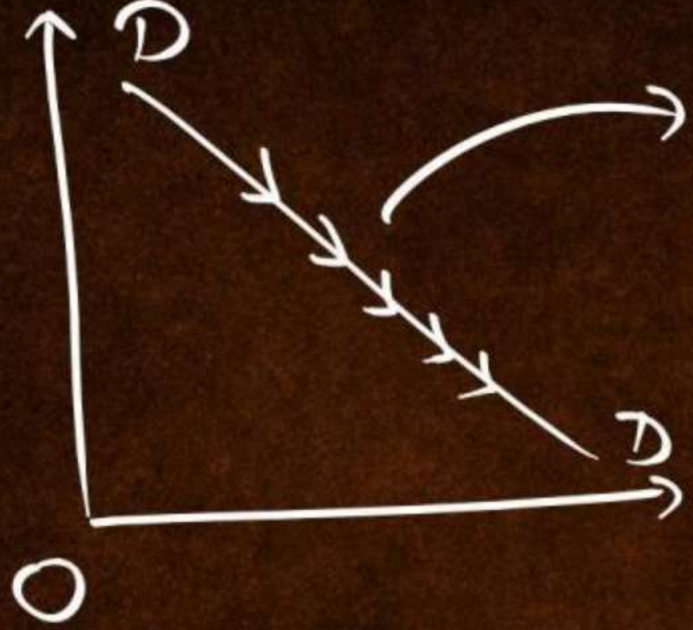
→ Demand Schedule

Demand

- Individual
- Market

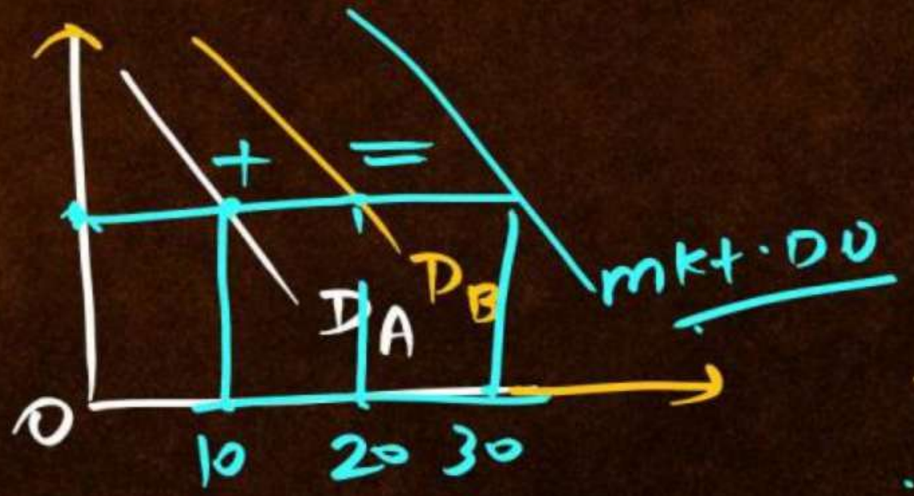
Mkt. DD Schedule

P	D_A	D_B	Mkt. DD
10	100	200	300
20	200	400	600
30	300	600	900



Downward Sloping

↓



Law of Demand

Price of own good → Ceteris Paribus

P↑ D↓
P↓ D↑

Ceteris Paribus → other factors are constant.

2. **Law of Demand:**

Definition: States an inverse relationship between the price of a good and the quantity demanded, assuming other factors remain constant (ceteris paribus).

Alfred Marshall's Definition: "The greater the amount to be sold, the smaller must be the price

ST PJ

Factors Held Constant: Prices of related goods, consumer income, tastes, and preferences etc.

3. **Demand Schedule:**

Definition: A table showing quantities of a good at different prices, assuming other factors are constant.

4. **Demand Curve:**

Definition: A graphical representation of the demand schedule.

Slope: Negative slope (downward) indicating the inverse relationship.

5. **Market Demand Schedule and Curve:**

Definition: Market demand shows the total quantity demanded by all buyers at different prices.

Summation: Adding individual quantities demanded at each price to obtain market demand.

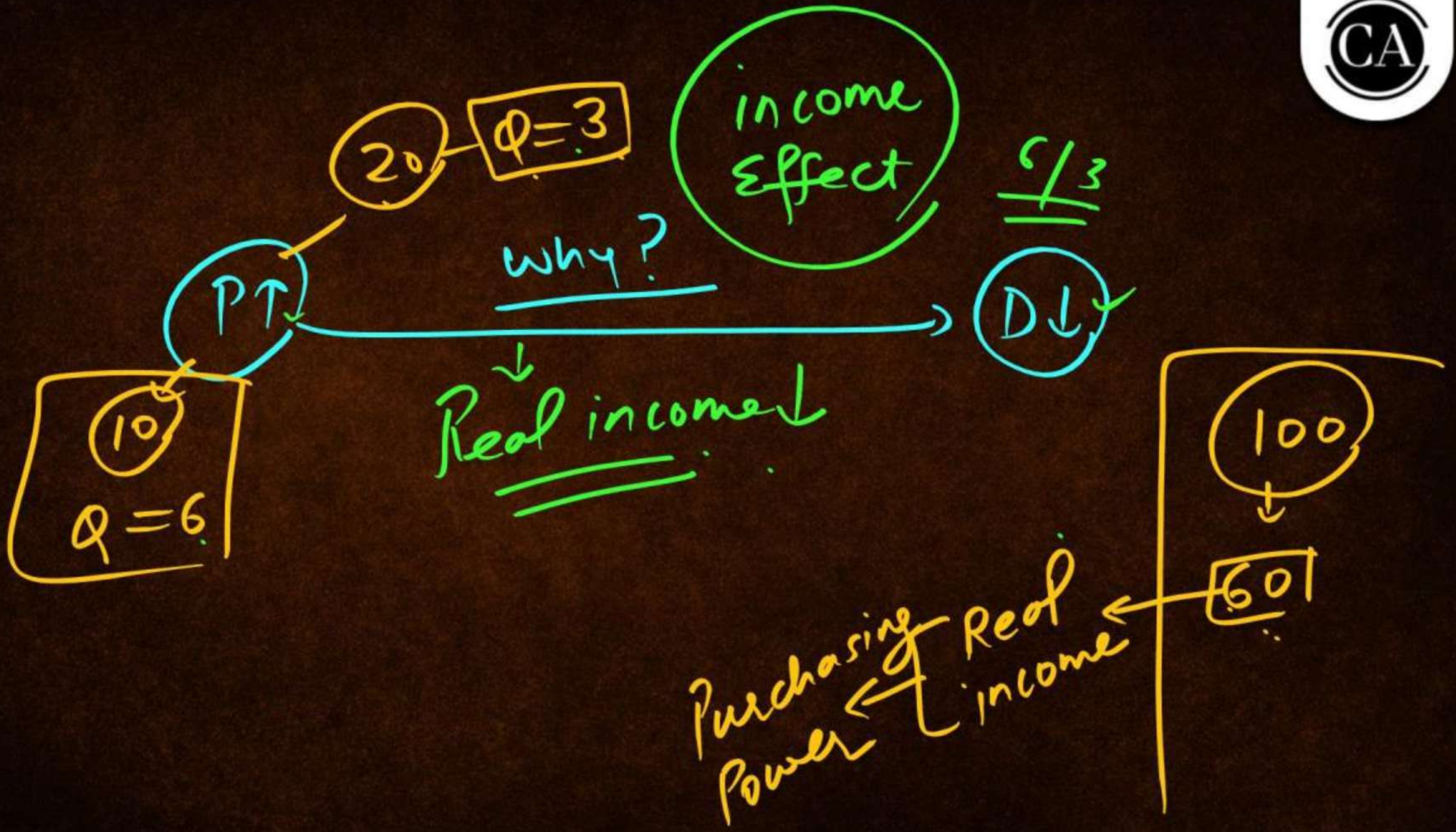
Market Demand Curve: Horizontal summation of individual demand curves.

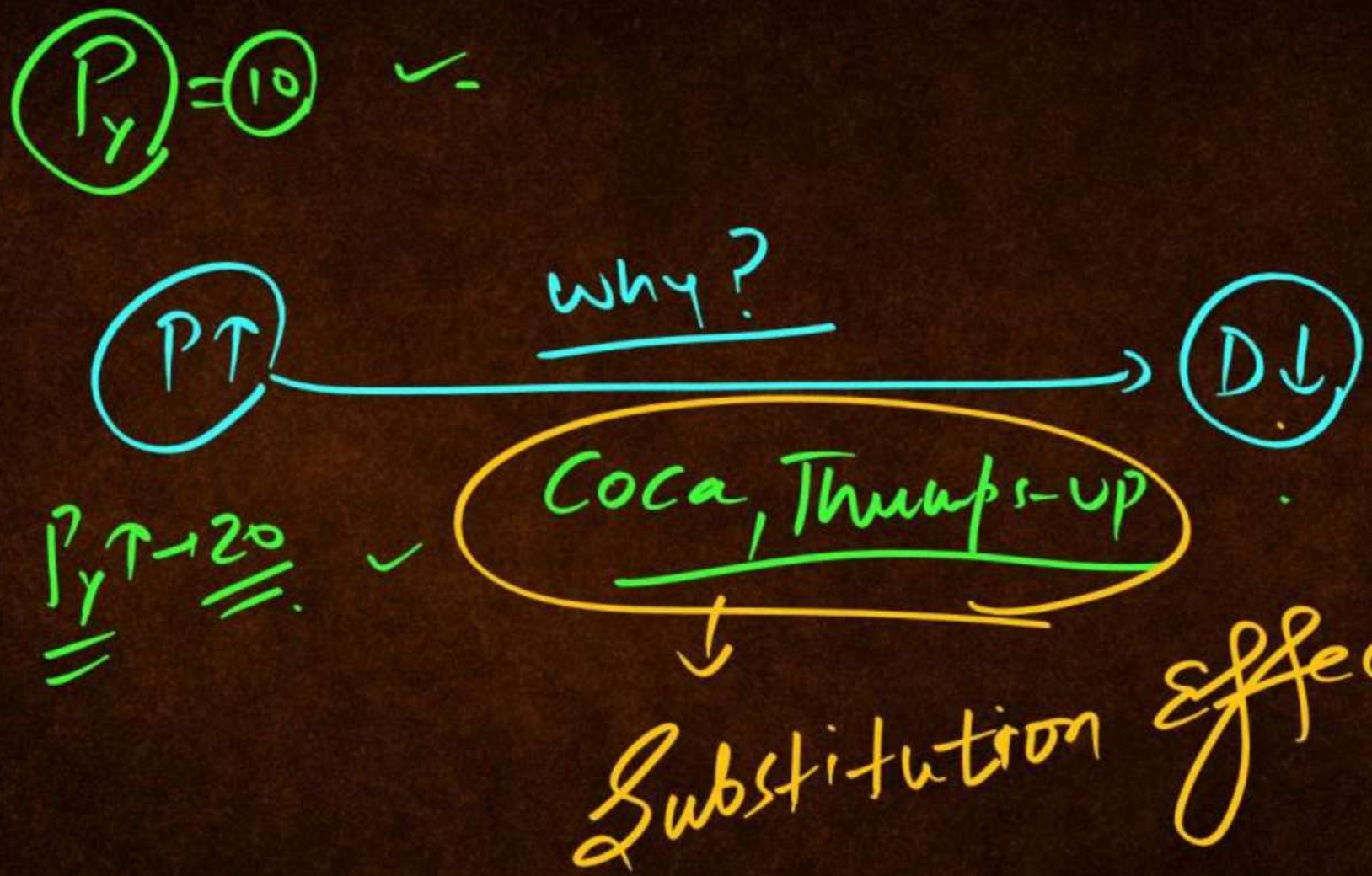
Rationale/reasons/ causes of the Law of Demand:

1. **Price Effect of a Fall in Price:**

Substitution Effect: Consumers substitute cheaper goods for relatively expensive ones, increasing the demand for the cheaper good.

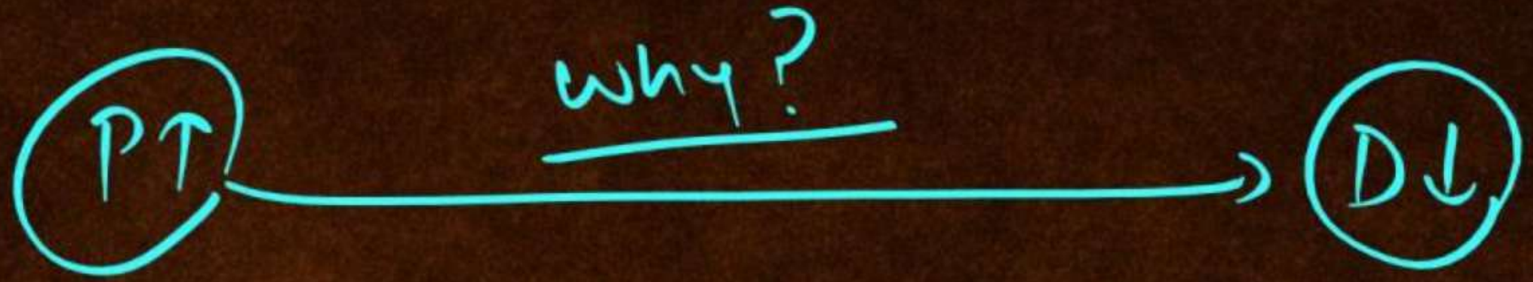
Income Effect: As prices fall, real income increases, allowing consumers to buy more of the cheaper commodity.


20
Q=3
income effect
6/3
PT
why?
DL
Real income
10
Q=6
100
60
Purchasing Power
Real income


$P_y = 10$
PT
why?
D↓
P_y↑→20
Coca, Thumps-up
Substitution effect

$$\vec{I\varepsilon} + \vec{S\varepsilon} = \vec{P\varepsilon}$$

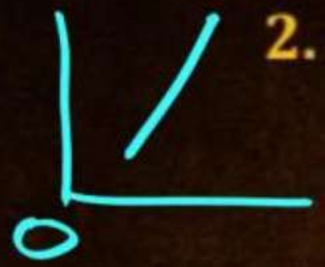

PT
why?
DL
New Customers
Not arrived


PT
why?
DL

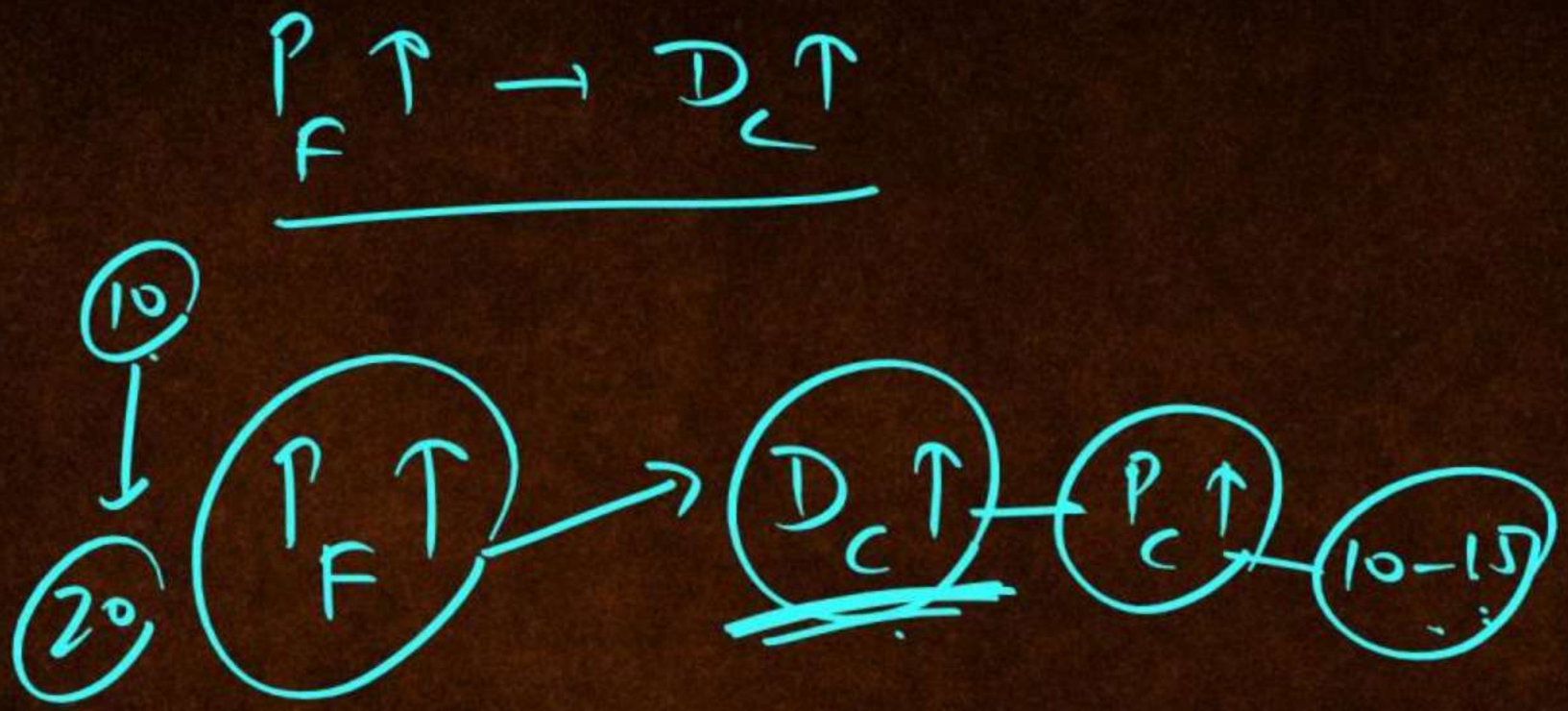
2. **Utility Maximizing Behaviour of Consumers:**
Consumers seek equilibrium by maximizing satisfaction, leading them to buy more when prices are lower due to diminishing marginal utility.
3. **Arrival of New Consumers:**
Lower prices attract new consumers who were previously unable to afford the commodity, expanding the consumer base and increasing demand.
4. **Different Uses:**
Lower prices often result in the commodity being used for various purposes, increasing its demand. Example: Electricity.

Exceptions to the Law of Demand:

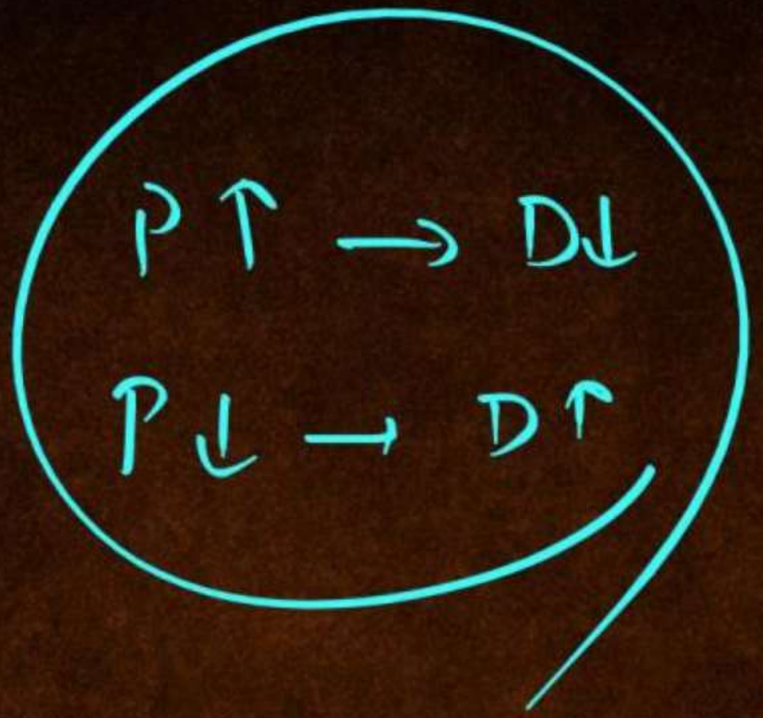
1. **Conspicuous Goods (Veblen Effect):** Certain goods serve as status symbols or have snob appeal, and their demand increases with higher prices.
Example: Diamonds, where higher prices enhance prestige value.

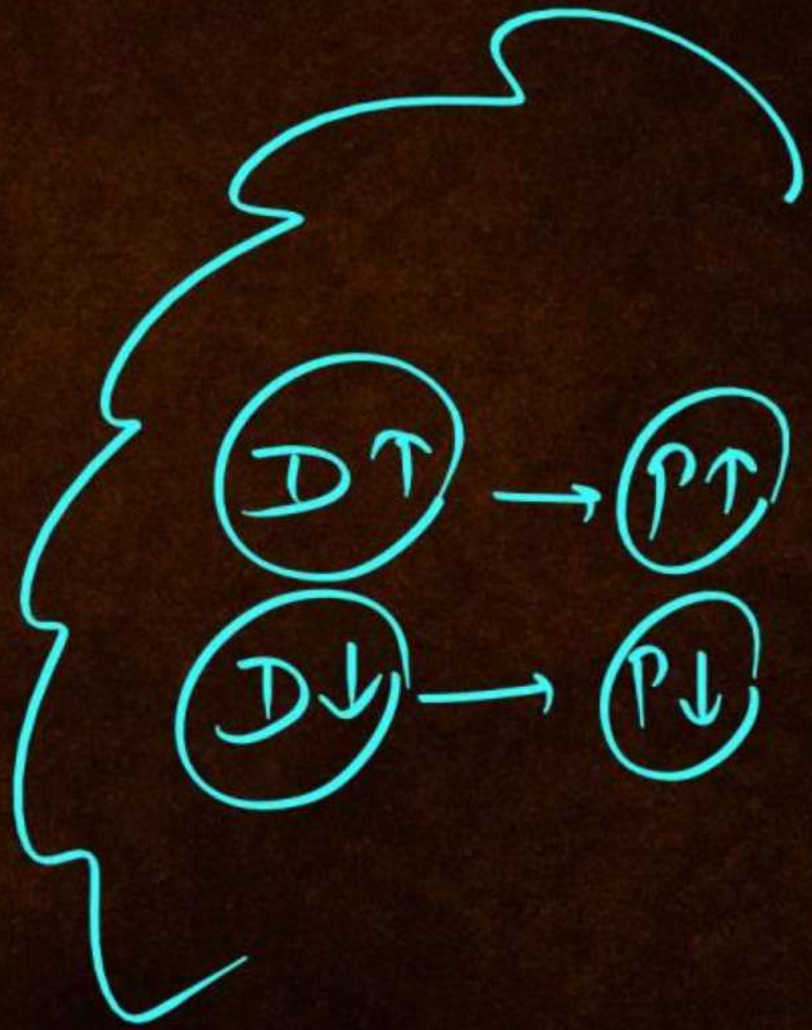


2. **Giffen Goods:** Inferior goods, with no close substitutes, that defy the law of demand by experiencing increased demand as prices rise.
   Example: Coarse grains like bajra, low quality rice, an d wheat.
3. **Conspicuous Necessities :** Certain goods, due to their constant usage and demonstration effect, become necessities and defy the usual law of demand.
   Example: Television sets, refrigerators, and air conditioners.
4. **Future Expectations about Prices:** Anticipation of future price increases may lead to increased demand even as current prices rise, violating the traditional law of demand.
   Example: Stockpiling food grains during anticipated shortages.
5. **Incomplete Information & Irrational Behaviour:** Consumers with incomplete information or irrational behaviour may make inconsistent purchasing decisions, deviating from the expected demand price relationship.


PF↑ → DC↑
10
20
PF↑
DC↑
PC↑
10-15

6. **Demand for Necessaries:** In the case of necessary goods, demand may remain relatively constant regardless of price changes, as people need to consume minimum quantities.
7. **Speculative Goods:** In speculative markets, demand may rise with increasing prices and fall with declining prices, challenging the conventional law of demand.
8. **Other Significant Changes:** Changes in factors like income, prices of related goods, tastes, and fashion can invalidate the inverse demand price relationship.


P↑ → D↓
P↓ → D↑

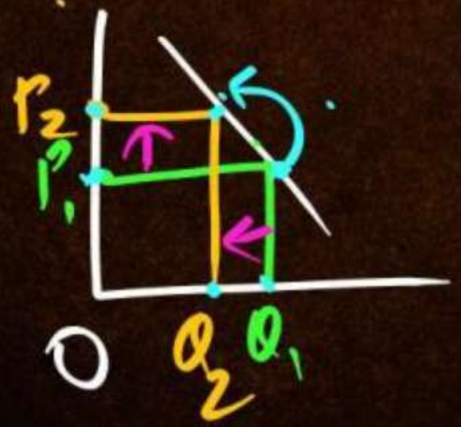

D↑ → P↑
D↓ → P↓

Change in Qty. Demanded
OR
Movement along DD-Curve

Contraction / Upward movement

P ↑ DL

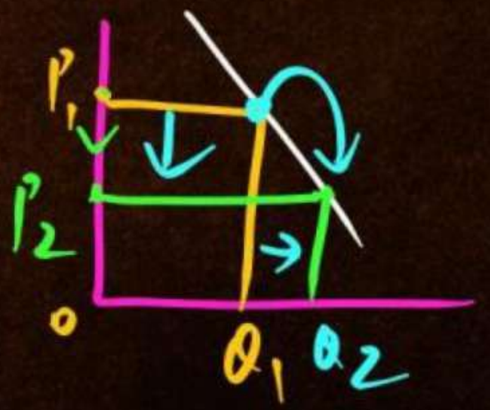
P	Q.D.
10	100
20	50



Extension / Downward movement

P ↓ DT

P	Q.D.
10	100
5	200



Change in DD

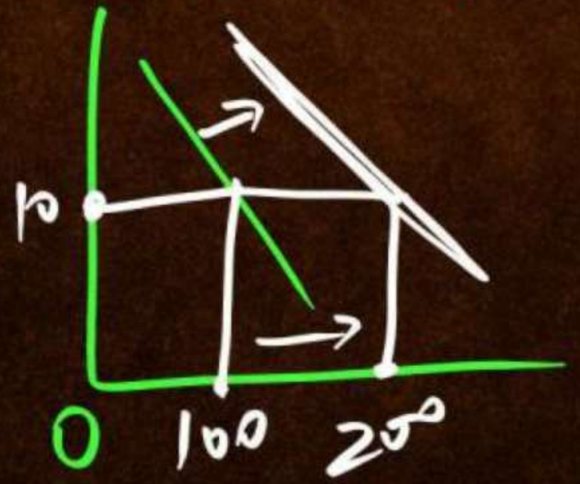
↑

Change in Demand due to change in factors other than Price of own good.

Change in DD
OR
Shift in DD-Curve

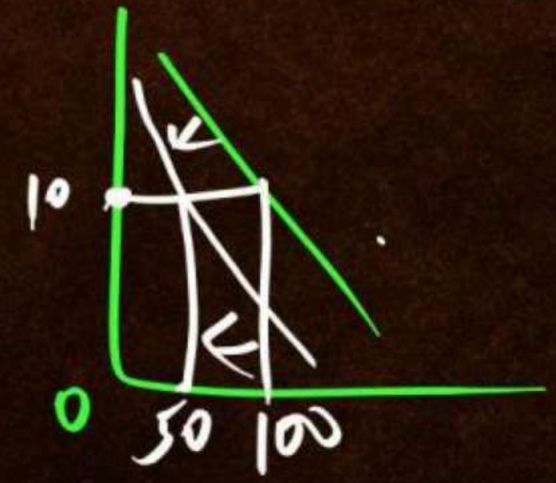
Increase in DD
OR
Rightward shift

P	Q.D
10	100
10	200

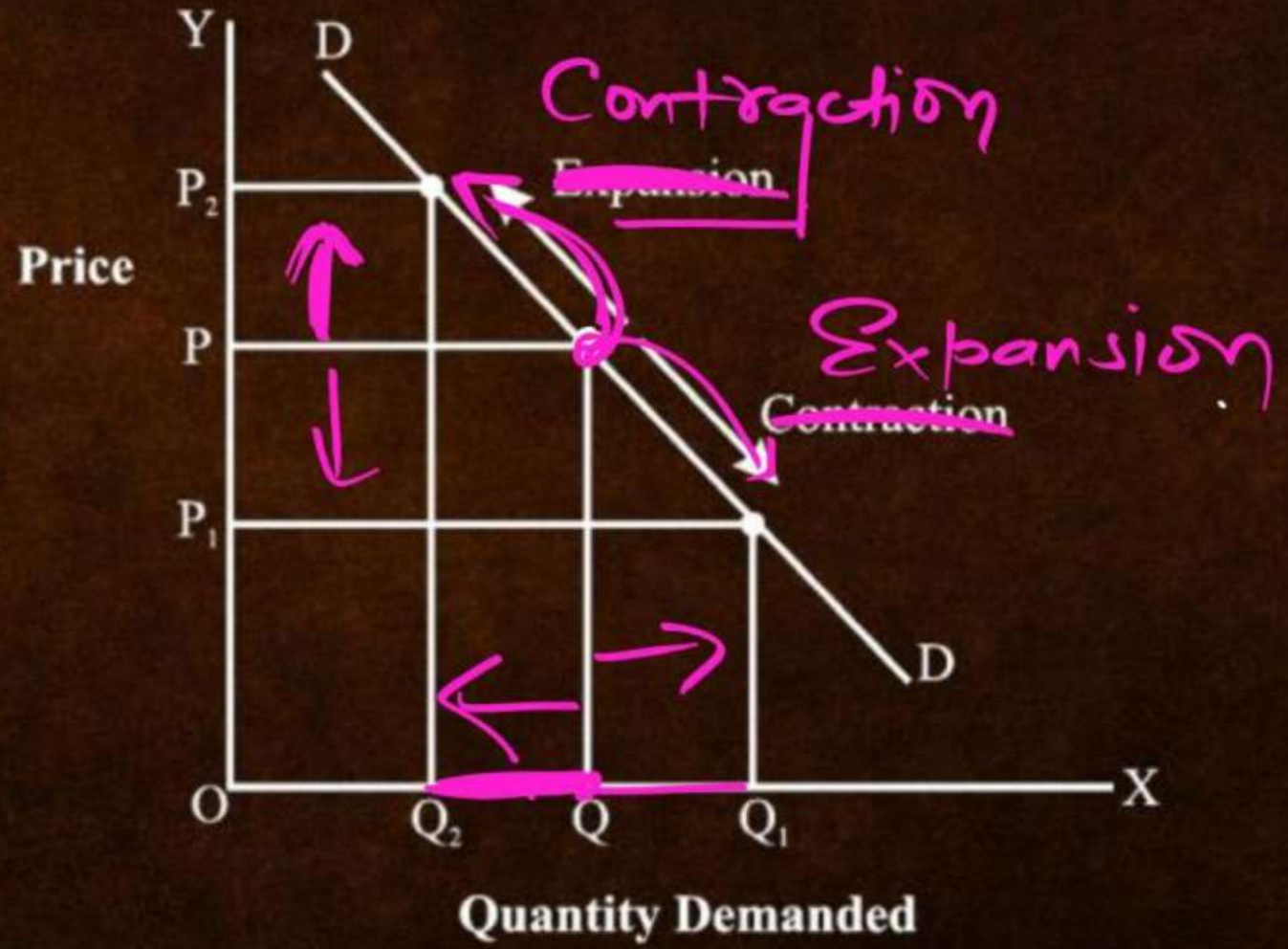


Decrease in DD
OR
Leftward shift

P	Q.D
10	100
10	50

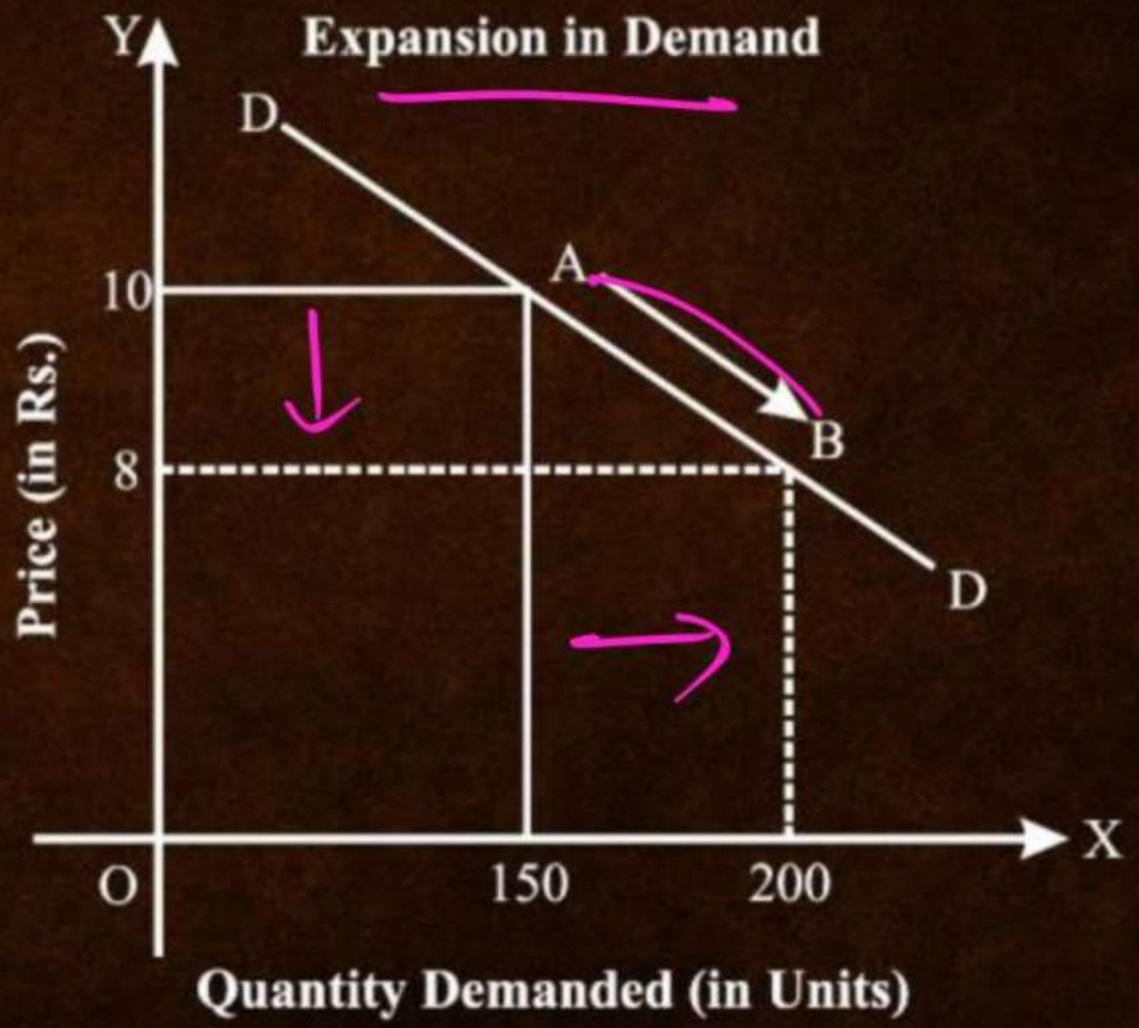


Expansion of Demand & Contraction of Demand Both are the types of Movement Along Demand Curve :



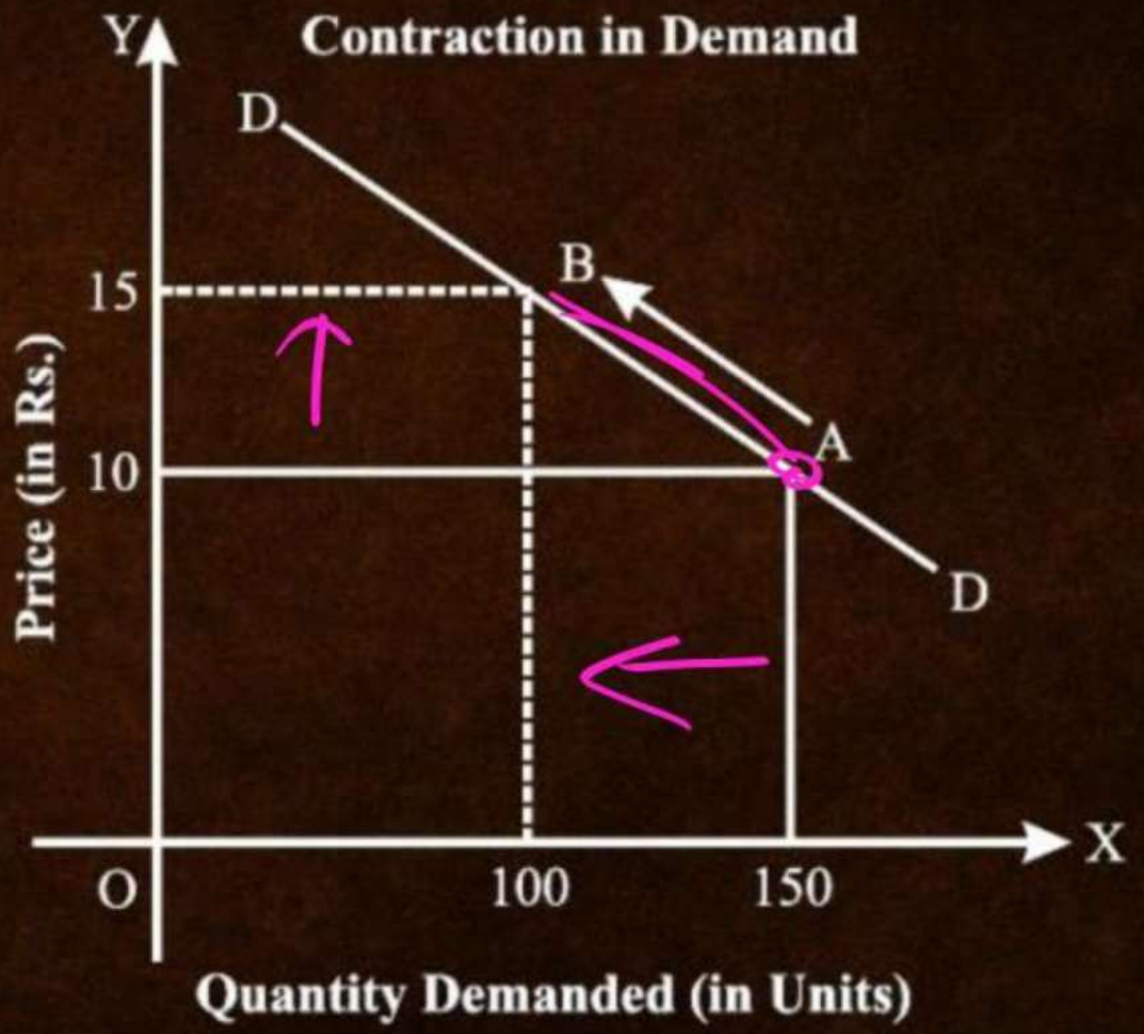
1. **Expansion of Demand** – It is rise in demand due to fall in price. Also, known as increase in quantity demanded.

Price (₹)	Quantity (Units)
10	150
8	200



2. **Contraction of Demand** – It is fall in demand due to rise in price. Also, known as decrease in quantity demanded.

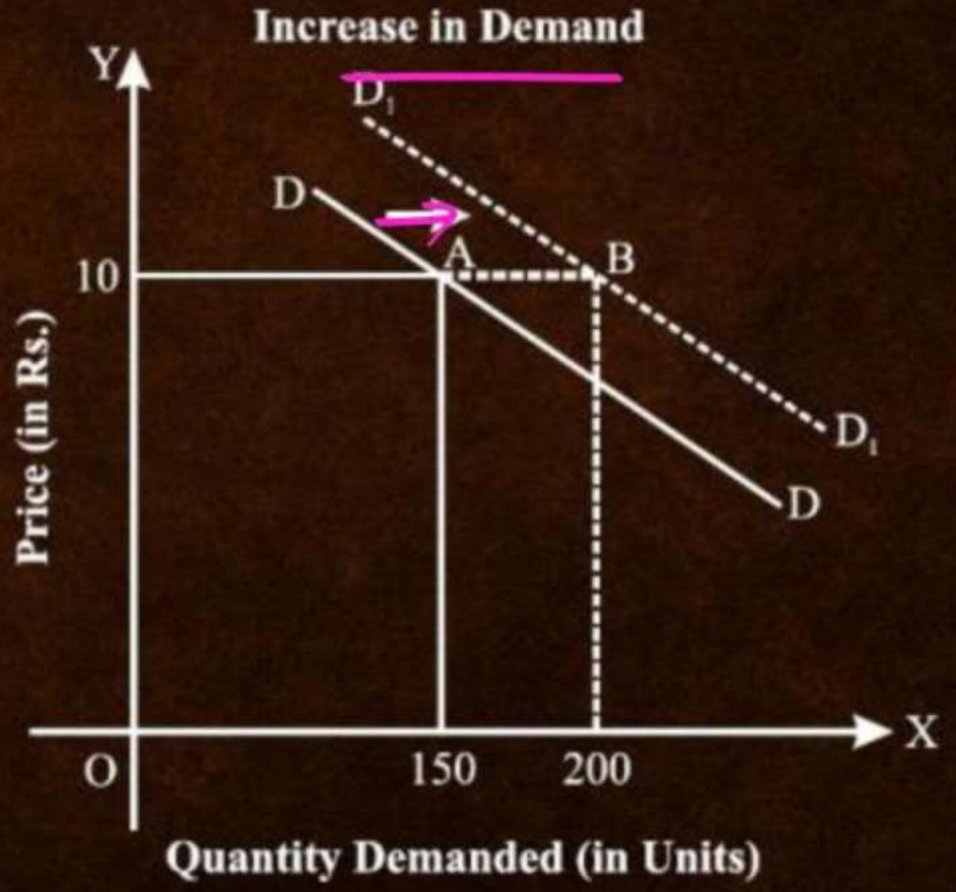
Price (₹)	Quantity (Units)
10	150
15	100



Increase and Decrease in Demand both are the types of shift in demand curve.

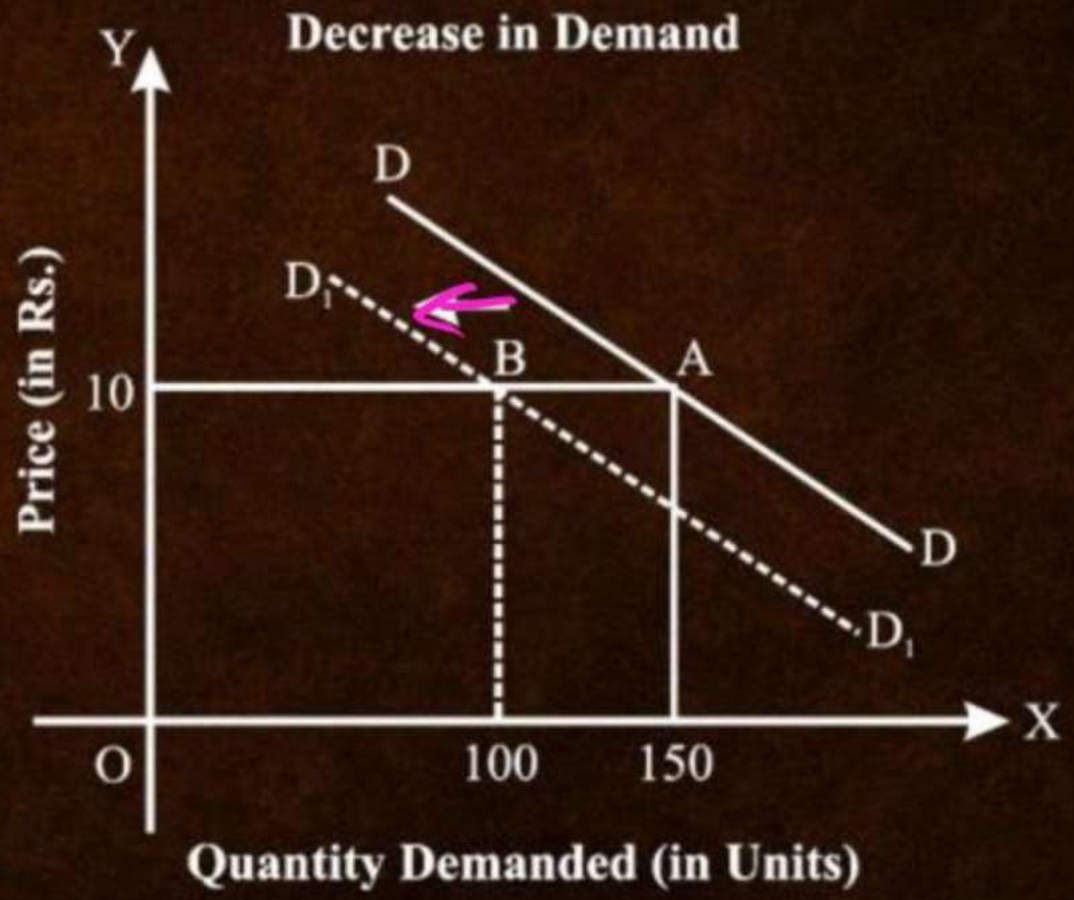
1. **Increase in demand –** it is increase in demand due to change in the factors other than price of own good. It leads to rightward shift in demand curve.

Price (₹)	Quantity (Units)
10	150
10	200



2. **Decrease in demand –** it is decrease in demand due to change in the factors other than price of own good. It leads to leftward shift in demand curve.

Price (₹)	Quantity (Units)
10	150
10	100



$PE = IE + S \cdot E$

Hicks, Allen

Inferior :- PI → $IE > SE$

$IE < SE$ → DT

Strong / outweight.

Price Elasticity of Demand (E_p)

P	Q.D.
10	100
20	50

Elastic

P	Q.D.
10	100
20	90

Less elastic

Types of E_d

1. $E_{p.} \rightarrow$
2. $E_{i.}$
3. $E_{c.}$
4. E_a

Types / Degrees of E_p

1. Unit elastic DD $E_p = 1$ — $1\% \Delta QD = 1\% \Delta P$
2. Elastic DD $E_p > 1$
3. Inelastic DD $E_p < 1$
4. Perfectly Elastic DD $E_p = \infty$
5. Perfectly Inelastic DD $E_p = 0$

P	Q.D.
10	100
20	100

P	Q.D.
10	100
10	200

Q_1 Q_2

Methods of measuring Ep

1. Percentage method.
2. Point ,,
3. Geometric ,,
4. Arc ,,
5. Total Exp^{n} ,,

Topic: Elasticity of Demand

Elasticity of demand measures how much people change their buying habits in response to changes in certain factors. It's calculated by dividing the percentage change in quantity demanded by the percentage change in a relevant factor.

Types of Elasticity:

1. Price Elasticity: Measures sensitivity to changes in the product's own price.
2. Cross Elasticity: Measures response to changes in other product prices.
3. Income Elasticity: Measures response to changes in income.

4. Advertisement Elasticity: Measures response to changes in advertising.
5. Elasticity of Substitution: Measures response to changes in the availability of substitute goods.

Focus on Price Elasticity:

Importance: Crucial for firms to predict sales impact and make profit-maximizing pricing decisions.

Calculation:

$$E_p = \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in price}} = \frac{\frac{\Delta Q}{Q_1} \times 100}{\frac{\Delta P}{P_1} \times 100}$$

$$= \frac{\frac{\text{Change in Quantity}}{\text{Original Quantity}} \times 100}{\frac{\text{Change in Price}}{\text{Original Price}} \times 100} = \frac{\Delta Q}{\Delta P} \times \frac{P}{Q}$$

P	Q.D.
$P_1 \leftarrow 10$	$100 \rightarrow Q_1$
$P_2 \leftarrow 20$	$50 \rightarrow Q_2$
ΔP	ΔQ
10	50

$$E_p = -\frac{\% \Delta Q.D.}{\% \Delta P} \rightarrow \frac{\frac{\Delta Q}{Q_1} \times 100}{\frac{\Delta P}{P_1} \times 100}$$

$$= \frac{\frac{\Delta Q}{Q_1}}{\frac{\Delta P}{P_1}} = -\frac{\Delta Q}{Q_1} \times \frac{P_1}{\Delta P}$$

$$= -\frac{\Delta Q}{\Delta P} \times \frac{P_1}{Q_1}$$

$$E_p = -\frac{50}{100} \times \frac{10}{100} = -0.5$$

$$\Rightarrow E_p = \frac{\Delta q}{q} \times \frac{p}{\Delta p} = \frac{\Delta q}{\Delta p} \times \frac{p}{q}$$

Where –

q = Original quantity demanded

p = Original price

Δ = Indicates change

E = Price elasticity

Understanding Price Elasticity:

Negative Sign: Illustrates the law of demand - as price rises, quantity demanded decreases.

Magnitude Focus: Only absolute value matters; ignore the negative sign.

$$E_p = \frac{\% \Delta \text{Q.D.}}{\% \Delta \text{Price}} = \frac{10}{10} = 1$$

$$\boxed{\% \Delta \text{Q.D}} = \boxed{\% \Delta \text{P}} \Rightarrow E_p = 1$$

$$E_p = \frac{\% \Delta \text{ Q.D:}}{\% \Delta \text{ Price:}} = \frac{20}{10} = 2$$

$$\% \Delta \text{Q.D} > \% \Delta \text{P} \Rightarrow E_p > 1$$

$$E_p = \frac{\% \Delta \text{ Q.D.}}{\% \Delta \text{ Price}} = \frac{5}{10} = 0.5$$

$$\% \Delta \text{Q.D} < \% \Delta \text{P} \Rightarrow E_p < 1$$

$E_x = \Theta 3.$

$E_y = \Theta 2.$

$E_x > E_y$

Q= $E_x = 0.5$

(a) -0.5 ✓

(b) 0.5

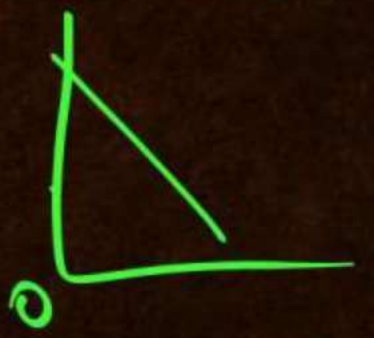
Topic: Point Elasticity

The point elasticity of demand is the price elasticity of demand at a particular point on the demand curve. The concept of point elasticity is used for measuring price elasticity where the change in price is infinitesimal (negligible or very small).

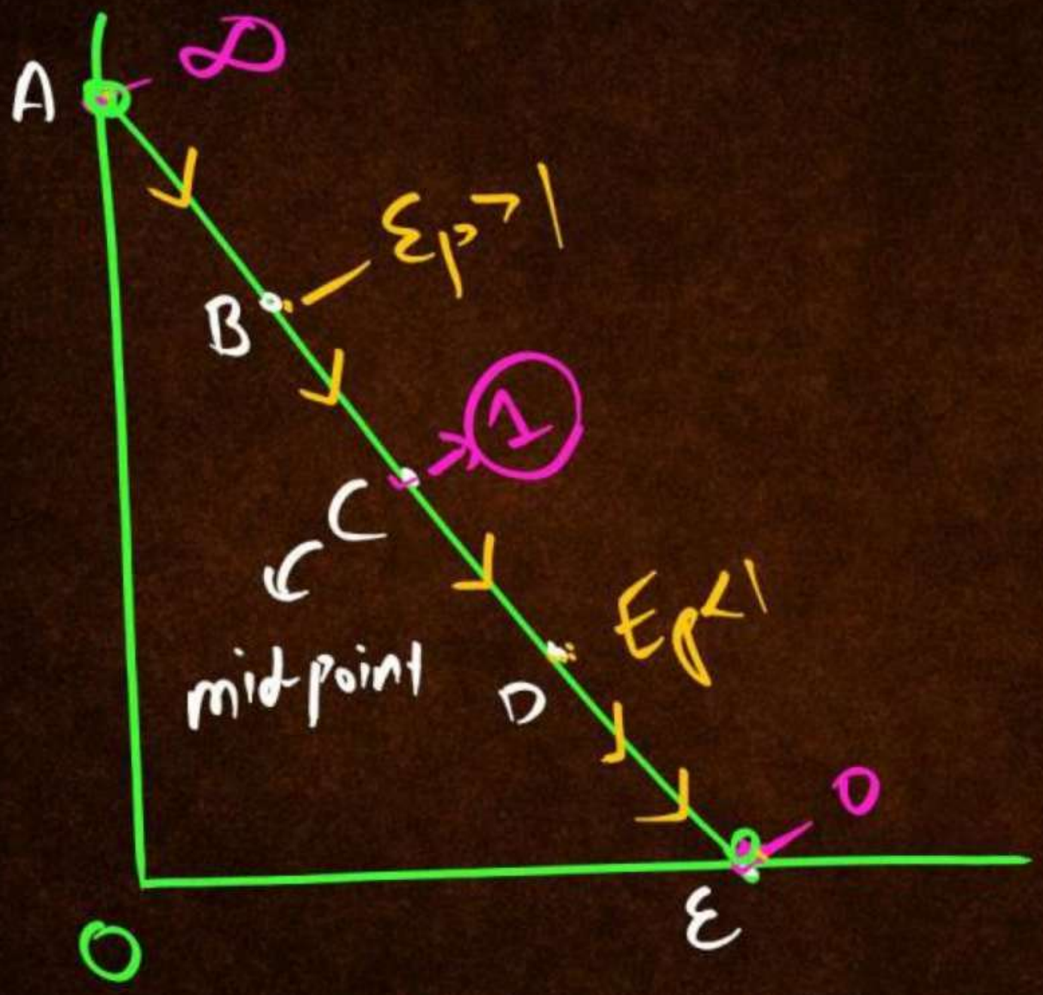
$$E_D = \frac{-dq}{dp} \times \frac{p}{q}$$

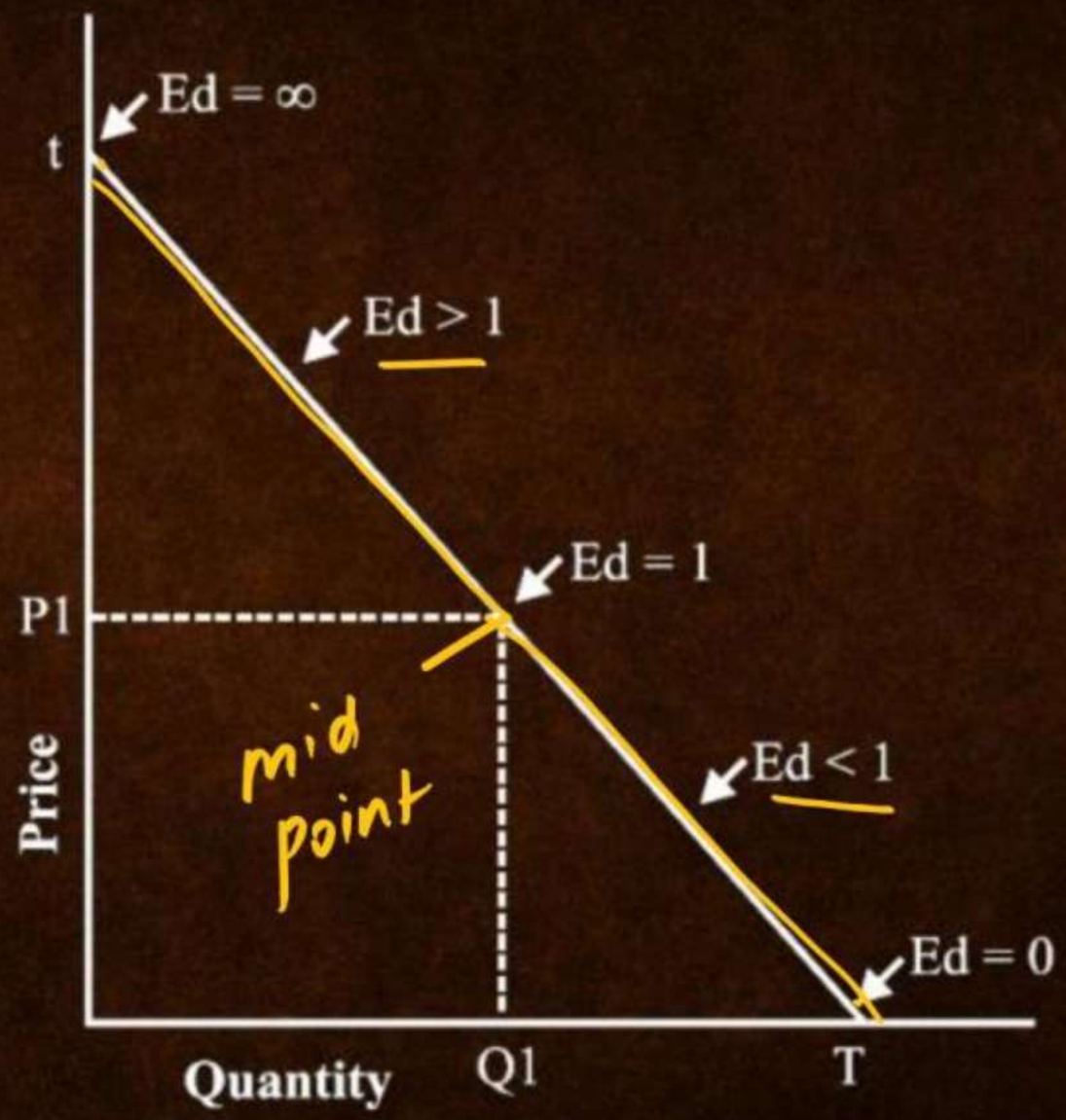
Measurement of Elasticity on a Linear Demand Curve- Geometric Method :

$$E_p = \frac{\text{Lower Segment of the Demand Curve}}{\text{Upper Segment of Demand Curve}}$$



$$E_p = \frac{\text{lower DD}}{\text{upper DD}}$$




Ed = ∞
t
Ed > 1
Ed = 1
P1
mid point
Ed < 1
Ed = 0
Price
Quantity
Q1
T

Arc – Elasticity method

OR

Mid – point method

$$E_p = \frac{\Delta Q}{\Delta P} \times \frac{P_1 + P_2}{Q_1 + Q_2}$$

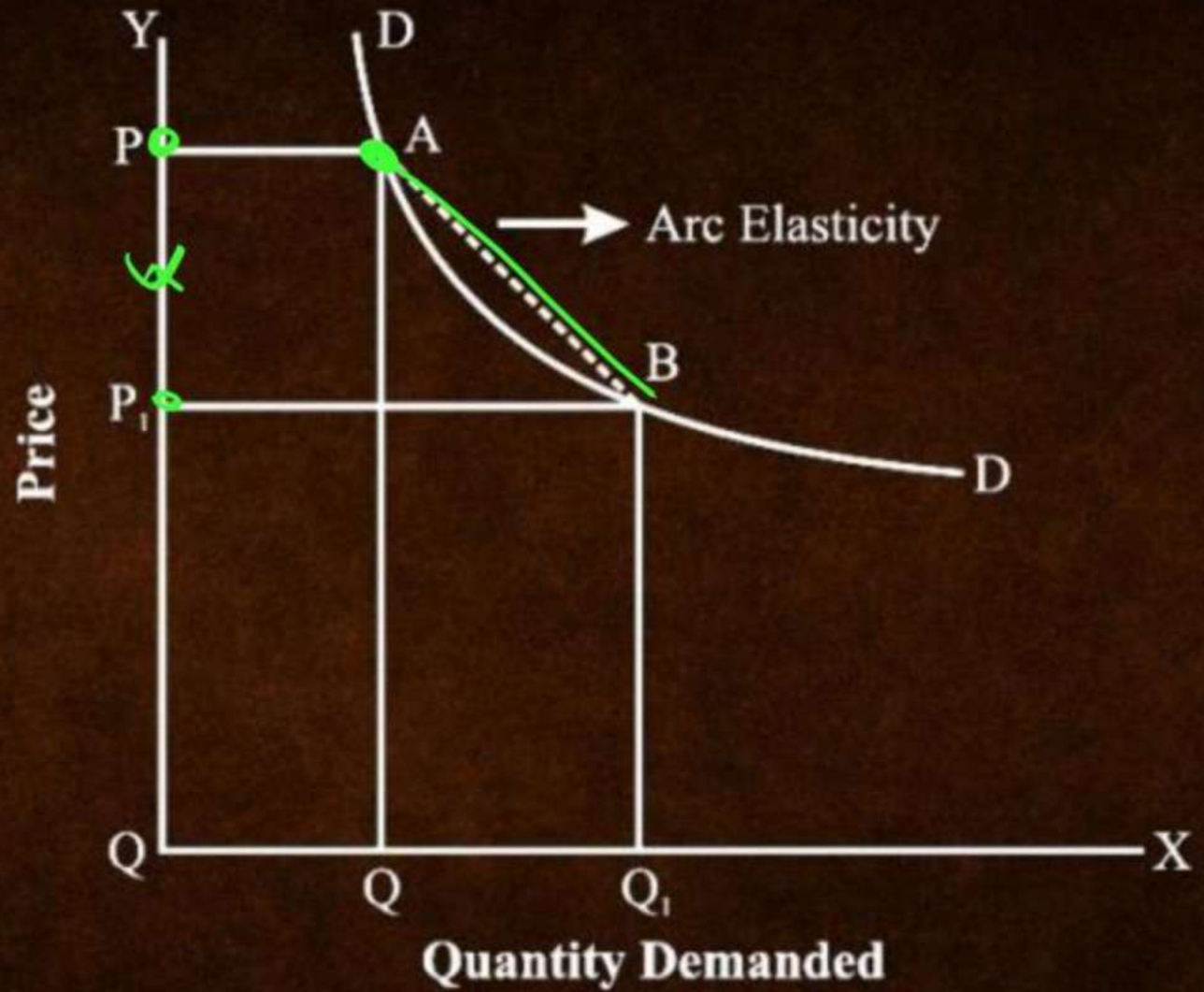
$$\frac{\Delta Q}{\Delta P} \times \frac{\frac{P_1 + P_2}{2}}{\frac{Q_1 + Q_2}{2}}$$

Arc-Elasticity (mid-point method) :

$$Ep = \frac{\frac{Q_2 - Q_1}{(Q_2 + Q_1)/2}}{\frac{P_2 - P_1}{(P_2 + P_1)/2}}$$

$$Ep = \frac{Q_2 - Q_1}{Q_2 + Q_1} \times \frac{P_2 + P_1}{P_2 - P_1}$$

$$\frac{\Delta Q}{\Delta P} \times \frac{P_1 + P_2}{Q_1 + Q_2}$$


Y
D
P
A
Arc Elasticity
B
P1
Price
D
Q
X
Q
Q1
Quantity Demanded

Total Expn / outlay

$$TE = P \times Q$$

$$50 = 10 \times 5$$

P↑ TE↑
P↓ TE↓ ⇒ $E_p < 1$

P	Q.D.	TE
10	100	1000
20	90	1800

P↑ TE↓
P↓ TE↑ ⇒ $E_p > 1$

P	Q.D.	TE
10	100	1000
20	40	800

TE → Constant

P	Q.D.	TE
10	100	1000
20	50	1000

→ $E_p = 1$

$$E_d = \frac{\Delta Q}{\Delta P} \times \frac{P + P_1}{Q + Q_1}$$ ← mid-Point

Total Outlay (Expenditure) Method of Calculating Price Elasticity.

If Price and Total Expenditure are :-

(I) Indirectly related ⇒ $EP_P > 1$

P ↑ TE ↓ P ↓ TE ↑

(II) Directly Related ⇒ $E_P < 1$

P ↑ TE ↑ P ↓ TE ↓

(III) Not related ⇒ TE → Constant ⇒ $E_p = 1$

Topic: Total Revenue

Total revenue (TR) = Price × Quantity sold

Except in the rare case of a good with perfectly elastic or perfectly inelastic demand, when a seller raises the price of a good, there are two effects which act in opposite directions on revenue.

- **Price effect:** After a price increase (decrease), each unit sold sells at a higher (lower) price, which tends to raise (lower) the revenue.
- **Quantity effect:** After a price increase (decrease), fewer (more) units are sold, which tends to lower (increase) the revenue.

Determinants of Price Elasticity of Demand :

Factors influencing whether demand for a product is elastic or inelastic.

1. **Availability of Substitutes:**

   Example: Butter, cars, soft drinks have substitutes. Price changes lead to substantial substitution.

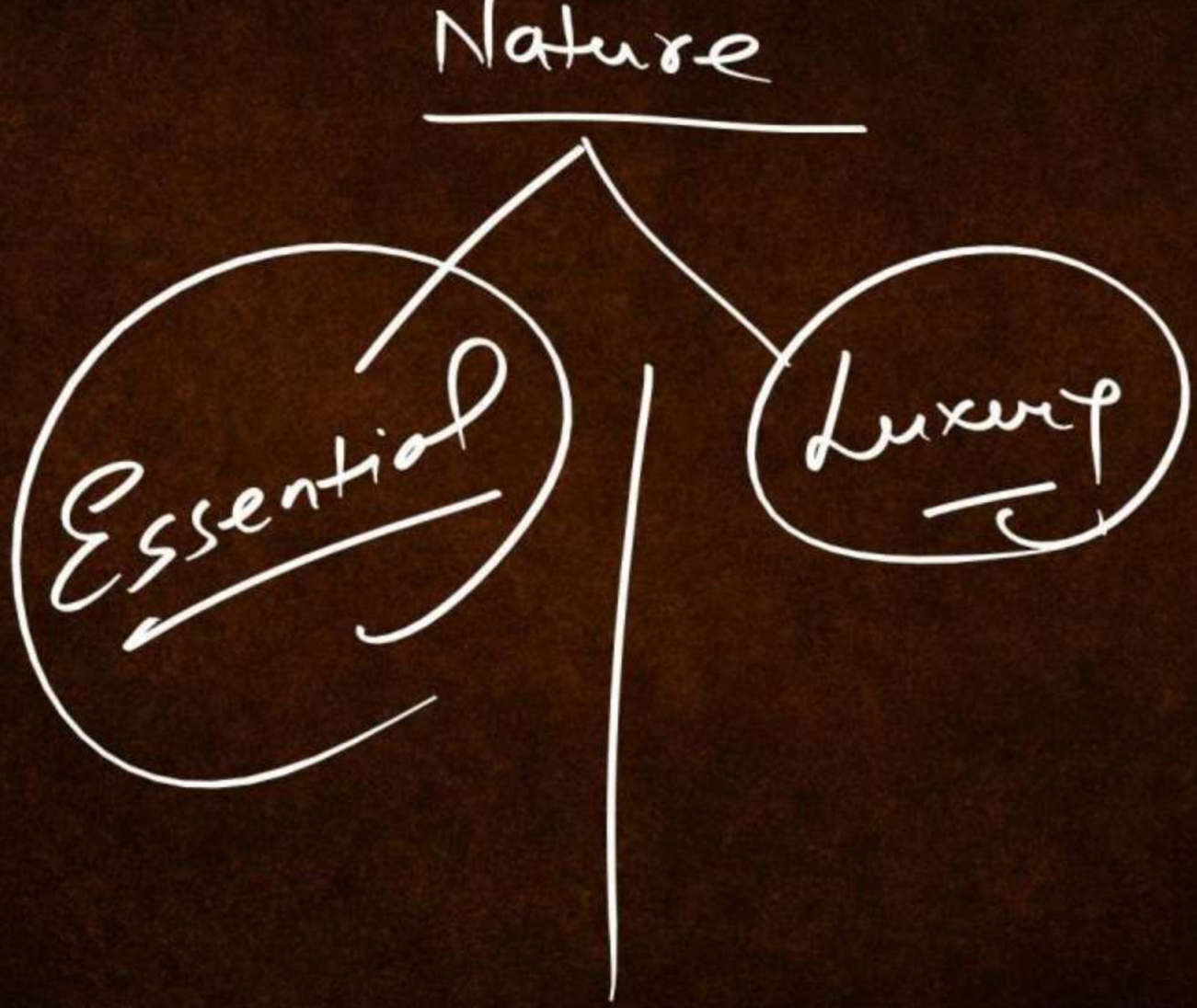
   More substitutes, greater elasticity.

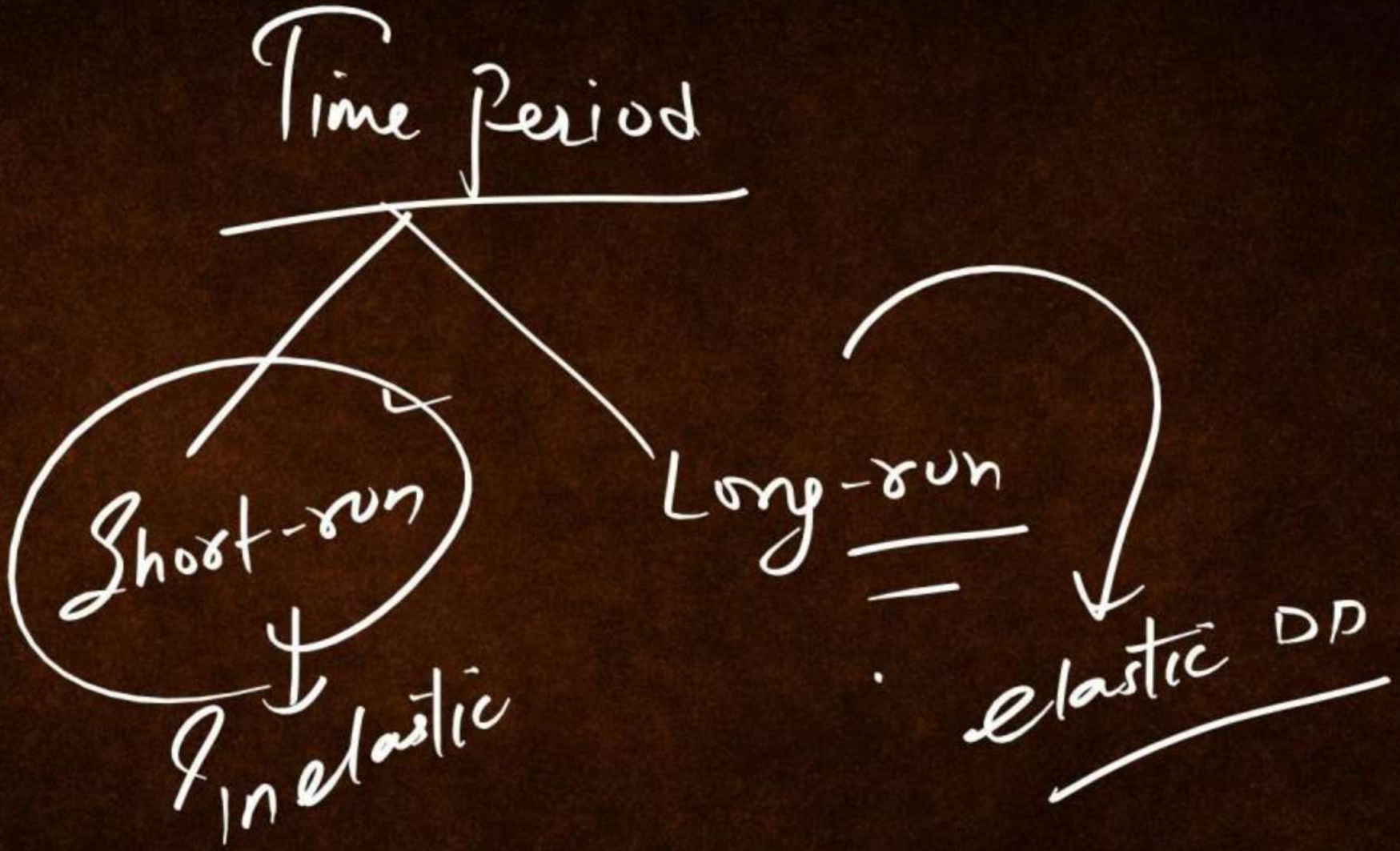
2. **Position in Consumer's Budget:**

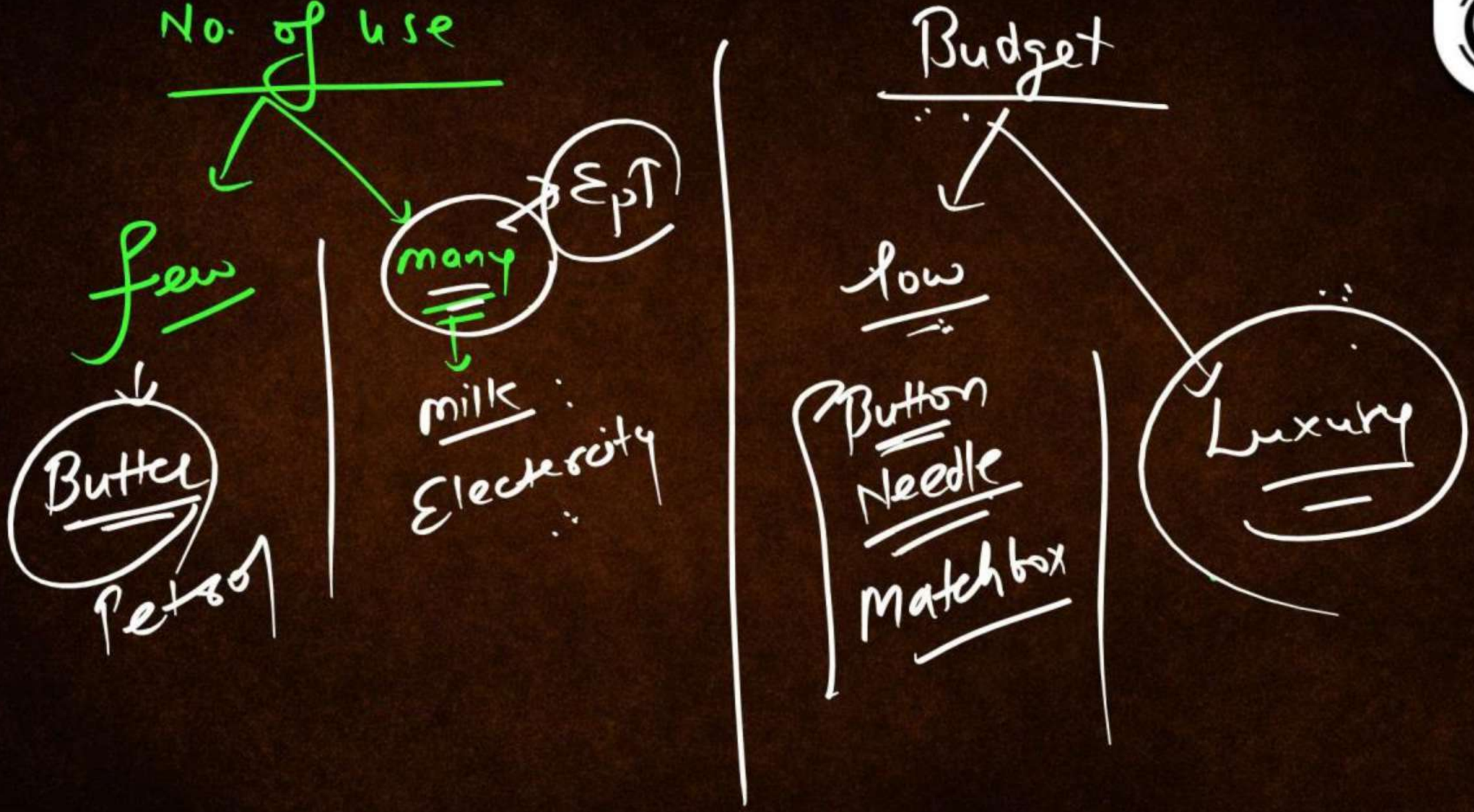
   Example: Goods like salt have inelastic demand; spend a small fraction of income. Elastic goods like clothing absorb a significant part of income.

3. **Nature of the Need:**

   Example: Luxury goods (e.g., home theatre) are elastic, necessities (e.g., food, housing) are inelastic. Elastic if consumption can be postponed.


Nature
Essential
Luxury


Time Period
Short-run
Inelastic
Long-run
elastic DD


No. of use
Few
Butter
Petrol
many
EPT
milk
Electricity
Budget
low
Button
Needle
Matchbox
Luxury

4. **Number of Uses:**

   Example: Milk has multiple uses. Price drop extends consumption; price rise limits use to essential purposes. More uses, greater elasticity.

5. **Time Period:**

   Example: Longer time allows adjustments. Short-term: reduce car trips. Long-term: change habits or buy a more fuel-efficient car.

6. **Consumer Habits:**

   Example: Habitual consumers show inelastic demand. Rigid preferences make demand less price elastic.

7. **Tied Demand:**

   Example: Goods tied to others (e.g., printers and ink cartridges) have inelastic demand.

Price Range

8. **Price Range:**

Example: Very high or low-priced goods have inelastic demand. Middle-range goods have elastic demand.

9. **Minor Complementary Items:**

Example: Demand for cheap complementary items for costlier products tends to be inelastic. Income Elasticity of Demand :

- The income elasticity of demand measures the degree of responsiveness of quantity demanded to changes in income of the consumers
- The income elasticity is defined as a ratio of percentage change in the quantity demanded to the percentage change in income

$$\text{Income Elasticity} = \frac{\%\ \text{Change in Quantity Demanded}}{\%\ \text{Chance in Income}}$$

QUESTION

Qty.

#Q. Demand for a commodity refers to:

A desire backed by ability to pay for the commodity

B need for the commodity and willingness to pay for it

C the quantity demanded of that commodity at a certain price

D the quantity of the commodity demanded at a certain price during any particular period of time

D

QUESTION

#Q. Contraction of demand is the result of :

PJ DL

A decrease in the number of consumers

B increase in the price of the good concerned

C increase in the prices of other goods

D decrease in the income of purchasers

B

QUESTION

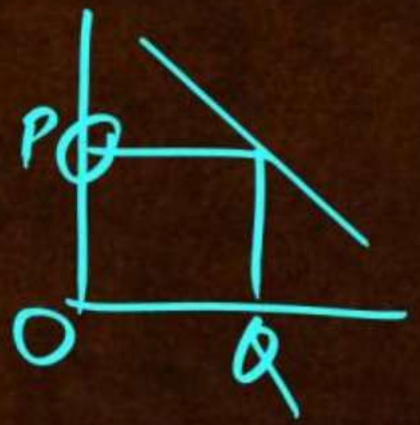
#Q. All but one of the following are assumed to remain the same while drawing an individual's demand curve for a commodity. Which one is it?

A. The preference of the individual

B. His monetary income

C. Price of the commodity

D. Price of related goods



QUESTION

#Q. If the price of Pepsi decreases relative to the price of Coke and 7-UP, the demand for:

$P_y \downarrow \rightarrow D_x \downarrow$

A Coke will decrease

B 7-Up will decrease

C Coke and 7-UP will increase

D Coke and 7-Up will decrease (D)

QUESTION

#Q. Which of the following pairs of goods is an example of substitutes?

A Tea and sugar

B Tea and coffee

C Pen and ink

D Shirt and trousers

QUESTION

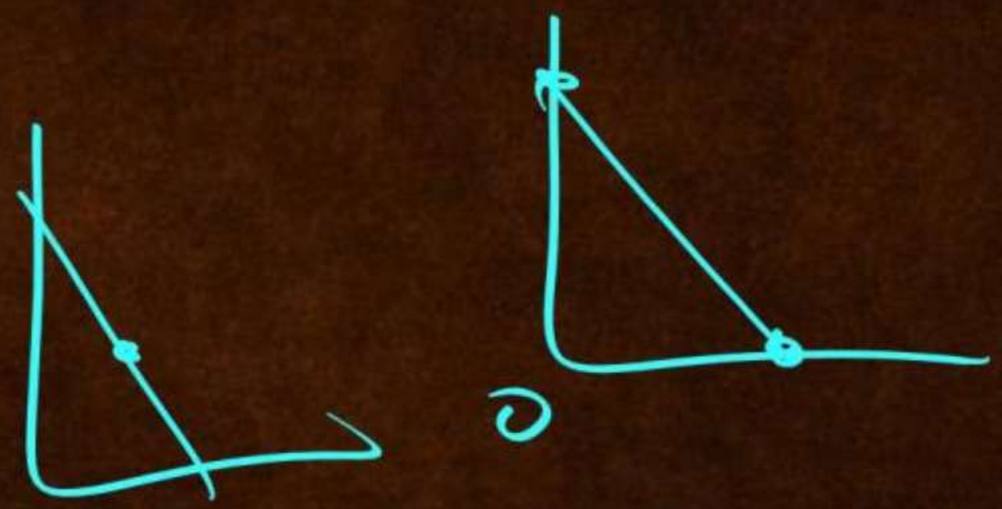
#Q. In the case of a straight line demand curve meeting the two axes, the price-elasticity of demand at the mid-point of the line would be:

A 0

B 1

C 1.5

D 2



QUESTION

#Q. Point elasticity is useful for which of the following situations?

A. The bookstore is considering doubling the price of notebooks

B. A restaurant is considering lowering the price of its most expensive dishes by 50 percent

C. An auto producer is interested in determining the response of consumers to the price of cars being lowered by ₹ 100

D. None of the above

QUESTION

#Q. Demand for a good will tend to be more inelastic if it exhibits which of the following characteristics?

↓

Show

A. The good has many substitutes

B. The good is a luxury (as opposed to a necessity)

C. The good is a small part of the consumer's income | Budget ©

D. There is a great deal of time for the consumer to adjust to the change in prices

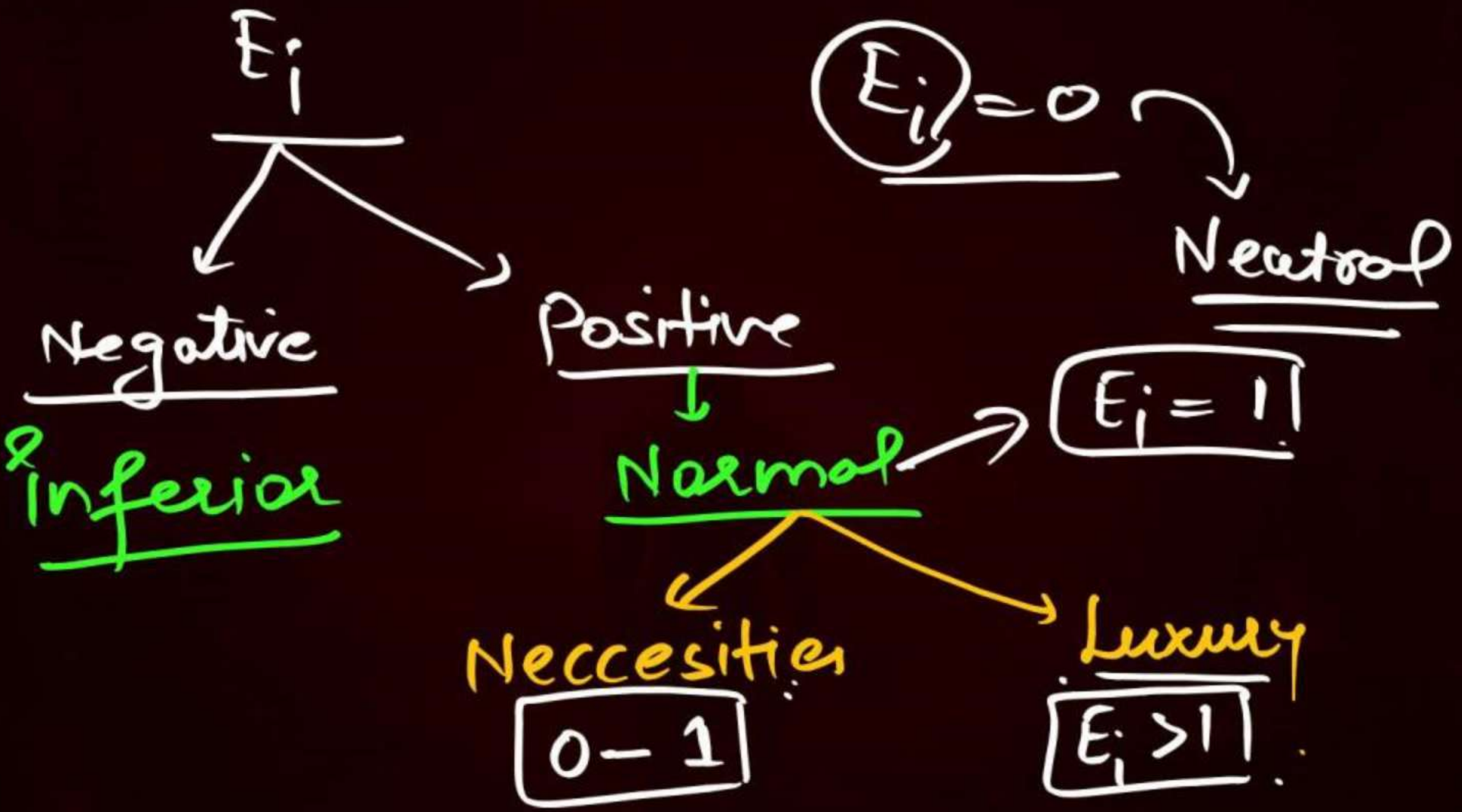
Topic: Income Elasticity of Demand

$$E_i = \frac{\%\ \Delta \text{ in } Q.D.}{\%\ \Delta \text{ in income}}$$

$$= \frac{\Delta Q}{\Delta Y} \times \frac{Y}{Q}$$

$$= \frac{5}{\cancel{100}} \times \frac{\cancel{100}}{10} = \boxed{0.5}$$

Y	D
100	10 → Q_1
200	15 → Q_2
$\Delta Y = 100$	5 = ΔQ


E_i
$E_i = 0$
Neutral
Negative
&
Inferior
Positive
$E_i = 1$
Normal
Neccesities
0 – 1
Luxury
$E_i > 1$

$$\text{Income Elasticity} = \frac{\%\ \text{Change in Quantity Demanded}}{\%\ \text{Chance in Income}}$$

$$\text{Symbolically} \Rightarrow E_y = \frac{\Delta Q}{\Delta Y} \times \frac{Y}{Q}$$

The income elasticity of demand is Positive for all normal or luxury goods and the income elasticity of demand is Negative for inferior goods. Income elasticity can be classified under five heads:

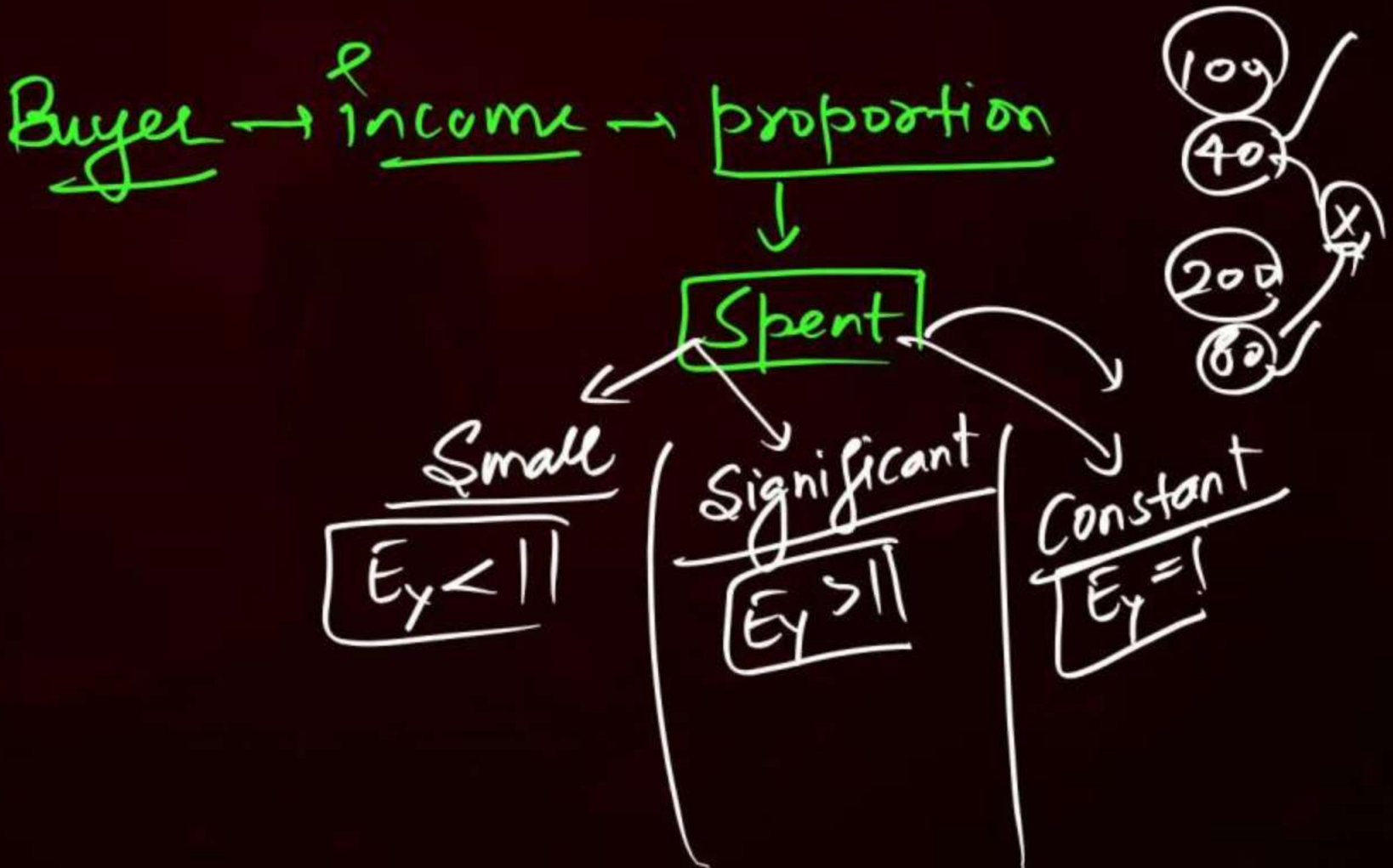
1. **Zero Income Elasticity:** $E_i = 0$

- It means that a given increase in income does not at all lead to any increase in quantity demanded of the commodity.
- In other words , demand for the commodity is completely income inelastic or $E_y = 0$
- Commodities having zero income elasticity are called Neutral Goods.
- Example Demand in case of Salt, Match Box, Kerosene Oil, Post Cards, etc.

2. **Negative Income Elasticity;**
   - It means that an increase in income results in fall in the quantity demanded of the commodity or $E_y < 0$.
   - Commodities having negative income elasticity are called Inferior Goods. Example Jawar, Bajra, etc.
3. **Unitary Income Elasticity:**
   - It means that the proportion of consumer's income spent on the commodity remains unchanged
   - before and after the increase in income or Ey = 1. This represents a useful dividing
4. **Income Elasticity Greater Than Unity:**
   - It refers to a situation where the consumers spends Greater proportion of his income on a commodity when he becomes richer. $E_y > 1$
   - Example In the case of Luxuries like cars, T.V. sets, music system, etc.

5. Income Elasticity Less Than Unity:

- It refers to a situation where the consumer spends a Smaller proportion of his income on a commodity when he becomes richer. $E_y < 1$.


Buyer → Income → proportion
Spent
Small
Ey<1
Significant
Ey>1
Constant
Ey=1
10
40
20
60
X

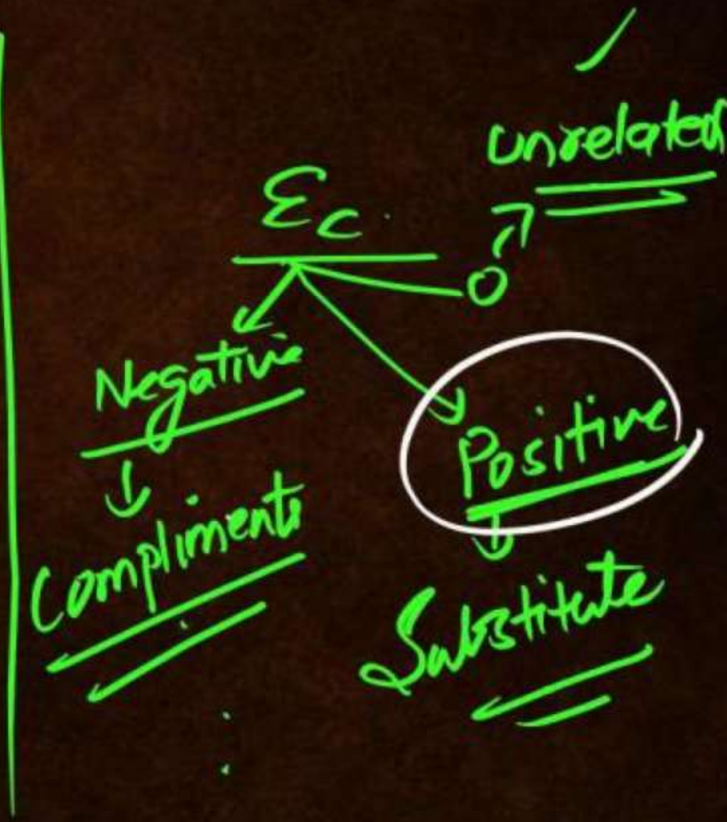
Topic: Cross Price Elasticity of Demand

↓

2 goods

$$E_C = \frac{\%\ \Delta \text{ in } Q_{\cdot} D_x}{\%\ \Delta \text{ in } P_{Y_{\cdot}}}$$

$$= \frac{\Delta Q_x}{\Delta P_y} \times \frac{P_y}{Q_x}$$



Topic: Cross Price Elasticity of Demand

Cross Demand Definition: Examines how changes in the prices of related goods impact the demand for a specific commodity. Focuses on complementary and substitute goods.

1. **Substitute Products and Demand:** If two goods are substitutes, an increase in the price of one leads to an increase in the demand for the other.

   Example: If the price of tea (X axis) rises, people buy more coffee (Y axis), a substitute. The cross demand curve slopes upwards.

2. **Complementary Goods :** For complementary goods, a change in the price of one affects the demand for the other in the opposite direction.

Example: If the price of solar panels rises, demand for batteries (complementary) falls. In the case of bread and butter, an increase in bread prices reduces the demand for butter.

$$E_a = \frac{\%\ \Delta \text{ in } Q.D.}{\%\ \Delta \text{ in } Exp^n \text{ on } Adv.}$$

$$= \frac{\Delta Q}{\Delta A} \times \frac{A}{Q}$$

Topic: Advertisement Elasticity

Advertisement elasticity of sales or promotional elasticity of demand is the responsiveness of a good's demand to changes in the firm's spending on advertising. The advertising elasticity of demand measures the percentage change in demand that occurs given a one percent change in advertising expenditure.

Advertising elasticity measures the effectiveness of an advertisement campaign in bringing about new sales.

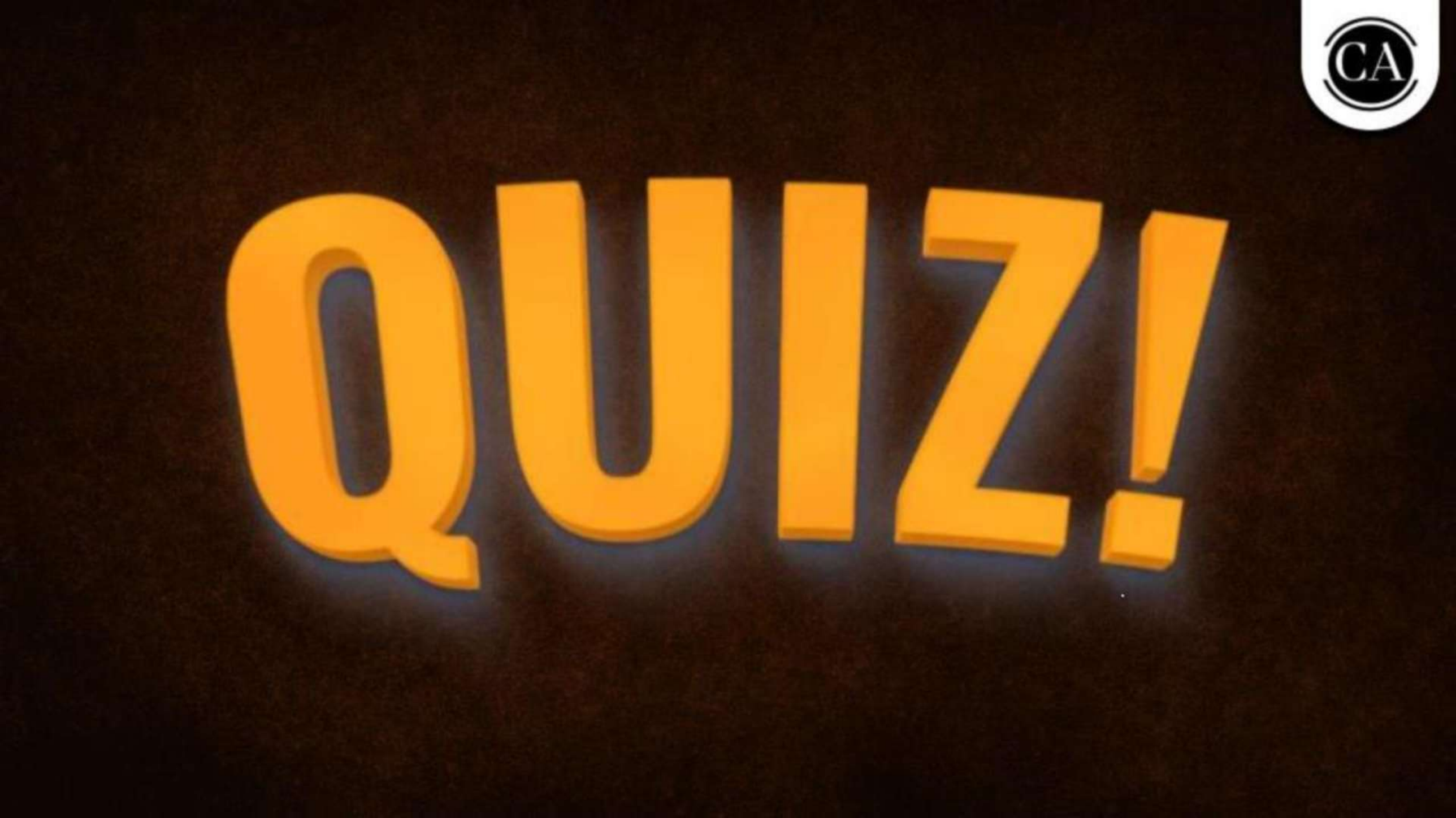
Advertising elasticity of demand is typically positive. Higher the value of advertising elasticity greater will be the responsiveness of demand to change in advertisement.

Advertisement elasticity varies between zero and infinity. It is measured by using the formula;

$$Ea = \frac{\%\ \text{Change inquantity demanded}}{\%\ \text{Change inspedingonadvertising}}$$

$$Ea = \frac{\Delta Q\, d/Q.d}{\Delta A/A} = \frac{\Delta Q}{\Delta A} \times \frac{A}{Q}$$

Elasticity	Interpretation
Ea = 0	Demand does not respond at all to increase in advertisement expenditure
Ea > 0 but < 1	Increase in demand is less than proportionate to the increase in advertisement expenditure
Ea = 1	Demand increase in the same proportion in which advertisement expenditure increase
Ea > 1	Demand increase at a higher rate than increase in advertisement expenditure


QUIZ!

QUESTION

#Q. Identify the factor which generally keeps the price-elasticity of demand for a good low:

$E_d \downarrow$

A Variety of uses for that good

B Very low price of a commodity

B

C Close substitutes for that good

D High proportion of the consumer's income spent on it

QUESTION

#Q. Identify the coefficient of price-elasticity of demand when the percentage increase in the quantity of a good demanded is smaller than the percentage fall in its price:

A Equal to one

B Greater than one

C Less than one (C)

D Zero

$\% \Delta Q_D < \% \Delta P$

$\frac{\% \Delta Q_D}{\% \Delta P} = \frac{9}{10} = 0.9$

QUESTION

#Q. In the case of an inferior good, the income elasticity of demand is:

A Positive

B Zero

C Negative

C

D infinite

QUESTION

#Q. If the demand for a good is inelastic an increase in its price will cause the total expenditure of the consumers of the good to:

A Remain the same

B Increase

C Decrease

D Any of these

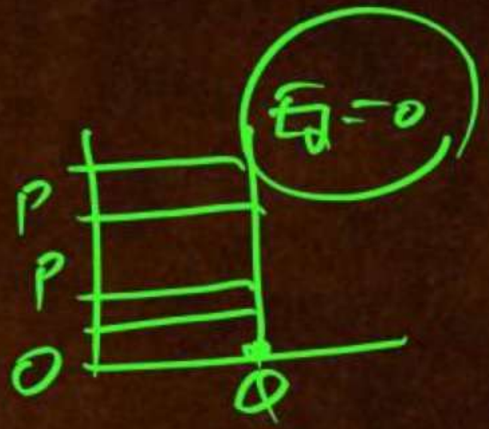
$E_p < 1$

P↑ TE↑
P↓ TE↓

B

QUESTION

#Q. If regardless of changes in its price, the quantity demanded of a good remains unchanged, then the demand curve for the good will be:



A horizontal

B Vertical (B)

C positively sloped

D negatively sloped

Slope of DD curve $= \frac{\Delta P}{\Delta Q}$

$$E_p = \frac{\Delta Q}{\Delta P} \times \frac{P}{Q} = \frac{1}{\text{Slope}} \times \frac{P}{Q}$$

Slope ↑ ⟶ E_D ↓

QUESTION

#Q. Suppose the price of Pepsi increases, we will expect the demand curve of Coca Cola to:

$P_y \uparrow \rightarrow D_x \uparrow$

A. Shift towards left since these are substitutes

B. Shift towards right since these are substitutes (B)

C. Remain at the same level

D. None of the above

QUESTION

#Q. If a good is a luxury, its income elasticity of demand is:

A Positive and less than 1

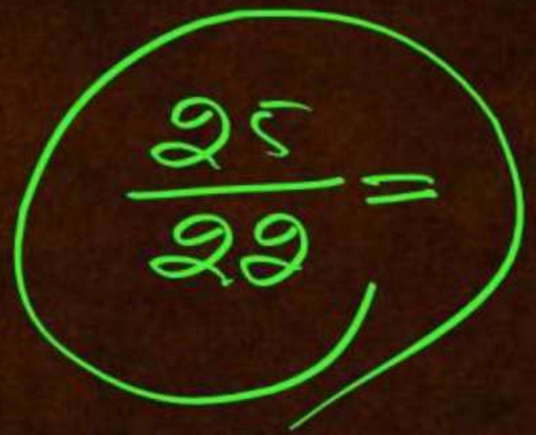
B Negative but greater than-1

C Positive and greater than 1 C

D Zero

QUESTION

#Q. The price of hot dogs increases by 22% and the quantity of hot dogs demanded falls by 25%. This indicates that demand for hot dogs is:



A Elastic (A)

B Inelastic

C Unitarily elastic

D Perfectly elastic

QUESTION

#Q. If the quantity demanded of mutton increases by 5% when the price of chicken increases by 20%, the cross-price elasticity of demand between mutton and chicken is

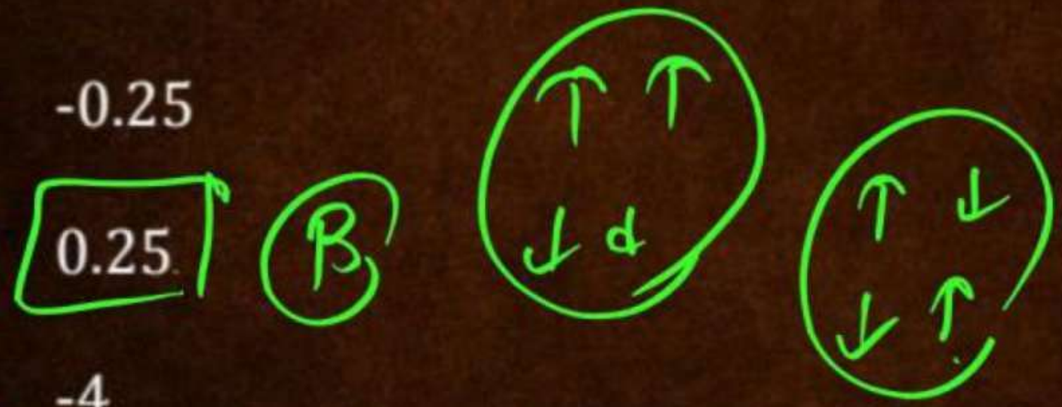
$\frac{5}{20} = 0.25$

A -0.25

B 0.25

C -4

D 4



QUESTION

#Q. Suppose a department store has a sale on its silverware. If the price of a plate-setting is reduced from ₹ 300 to ₹ 200 and the quantity demanded increases from 3,000 plate-settings to 5,000 plate-settings, what is the price elasticity of demand for silverware? (Use Arc Elasticity Method)

A .8

B 1.0

C 1.25

D 1.50

P	D
300	3000
200	5000

$$E_p = \frac{\Delta Q}{\Delta P} \times \frac{P_1 + P_2}{Q_1 + Q_2}$$

$$= \frac{2000}{100} \times \frac{500}{8000} = 1.25$$

QUESTION

#Q. When the numerical value of cross elasticity between two goods is very high, it means

A. The goods are perfect complements and therefore have to be used together

B. The goods are perfect substitutes and can be used with ease in place of one another

C. There is a high degree of substitutability between the two goods

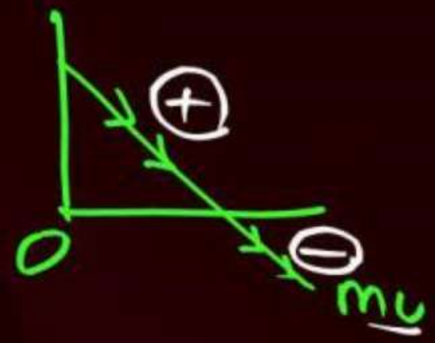
D. The goods are neutral and therefore cannot be considered as substitutes

Topic: Unit 2 : Theory of Consumer Behaviour

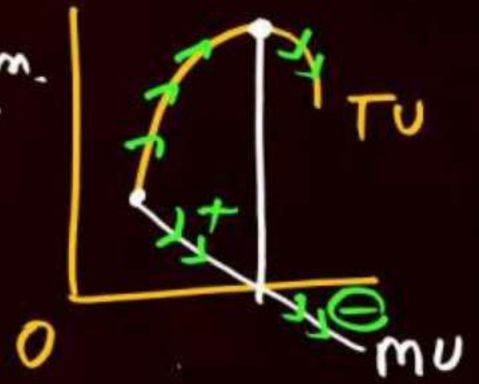
Utility

Utile / Utils

Qty.	MU	TU
1	10	10
2	8	18
3	6	24
4	4	28
5	0	28
6	(−)2	26



① MU = 0, TU → max^m.
② MU (+), TU ↑
③ MU (−), TU ↓



Q↑ → MU ↓ → Law of Diminishing MU

Q	MU	TU
1	10	10
2	18	28

Q	TU	MU
1	10	10
2	28	18

$$MU_n = TU_n - TU_{n-1} = \frac{\Delta TU}{\Delta Q}$$

$$= 28 - 10$$

$$= 18$$

Q	TU	MU
1	10	10
3	16	$\frac{6}{2} = 3$

$\Delta Q = 2$

$\therefore$

$$\frac{\Delta TU}{\Delta Q} = 3$$

Topic: Unit 2 : Theory of Consumer Behaviour

Meaning Of wants

- All desires, tastes and motives of human beings are called wants in Economics.
- Wants may arise due to elementary and psychological causes.
- Since the resources are limited, we have to choose between the urgent wants and the not so urgent wants.

Features of 'Wants'

All wants of human beings exhibit some characteristic features:-

1. Wants are unlimited in number. They are never completely satisfied.
2. Wants differ in intensity. Some are urgent, others are felt less intensely.

3. Each want is satiable. → Capable of Being Satisfied.
4. Wants are competitive. They compete each other for satisfaction because resources are scarce to satisfy all wants.
5. Wants are complementary. Some wants can be satisfied only by using more than one good or group of goods.
6. Wants are alternative.
7. Wants are subjective and relative. → Person to Person / Time|Place to Time|Place
8. Wants vary with time, place, and person.
9. Some wants recur again whereas others do not occur again and again.
10. Wants may become habits and customs.
11. Wants are affected by income, taste, fashion, advertisements and social customs.
12. Wants arise from multiple causes such as natural instincts, social obligation and individual's economic and social status

Classification of 'Wants'

- In Economics, wants are classified into three categories, viz., necessaries, comforts and luxuries.
- Necessaries
  - Necessaries are those which are essential for living. Necessaries are further sub-divided into:- necessaries for life or existence, necessaries for efficiency and conventional necessaries.

1. **Necessaries for life** are things necessary to meet the minimum physiological needs for the maintenance of life such as minimum amount of food, clothing and shelter.

2. **Necessaries for Efficiency:-** Man requires something more than the necessities of life to maintain longevity, energy and efficiency of work, such as nourishing food, adequate clothing, clean water, comfortable dwelling, education, recreation etc. These are necessaries for efficiency.

3. **Conventional necessaries** arise either due to pressure of habit or due to compelling social customs and conventions. They are not necessary either for existence or for efficiency.

Comforts

- While necessaries make life possible comforts make life comfortable and satisfying. Comforts are less urgent than necessaries. Tasty and wholesome food, good house, clothes that suit different occasions, audio-visual and labour saving equipment's etc. make life more comfortable.

(iv) Luxuries

- Luxuries are those wants which are superfluous and expensive. They are not essential for living. Items such as expensive clothing, exclusive motor cars, classy furniture, goods used for vanity etc fall under this category.

Consumer Equilibrium → MU Analysis

maximizes his utility.

Conditions

* Single Commodity
  1. MU ↓
  2. $\frac{MU_x}{P_x} = MU_m$ ① | $MU_x = P_x$

MU of money

* Double Commodities
  1. MU ↓
  2. $\frac{MU_x}{P_x} = \frac{MU_y}{P_y} = MU_m$

Topic: Concept of Utility

The concept of utility is used in neo classical Economics to explain the operation of the law of demand.

- Meaning
  - Utility is the want satisfying power of a commodity.
    - Point to be noted:-
      Utility is the anticipated satisfaction by the consumer, and satisfaction is the actual satisfaction derived. A commodity has utility for a consumer even when it is not consumed.
- Features of Utility
  - It is a subjective entity and varies from person to person.

- A commodity has different utility for the same person at different places or at different points of time.
- Utility v/s Usefulness:-

  It should be noted that utility is not the same thing as usefulness. From the economic standpoint, even harmful things like liquor, may be said to have utility because people want them. Thus, in Economics, the concept of utility is ethically neutral.

- Various Approaches to utility
  - From time to time, different theories have been advanced to explain consumer behaviour and thus to explain his demand for the product. Two important theories are
    1. Marginal Utility Analysis propounded by Marshall, and
    2. Indifference Curve Analysis propounded by Hicks & Allen

Cardinal Approach of Utility Analysis:

This theory which is formulated by Alfred Marshall, a British economist, seeks to explain how a consumer spends his income on different goods and services so as to attain maximum satisfaction.

Concept of Total Utility and Marginal Utility

- **Total Utility**
  - Total utility is the sum of marginal utilities derived from the consumption of different units i.e. TU= MU1+MU2+…….+MUn
- **Marginal Utility**
  - it is the utility derived from the marginal or one additional unit consumed
  - Symbolically, MUn_= TUn – TUn-1
  - MU can be positive, zero or negative

Topic: A Law of Diminishing Marginal Utility

What is the law

- Marshall who was the exponent of the marginal utility analysis, stated the law as follows:

"The additional benefit which a person derives from a given increase in the stock of a thing diminishes with every increase in the stock that he already has."

In other words, as a consumer increases the consumption of any one commodity keeping constant the consumption of all other commodities, the marginal utility of the variable commodity must eventually decline.

Topic: Relationship between TU and MU

1. Total utility rises as long as MU is positive, but at a diminishing rate because MU is diminishing.
2. When marginal utility is zero, total utility is maximum. It is a saturation point.
3. When marginal utility is negative, total utility is diminishing
4. MU is the rate of change of TU or the slope of TU.

Topic: Concept of Consumer Equilibrium

- It is a situation where a consumer maximizes his total utility out of given income and resources.
  - The consumer is at equilibrium (one good) where:
    Marginal Utility of the commodity = Price of the commodity
    $MU_X = P_X$.MU money
    $\frac{MU_x}{P_x}$ = MU money
  - In reality, a consumer spends his money income to buy different commodities. In case of many commodities, consumer equilibrium is explained with the Law of Equi-Marginal Utility.

- The consumer is said to be equilibrium (two goods) when the following condition is met-

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y} \text{ MU money}$$

OR

$$\frac{MU_x}{MU_Y} = \frac{P_x}{P_y}$$

- Assumptions/Limitations of this Law of Diminishing Marginal Utility

(a) Homogenous units: The different units consumed should be identical in all respects. The habit, taste, temperament and income of the consumer also should remain unchanged.

(b) Standard units of Consumption: The different units consumed should consist of standard units. If a thirsty man is given water by successive spoonfuls, the utility of the second spoonful of water may conceivably be greater than the utility of the first.

(c) Continuous Consumption: There should be no time gap or interval between the consumption of one unit and another unit i.e. there should be continuous consumption.

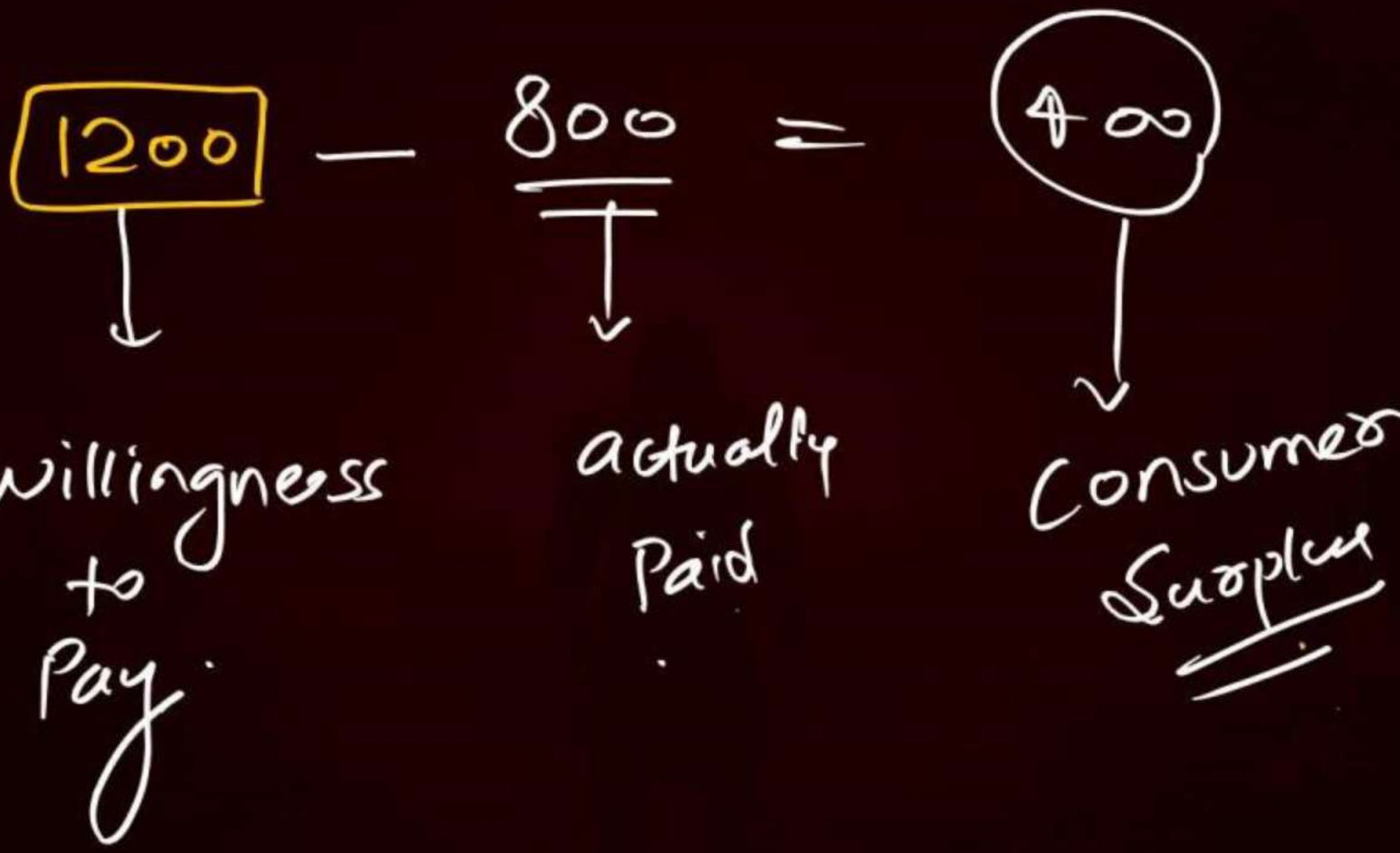
(d) The Law fails in the case of prestigious goods: The law may not apply to articles like gold, cash, diamonds etc. where a greater quantity may increase the utility rather than diminish it. It also fails to apply in the case of hobbies, alcohol, cigarettes, rare collections etc.

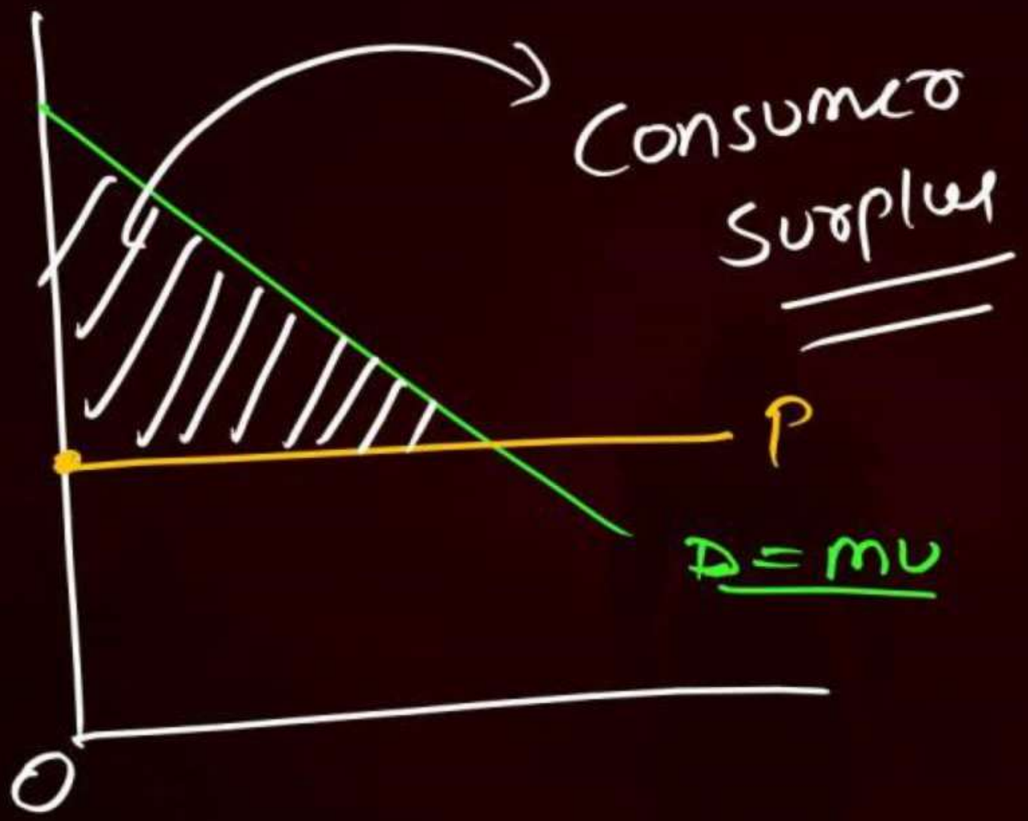
(e) Case of related goods: Utility is not in fact independent. The shape of the utility curve may be affected by the presence or absence of articles which are substitutes or complements. The utility obtained from tea may be seriously affected if no sugar is available and the utility of bottled soft drinks will be affected by the availability of fresh juice.

(f) Based on unrealistic assumptions: The assumptions of cardinal measurability of utility, constancy of marginal utility of money, continuous consumption and consumer rationality are unrealistic

Calculate


Want


1200
800
400
Willingness to Pay
actually Paid
Consumer Surplus


Consumer Surplus
P
D = MU
O

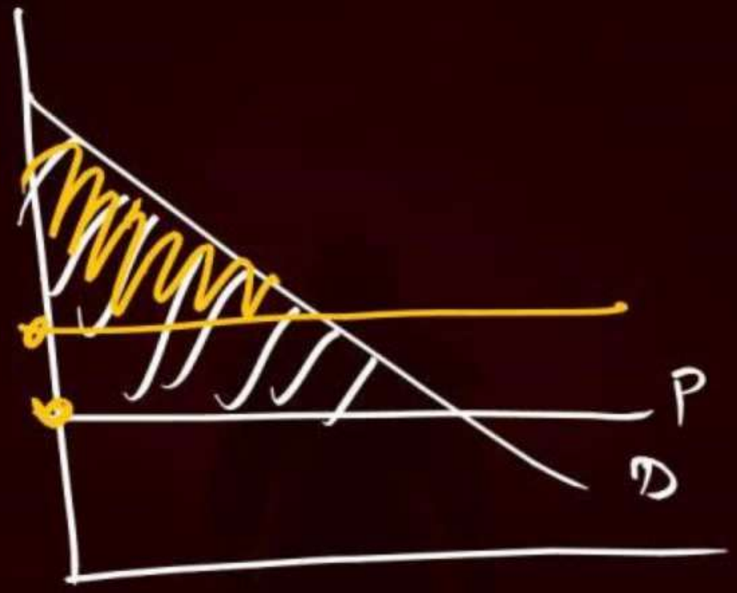
Topic: Concept of Consumer Surplus

Marshall defined the concept of consumer's surplus as the "excess of the price which a consumer would be willing to pay rather than go without a thing over that which he actually does pay", is called consumer's surplus."

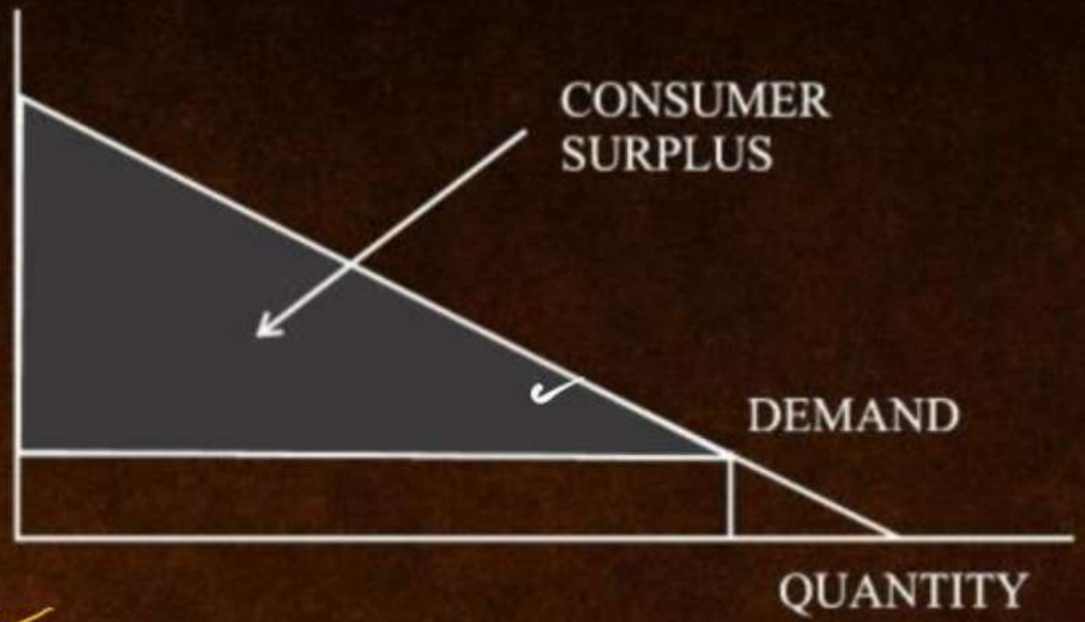
Thus consumer's surplus = what a consumer is ready to pay – what he actually pays

= Sum of Marginal Utilities – (Price × Units Purchased)

We can represent consumers surplus with the following diagram.



PT ↑ → C.S ↓



- Uses/Importance of the consumer surplus concept are as follows:-

1. **Study of Consumer behaviour to ensure repeated purchases:**
   Consumer surplus is a measure of the welfare that people gain from consuming goods and services. It is very important to a business firm to reflect on the amount of consumer surplus enjoyed by different segments of their customers because consumers who perceive large surplus are more likely to repeat their purchases.

2. Helpful in Price Discrimination

Understanding the nature and extent of surplus can help business managers make better decisions about setting prices. If a business can identify groups of consumers with different elasticity of demand within their market and the market segments which are willing and able to pay higher prices for the same products, then firms can profitably use price discrimination.

3. Useful in Investment decisions

Large scale investment decisions involve cost benefit analysis which takes into account the extent of consumer surplus which the projects may fetch.

4. **Useful in Pricing Decisions**

Knowledge of consumer surplus is also important when a firm considers raising its product prices Customers who enjoyed only a small amount of surplus may no longer be willing to buy products at higher prices. Firms making such decisions should expect to make fewer sales if they increase prices.

5. **Useful in deciding Taxation Policy**

Consumer surplus usually acts as a guide to finance ministers when they decide on the products on which taxes have to be imposed and the extent to which a commodity tax has to be raised. It is always desirable to impose taxes or increase the rates of taxes on commodities yielding high consumer's surplus because the loss of welfare to citizens will be minimal

- **CRITICISMS of the consumer's surplus concept are as follows:-**

1. **Imaginary concept**
2. **Cardinal measurement is not possible**
3. **Ignores the interdependence between goods:** The concept of consumer's surplus does not consider the effect of availability and non-availability of substitutes and complementary goods on the consumption of a particular commodity. Actually consumer surplus derived from a commodity is affected by substitutes and complementary goods.
4. **Cannot be measured in terms of money:** This is because the marginal utility of money changes as purchases are made and the consumer's stock of money diminishes. But, Marshall assumed that the marginal utility of money to be constant.

5. **Not applicable to Necessaries:**

It does not apply to the necessaries of life. In such cases the surplus is immeasurable e.g. - Food and Water. Consumer surplus is infinite because a consumer will stake whole of his income rather than go without them.

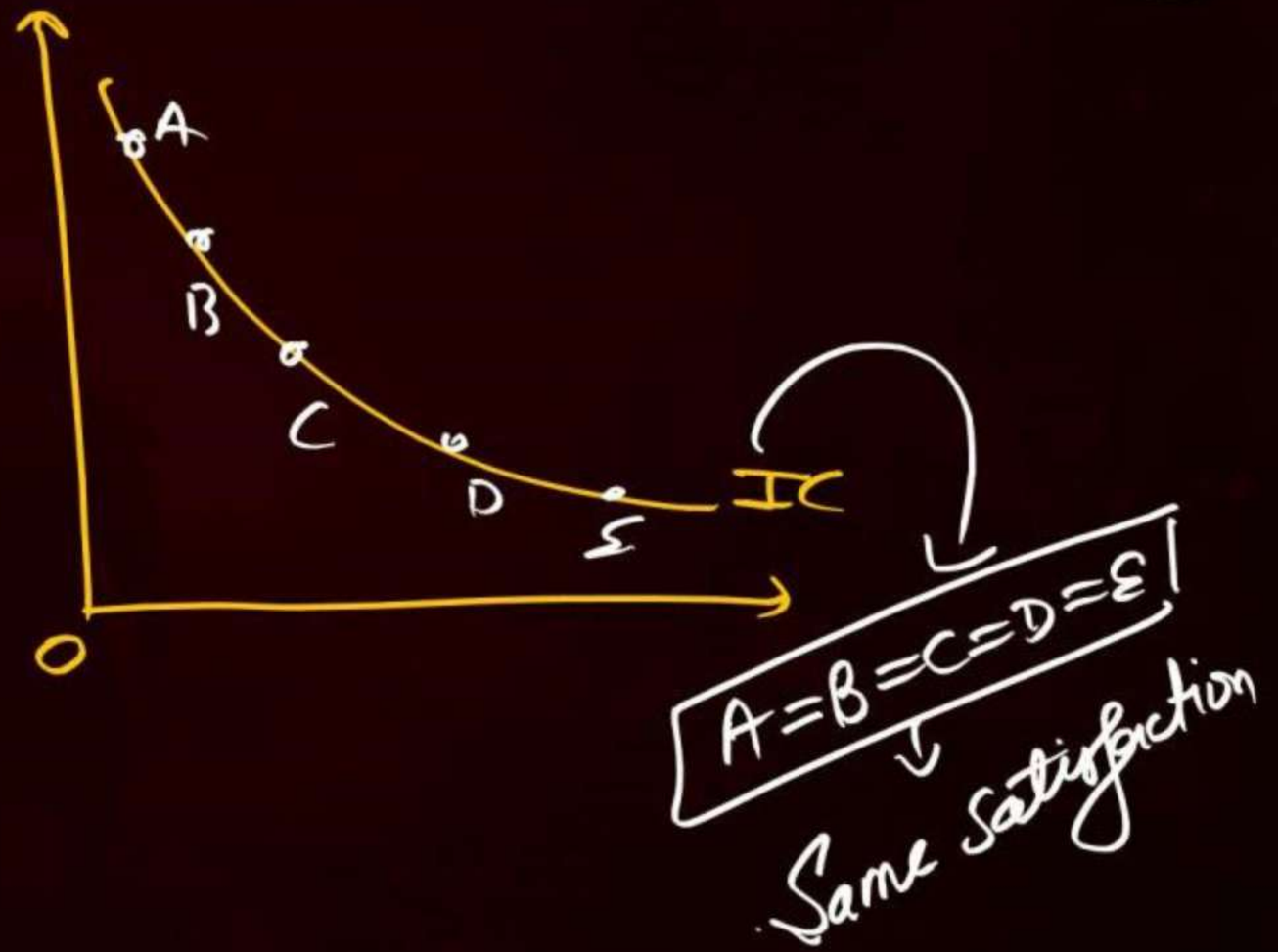
6. **Not applicable to prestige:** e.g. - Diamonds jewellery, etc. fall in their prices lead to a fall in consumer's surplus.

Indifference curve

↓

Same

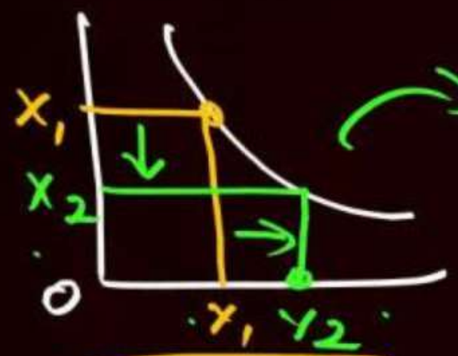
	(X) Tea	(Y) Biscuit
A (1,15)	1	15
B (2,10)	2	10
C (3,6)	3	6
D (4,3)	4	3
E (5,1)	5	1



	(X) Tea	(Y) Biscuit	MRS $\Delta y : \Delta x$
A (1,15)	1	15	
B (2,10)	2	10	5 : 1
C (3,6)	3	6	4 : 1
D (4,3)	4	3	3 : 1
E (5,1)	5	1	2 : 1

Slope of IC

$= MRS = \frac{\Delta y}{\Delta x}$



→ Downward Sloping

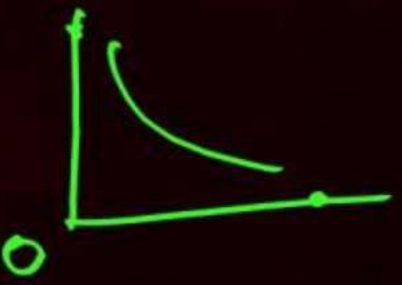
X↑ Y↓

$IC_3 > IC_2 > IC_1$

→ monotonic preference → more is preferred

→ 'it is not Possible

Transitivity



A = ε

B = ε

A ≠ B

B > A

Convex!

MRST ↗

MRS (constant) →

Topic: Indifference Curve Analysis – by Hicks and Allen

- This approach to consumer behaviour is based on consumer preferences.
- It believes that human satisfaction, being a psychological phenomenon, cannot be measured quantitatively in monetary terms as was attempted in Marshall's utility analysis. In this approach, it is felt that it is much easier and scientifically more sound to order preferences than to measure them in terms of money

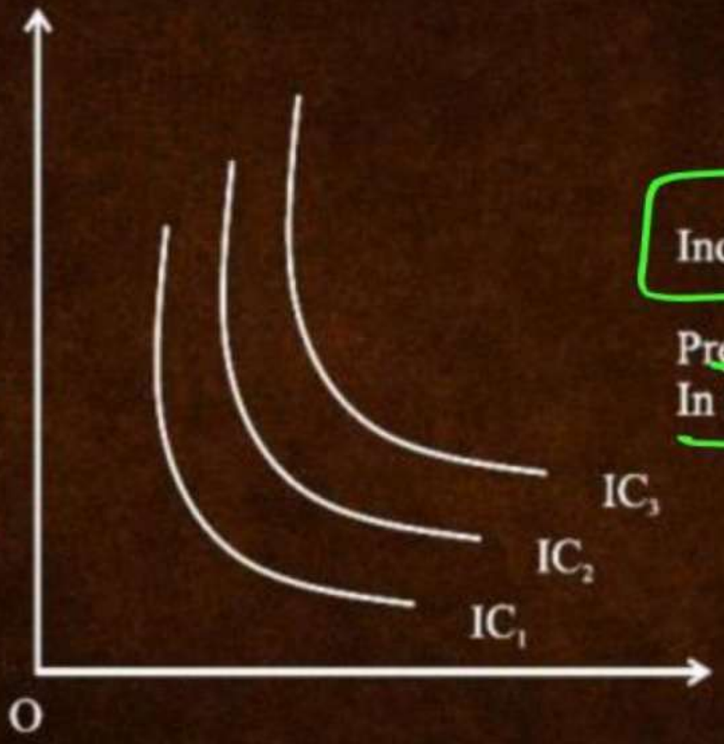
The consumer preference approach is, therefore, an ordinal concept based on ordering of preferences compared with Marshall's approach of cardinality.

- Concept of Indifference Curve
  - An indifference curve is a curve which represents all those combinations of two goods which give same satisfaction to the consumer.
  - Since all the combinations on an indifference curve give equal satisfaction to the consumer, the consumer is indifferent among them. In other words, since all the combinations provide the same level of satisfaction the consumer prefers them equally and does not mind which combination he gets.
  - An Indifference curve is also called iso- utility curve or equal utility curve.

- Concept of Marginal Rate of Substitution
  Marginal Rate of Substitution (MRS) is the rate at which a consumer is prepared to exchange goods X and Y.

  We can define MRS of X for Y as the amount of Y whose loss can just be compensated by a unit gain of X in such a manner that the level of satisfaction remains the same.

MRS ↓→Convex to origin
MRS ↑→Concave to origin
MRS → Constant → Straight line



Indifference Map

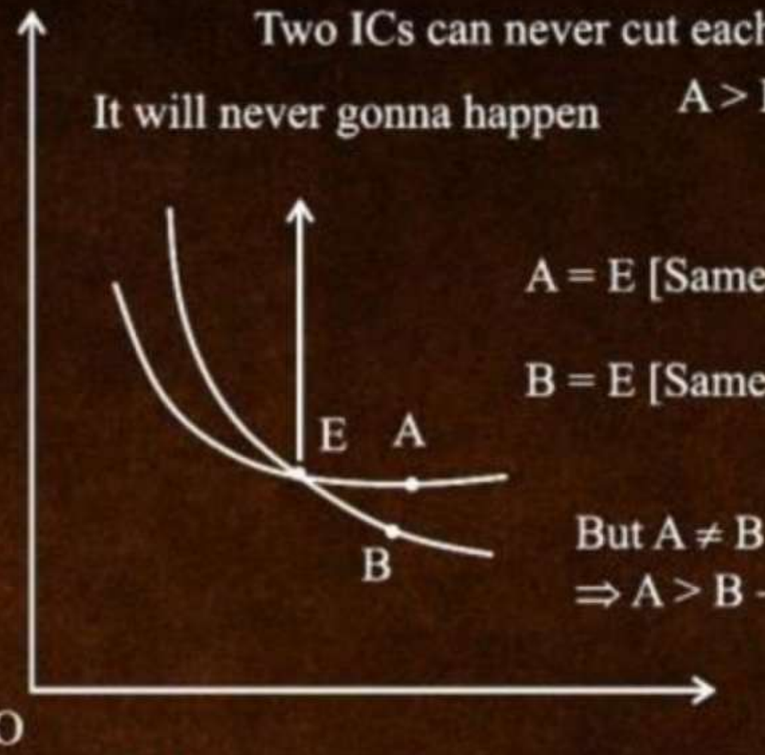
Presentation of more than one IC (Family of IC)
In a single diagram

- **Properties of Indifference Curve**

  (i) Indifference curves slope downward to the right – Reason:

  (ii) Indifference curves are always convex to the origin: Reason: Diminishing MRS

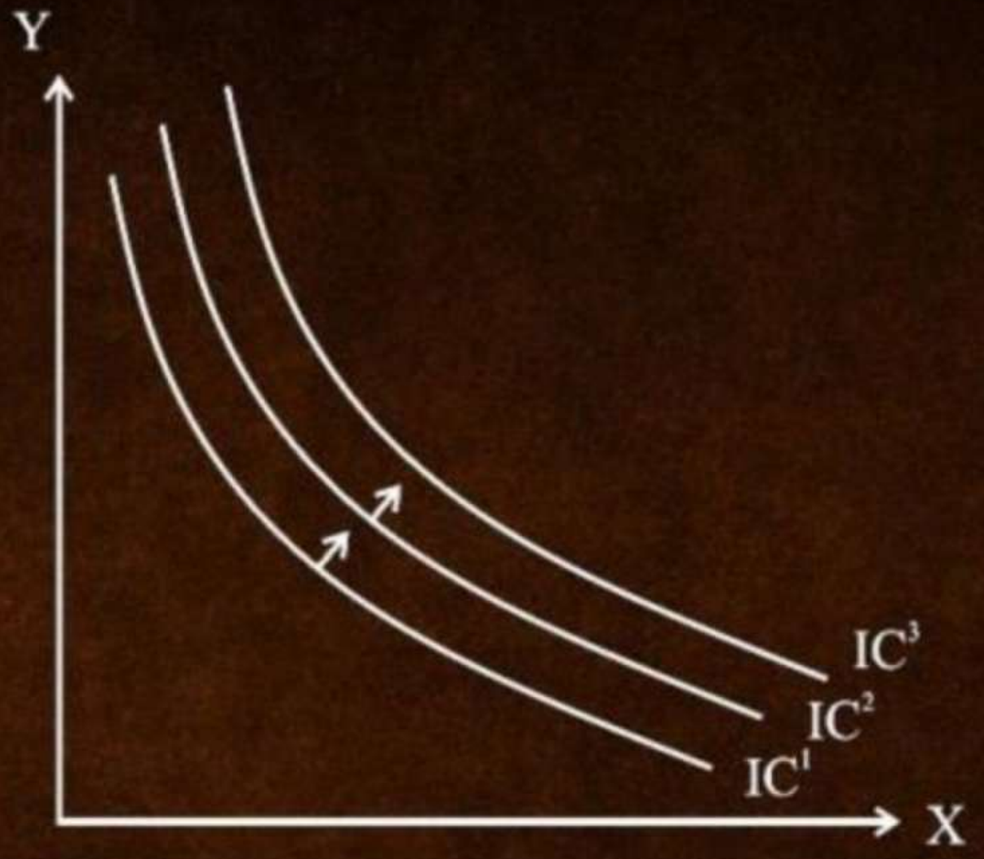
  (iii) Indifference curves can never intersect each other: Reason: transitivity



(iv) Higher Indifference Curves Represents Higher Level of Satisfaction

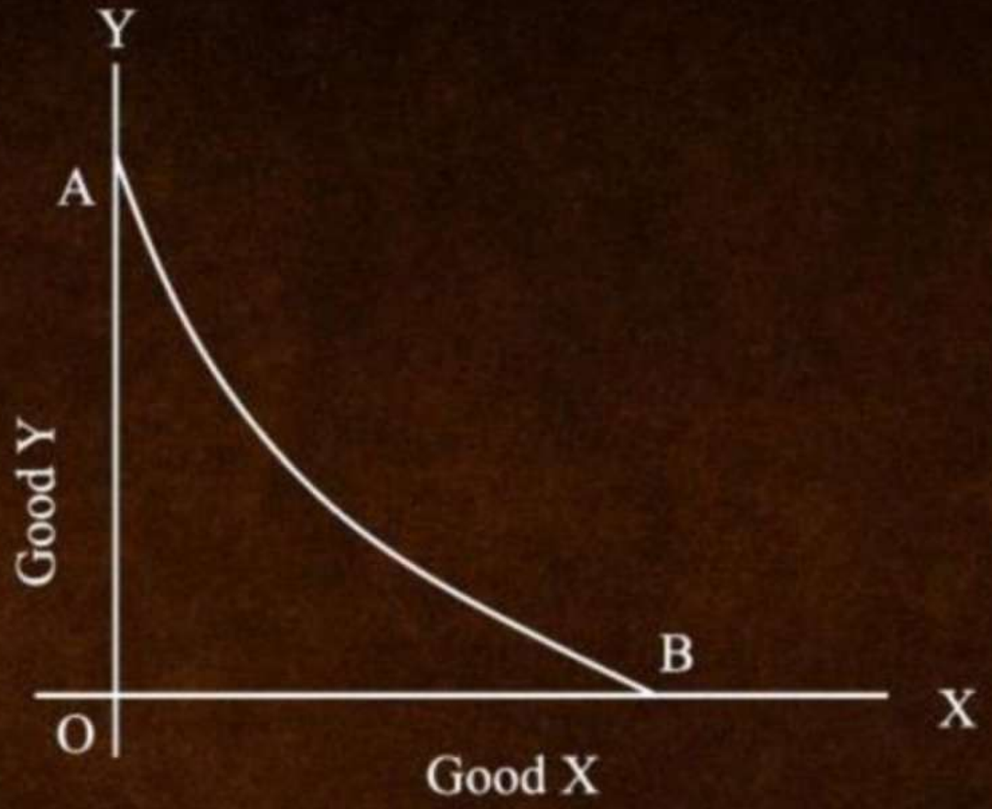
In an indifference map, combinations lying on a higher IC gives higher level of satisfaction than the combinations lying on a lower IC. But how much higher cannot be indicated.

REASON: monotonic preference

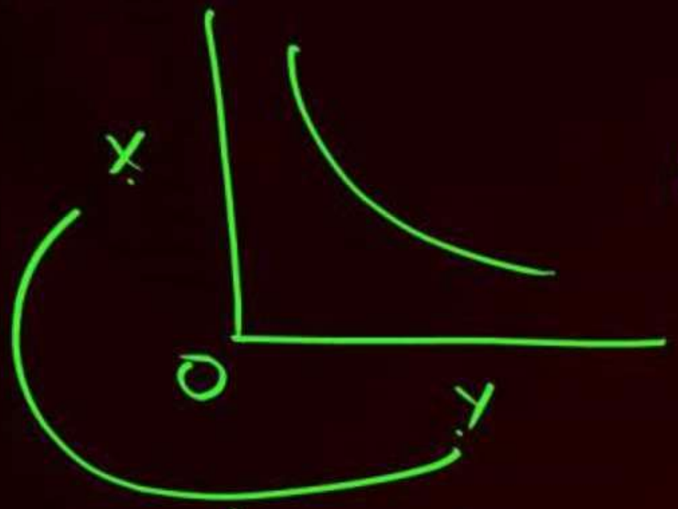


(v) Indifference curve will not touch either X-axis or Y-axis

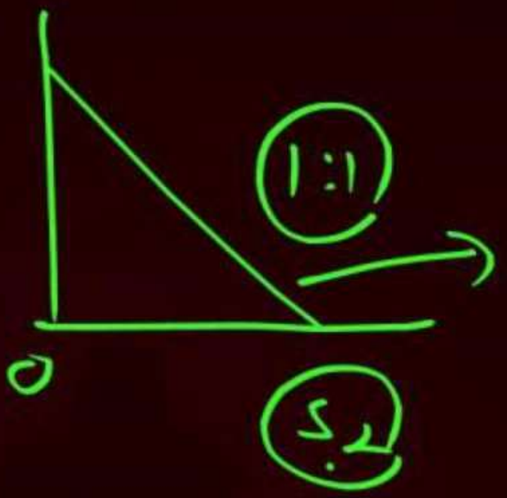
This is because we have assumed that consumer is considering the different combinations of TWO commodities.



- If IC touches either of the axis, it would mean that consumer is interested in one commodity only.
- In the diagram IC touches X-axis at point B and Y-axis at point A.



S1



S2

Imperfect Substitutes

Perfect Substitute → MRS Constant

Perfect complimentary

- At point B the consumer is satisfied with OB quantity of X-commodity and zero quantity of A. This is against the definition of IC. Therefore, IC curve will not touch either axis.

Two Extreme Situations

A. Shape of IC in case of Perfect Substitutes

When two goods are perfect substitutes of each other, the indifference curve is a straight line on which MRS is constant.

B. Shape of IC in case of Perfect Complementary Goods

When two goods are perfect complementary goods the indifference curve will consist of two straight lines with a right angle bent which is convex to the origin, or in other words, it will be L shaped.

Budget line | Price line

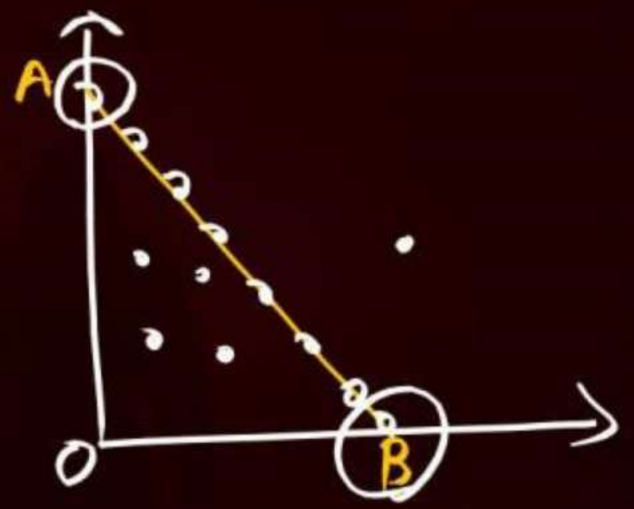
$M = 100$

$P_x = 20$

$P_y = 20$

Budget set

	x	y
A (0, 5)	0	5
B (1, 4)	1	4
C (2, 3)	2	3
D (3, 2)	3	2
E (4, 1)	4	1
F (5, 0)	5	0



Budget line | Price line

$M = 100$

$P_x = 20$

$P_y = 20$

Slope = MRS = Price ratio

$= -\frac{P_x}{P_y}$

Budget set

	X	Y	MRS
A (0, 5)	0	5	1 : 1
B (1, 4)	1	4	1 : 1
C (2, 3)	2	3	1 : 1
D (3, 2)	3	2	1 : 1
E (4, 1)	4	1	1 : 1
F (5, 0)	5	0	

Budget line

↓

Eqn

$$P_x \cdot Q_x + P_y \cdot Q_y = m$$

$P_x = 10$, $P_y = 12$, $m = 100$

$$10 Q_x + 12 P_y = 100$$

$$5 Q_x + 6 P_y = 50$$

- **Concept of Budget Line or Price Line**
  - A higher indifference curve shows a higher level of satisfaction than lower one. Therefore, to maximize satisfaction consumer will try to reach the highest possible indifference curve.
  - He will try to buy more and more goods to get more and more satisfaction. But, what and how much a consumer can actually buy depends on-
    (a) The money income of consumer, &
    (b) Prices of goods he wants to buy.

    They are the two objective factors which form the budgetary constraint of the consumer.

- **What does Budget Line show**

  The budgetary position of the consumer can be graphically shown by BUDGET LINE. A budget line or price line shows maximum quantity of the different combinations of TWO GOODS that the consumer can purchase with his given money income and given market prices of goods.

  Example:

  The consumer's money income is Rs. 100 to spend on X and Y. Price of X is Rs. 5 per unit Price of Y is Rs. 2 per unit Therefore, the consumer can get either 20 units of X and no Y.

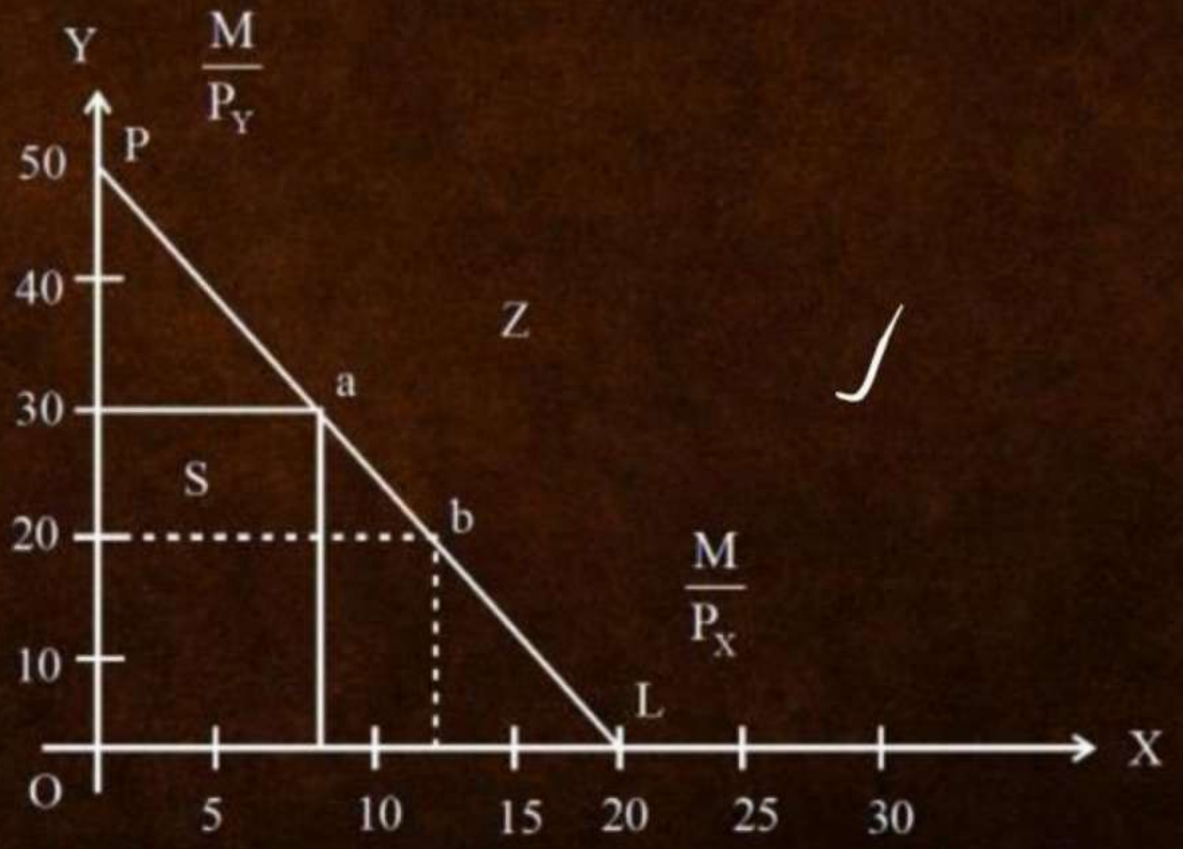
  OR

  50 units of Y and no X.

  OR

  Combination of X and Y

Hence, 20 X and 50 Y form the two extreme limits of his expenditure. But the consumer can buy any ONE of the many combinations of X and Y' within these limits. Graphically it can be shown as follows:-



This budget line corresponds to the following equation, called Budget Line Equation

$P_X.X + P_Y.Y = M$

Where-

M = Total Money Income

P_X = Price of commodity 'X'

X = Quantity of X commodity

P_Y = Price of commodity

Y = Quantity of 'Y' commodity

- Observations from Diagrammatic Representation of Budget Line
  - Attainable Combinations:-

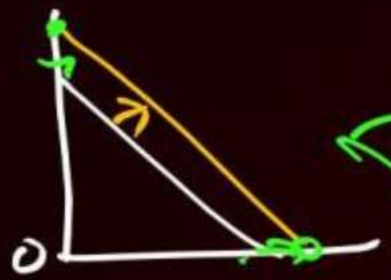
All points on the budget line represent those combinations of goods that can be purchased with the given amount of budget and at which complete budget is spent. On the other hand, points inside budget line represents those combinations at which entire budget is not spent i.e. some part of it remains unspent

- **Unattainable Combinations:-** ✓

Any point outside Budget line represents unattainable combination i.e. these goods cannot be purchased with the given budget and price levels. These can become attainable only in following scenarios:-

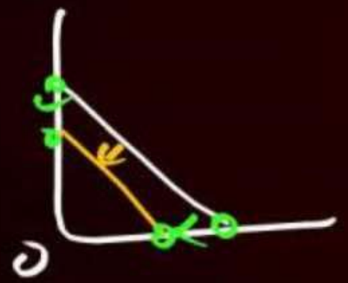
a) When prices of goods decrease

b) When budget of the customer increases



$P_x \downarrow P_y \downarrow$

$m \uparrow$



$P_x \uparrow P_y \uparrow$

$m \downarrow$

- Slope of Budget Line:-

  Slope of Budget line = Market Rate of Exchange MRE

  = Price Ratio

  $= \frac{P_X}{P_Y}$

  Q. $M = 100; P_X = 50; P_Y = 10$

  $\Rightarrow$ Slope $= -\frac{P_X}{P_Y} = -\frac{50}{10} = -5$

- Causes of shift in Budget Line:-

1. Change Price
2. Change in income

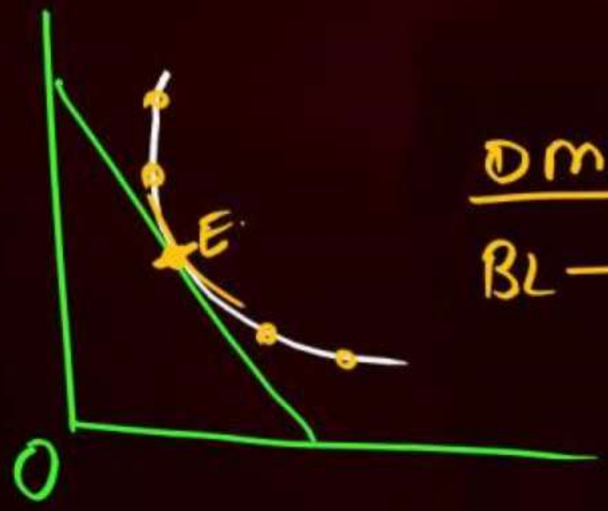
- **Consumer Equilibrium under Ordinal Approach**
  - Meaning

The consumer is said to be in equilibrium when he maximizes his satisfaction (i.e. utility), given the constraint of his limited budget

Consumer Eqb.

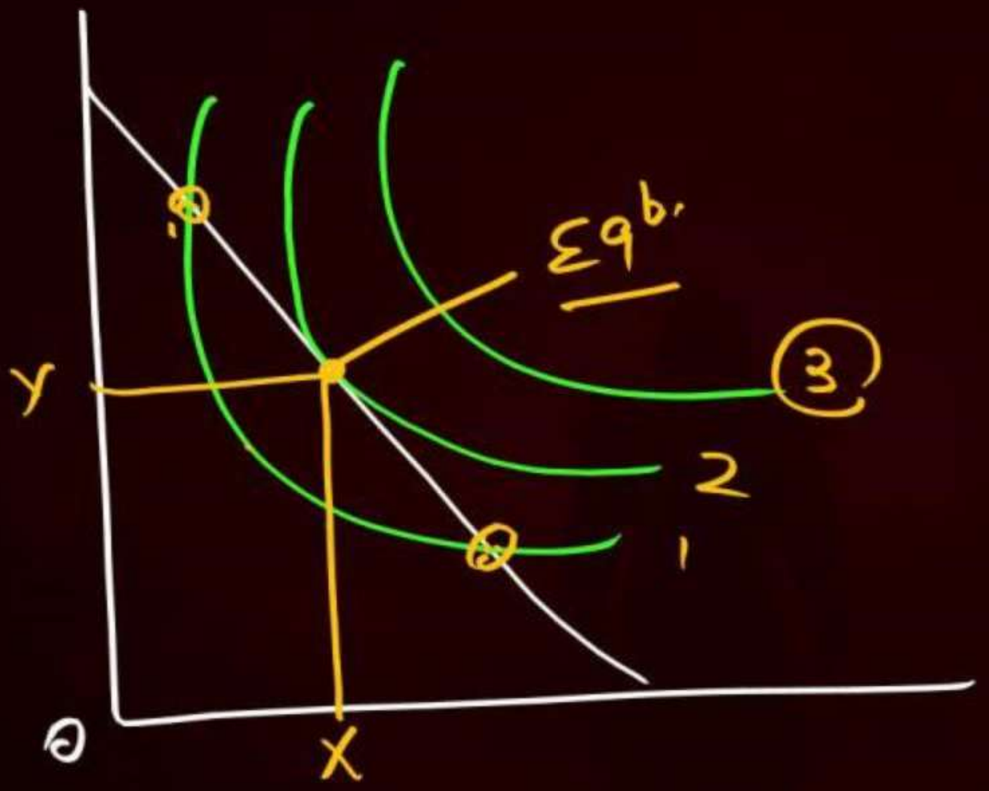
↓

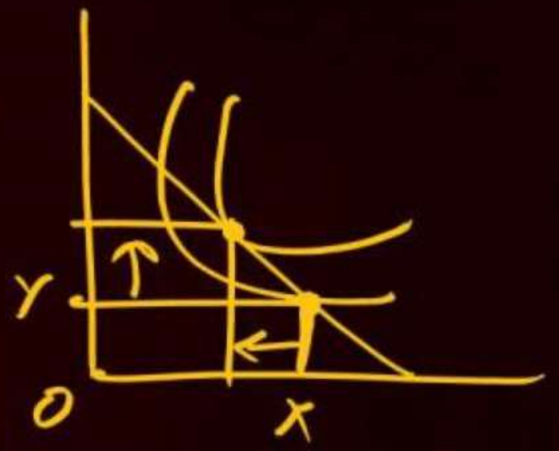
IC & BL ⟶ ordinal utility



① MRS

BL → tangent to IC





x ↓ y ↑

- **How do we achieve Consumer Equilibrium**

  To explain the consumer's equilibrium under ordinal approach, we have to make use of TWO TOOLS of indifference curve analysis namely-

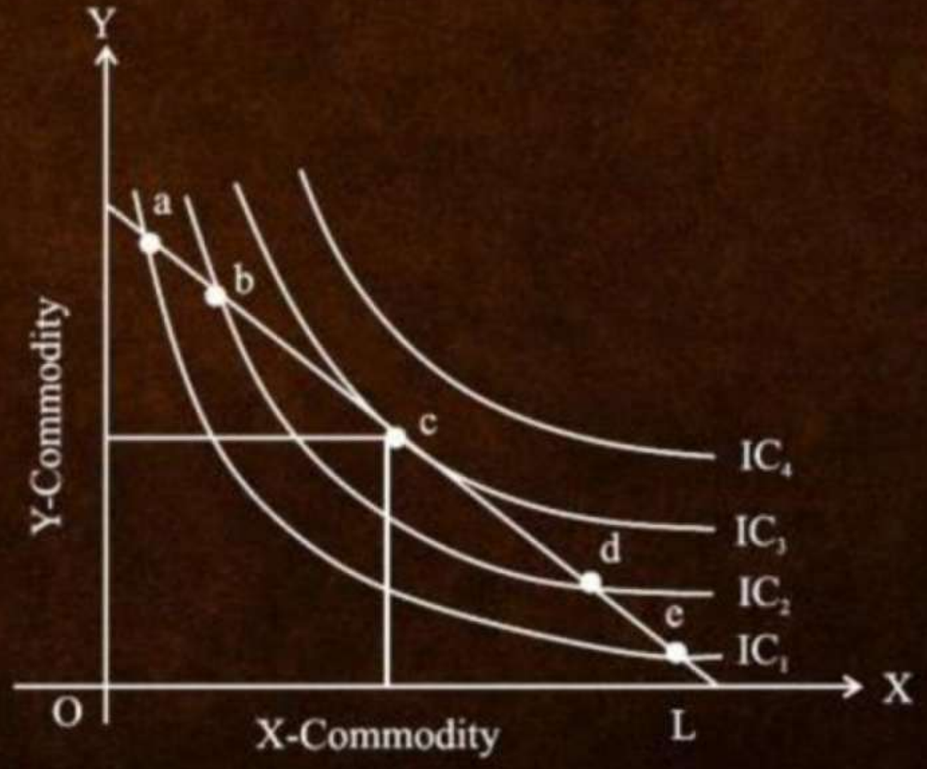
  1. the consumer's INDIFFERENCE MAP, and
  2. his PRICE/BUDGET LINE.

  - The CONSUMER'S INDIFFERENCE MAP shows all indifference curves which rank the consumer's preferences between various possible combinations of TWO commodities.
  - To maximises his satisfaction consumer would like to reach highest possible indifference curve.
  - The slope of IC at any one point shows the MARGINAL RATE OF SUBSTITUTION (which diminishes).

Thus, $MRS_{XY} = \frac{MU_x}{MU_y}$

- To maximise satisfaction consumer will try to reach the highest possible IC and so will try to buy more and more of the two commodities.
- But there are limits to which he can go on and on.
  - These limits are imposed (i) his money income, & (ii) prices of the commodities. These limits are described by PRICE / BUDGET LINE which shows the various combinations of two commodities the consumer can afford to buy.
  - All the combinations lying on the budget line are affordable by the consumer. Any, combination lying beyond budget line is unaffordable.
  - The slope of budget/price line shows the ratio of the prices of two commodities i.e. $\frac{P_x}{P_y}$

- Now we can show how a consumer reaches equilibrium i.e., how he allocates his money expenditure between commodities X and Y and gets maximum satisfaction.
- For showing this, we will have to superimpose the price line on the indifference map as follows-



- In order to maximise his satisfaction, the consumer will try to reach highest IC i.e. IC4.
- But the budget constraint forces him to remain ON THE BUDGET LINE.
- In the diagram, budget line PL shows all the combinations of X & Y that the consumer can buy. In diagram, we find combinations a, b, c, d, e lie on budget line PL and hence are affordable.

The indifference curve analysis is superior to utility analysis:

(i) it dispenses with the assumption of measurability of utility

(ii) it studies more than one commodity at a time

(iii) it does not assume constancy of marginal utility of money

(iv) it segregates income effect from substitution effect.

QUIZ!

QUESTION

#Q. **Total utility is maximum when:**

A. Marginal utility is zero

A

B. Marginal utility is at its highest point

C. Marginal utility is negative

D. None of the above

QUESTION

#Q. Which one is not an assumption of the theory of demand based on analysis of indifference curves?

A. Given scale of preferences as between different combinations of two goods

B. Diminishing marginal rate of substitution

C. Diminishing marginal utility of money

D. Consumers would always prefer more of a particular good to less of it, other things remaining the same

QUESTION

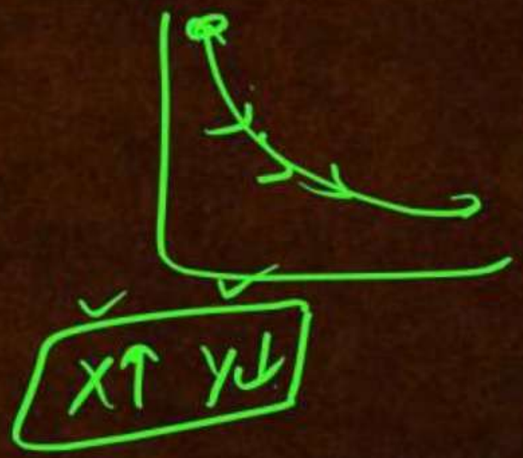
#Q. An indifference curve slopes down towards right since more of one commodity and less of another result in:

A. Same level of satisfaction (A)

B. Greater satisfaction ✗

C. Maximum satisfaction ✗

D. Any of the above ✗



QUESTION

#Q. Suppose that workers in a steel plant managed to force a significant increase in their wage package. How would the new wage contract be likely to affect the market supply of steel, other things remaining the same?

A. Supply curve will shift to the left ✓ (AC) (w↑ → Profit ↓)

B. Supply curve will shift to the right

C. Supply will not shift, but the quantity of cars produced per month will decrease

D. Supply will not shift, but the quantity of cars produced per month will increase

QUESTION

#Q. Which of the following is a property of an indifference curve?

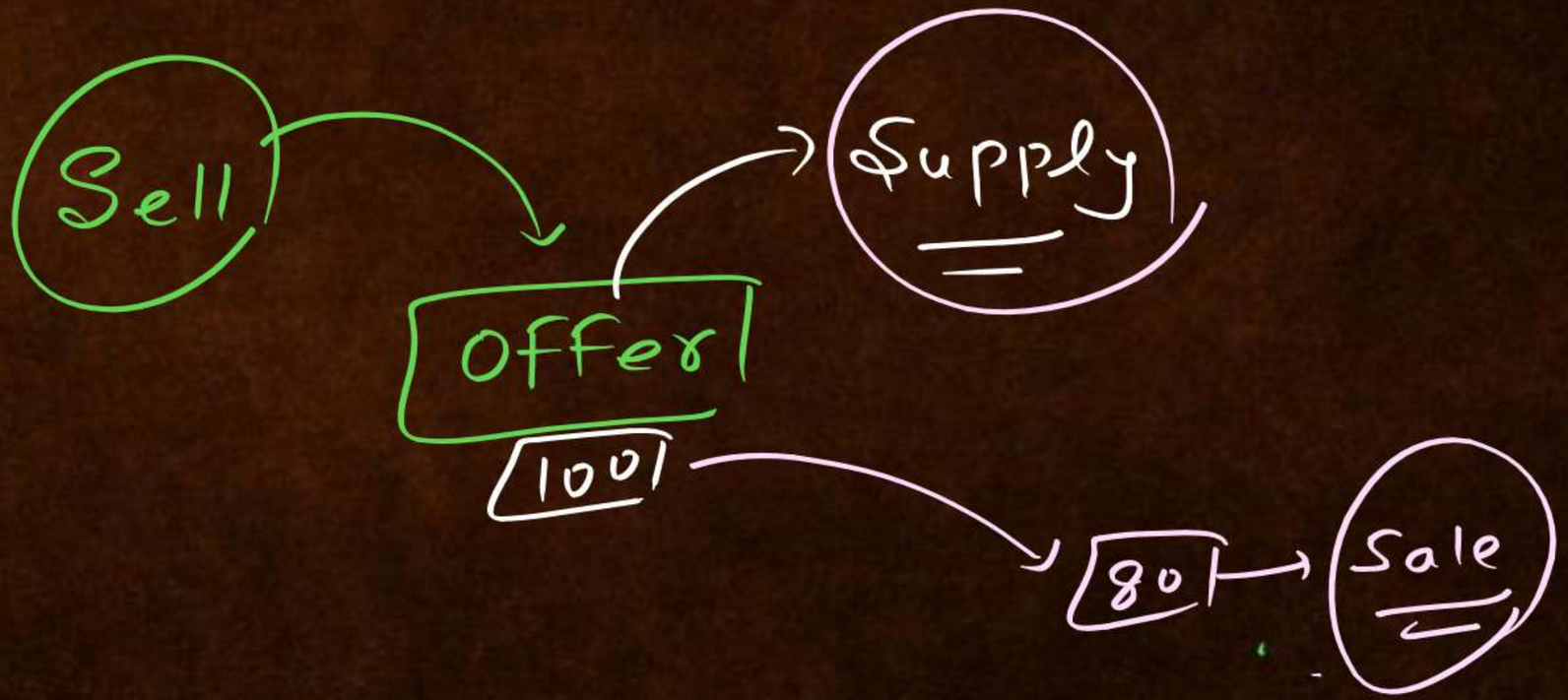
A It is convex to the origin due to diminishing marginal rate of substitution

B The marginal rate of substitution is constant as you move along an indifference curve

C Marginal utility is constant as you move along an indifference curve

D Total utility is greatest where the budget line cuts the indifference curve

Topic: Unit -3 Supply



Topic: Unit -3 Supply

(i) Supply refers to what a firm offer for sale in the market, not necessarily to what they succeed in selling. What is offered may not get sold.

(ii) Supply is a flow.

Total Determinants of Supply

(i) Price of the good:

(ii) Prices of related goods:

(iii) Prices of factors of production:

(iv) State of technology:

(v) Government Policy:

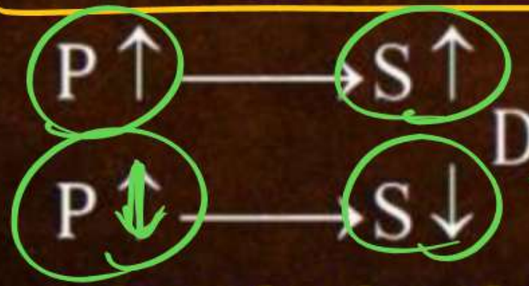
(vi) Nature of competition and size of industry:

(vii) Expectations:

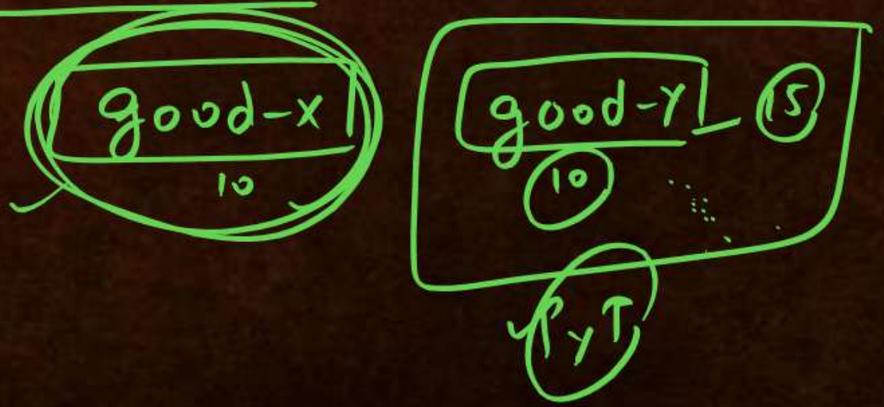
(viii) Number of sellers:

- Other Factors: The quantity supplied of a good also depends upon government's industrial and foreign policies, goals of the firm, infrastructural facilities, natural factors such as weather, floods, earthquake and man-made factors such as war, labour strikes, communal riots etc.

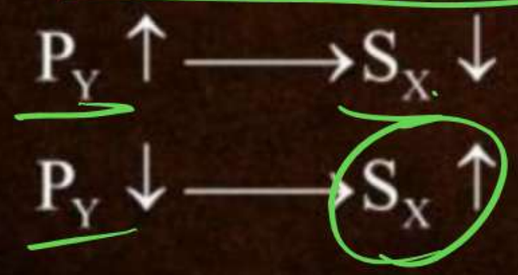
1. Price of own Good



Direct positive relation



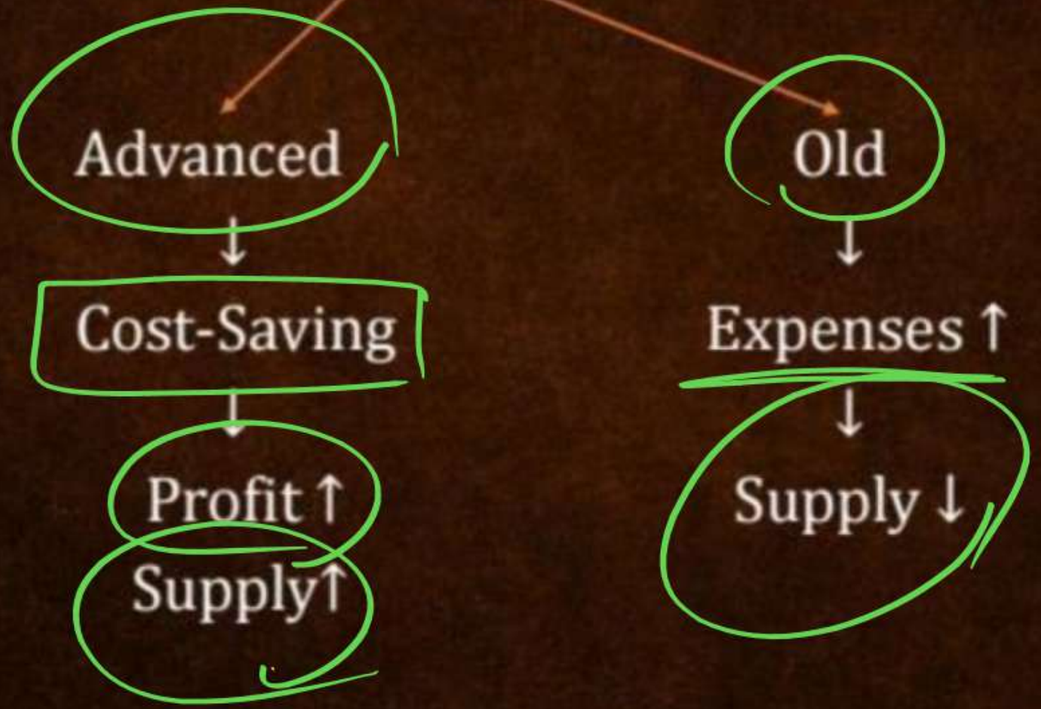
2. Price of Related Goods

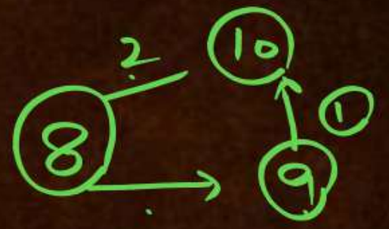


3. **Price of factors of Production** | inputs

Price of input ↑ ⟶ Production cost ↑ ⟶ Profit Margin ↓ ⟶ Supply ↓

4. **State of Technology**





5. **Number of Sellers**

No. of Sellers↑ ⟶ Supply ↑

6. **Expectations:**

An increase in the anticipated future price of a good or service reduces its supply today; and if sellers expect a fall in prices in future, more will be supplied now.

7. **Nature of competition and size of industry:**

Under competitive conditions, supply will be more than that under monopolized conditions.

8. **Govt. Policy:**

Tax↑ → S↓ Tax↓ → S↑

Subsidy↑ → S↑

Restriction → Ban – Import Quota

The Law of Supply

P↑ ⟶ S↑

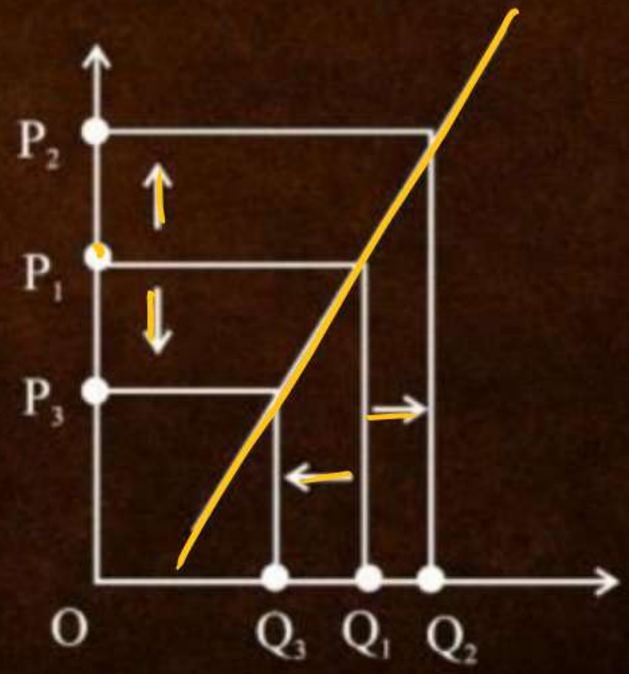
P↓ ⟶ S↓

This law states that, if other factors are same,(Ceteris Paribus) then there is direct relationship b/w Price of Qty. SS.

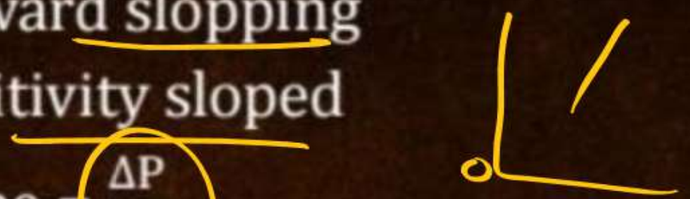
P↑ ⟶ S↑→ offer for sale

P↓ ⟶ S↓

Supply Curve:



1. Upward slopping
2. Positivity sloped
3. Slope = $\frac{\Delta P}{\Delta Q}$



Moment on SS-Curve OR Change in Qty. Supplied

movement

P↑ S↑

Expansion of SS

OR

↑ In Qty. supplied

OR

Upward movement

P	S
10	100
20	200

P↓ S↓

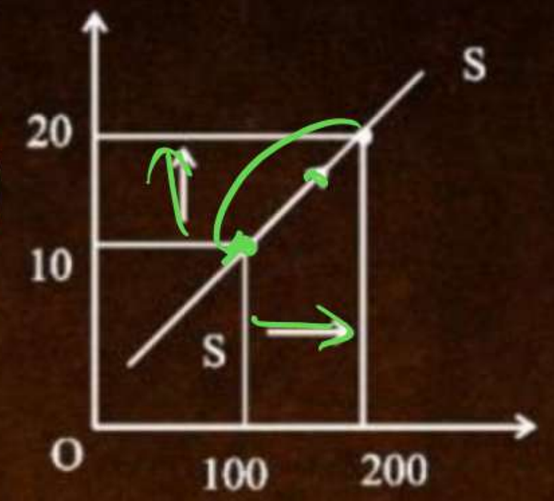
Contraction of SS↓ in Qty. Supplied

OR

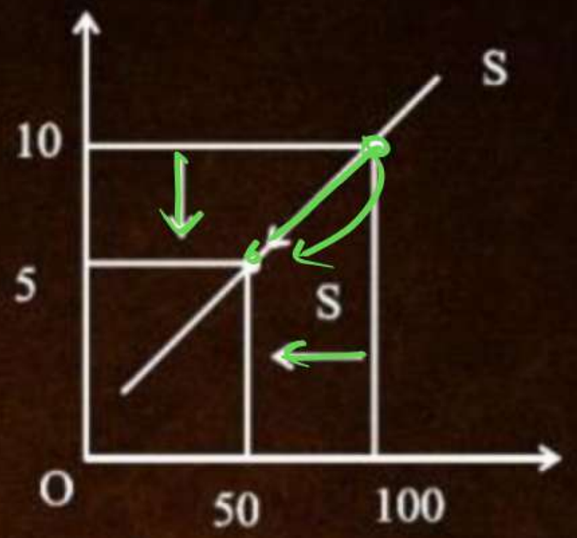
Downward movement along SS-Curve

P	S
10	100
5	50

P	Q S
10	100
20	200



P	Q S
10	100
5	50



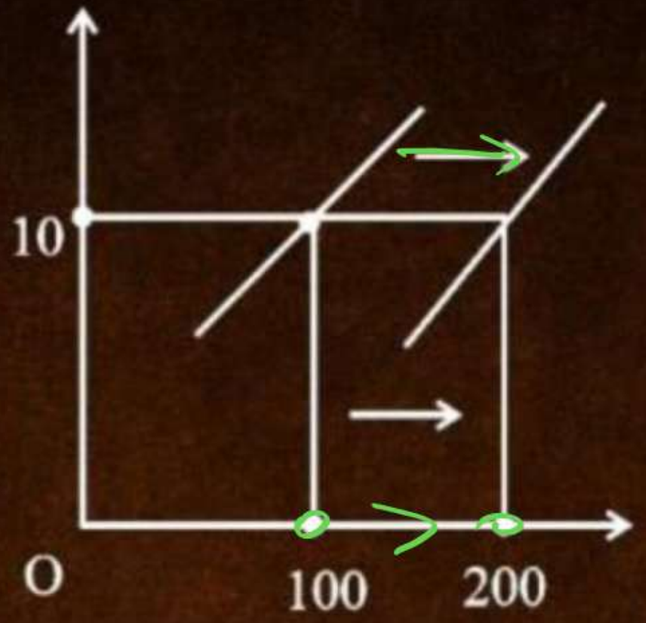
↑ in Qty. SS due to ↑ in P is called Expansion of SS.
↓ in Qty. SS due to ↓ in Price is called contraction of SS.

Shift in SS-Curve OR Change in Supply

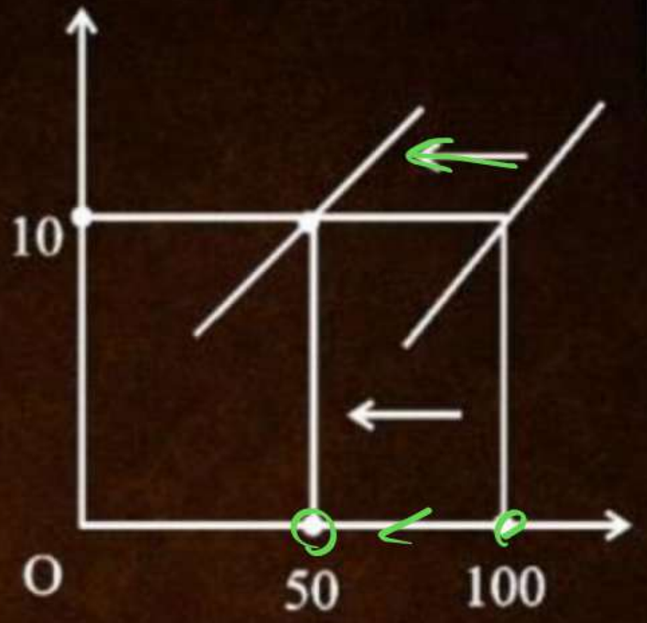
Increase in SS
OR Rightward shift

Decrease in Supply
OR Leftward shift

P	Q S
10	100
20	200



P	Q S
10	100
5	50



Elasticity of Supply

The elasticity of supply is defined as the responsiveness of the quantity supplied of a good to a change in its price. Elasticity of supply is measured by dividing the percentage change in quantity supplied of a good by the percentage change in its price i.e.,

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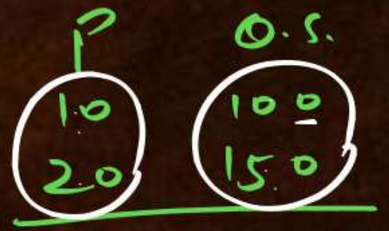
$$Es = \frac{\text{Percentage change in quantity supplied}}{\text{Percentage change in Price}}$$

$$OR = \frac{\dfrac{\text{Change in quantity supplied}}{\text{quantity supplied}}}{\dfrac{\text{Change in price}}{\text{Price}}}$$

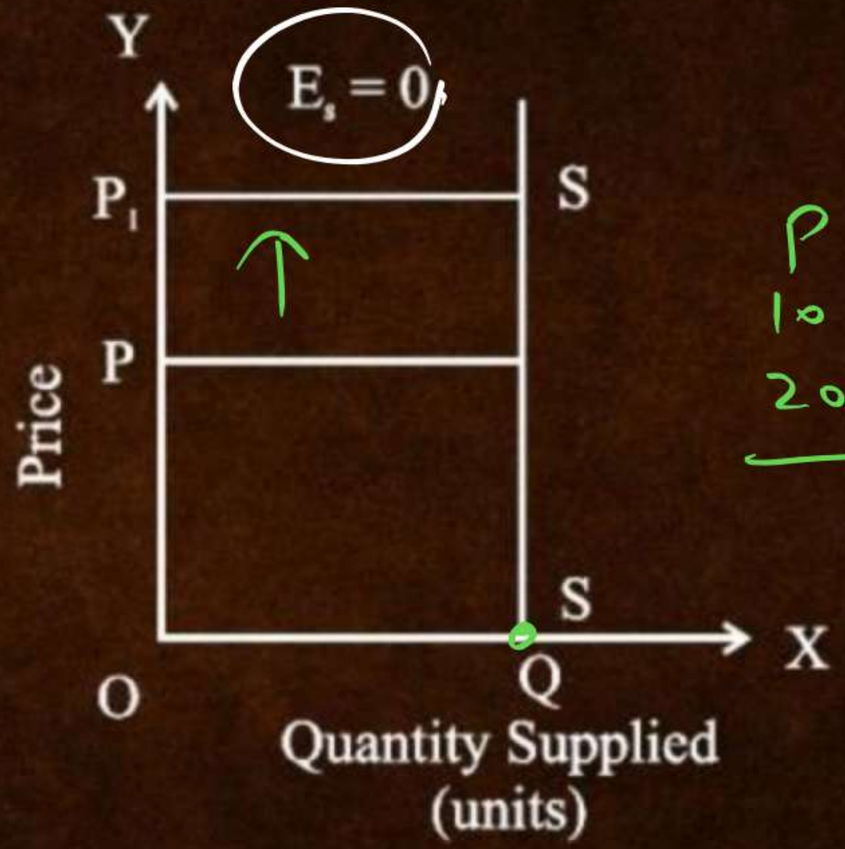
$$OR = \frac{\Delta Q}{\Delta P} \times \frac{P}{Q}$$



$$\frac{50}{10} \times \frac{10}{100} = 0.5$$

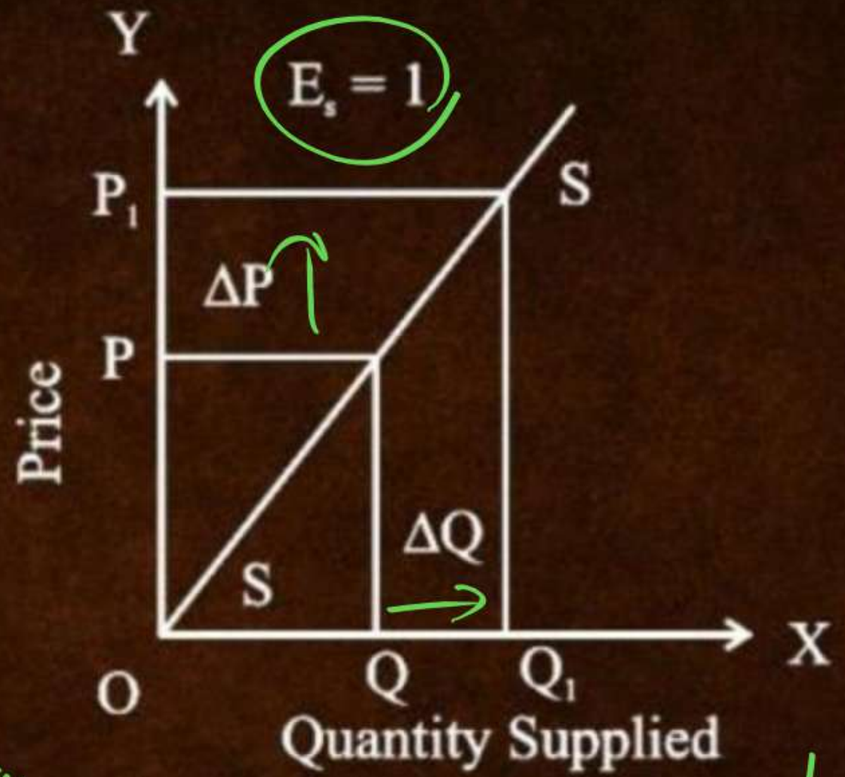
Types of Supply Elasticity

1. Perfectly inelastic supply:

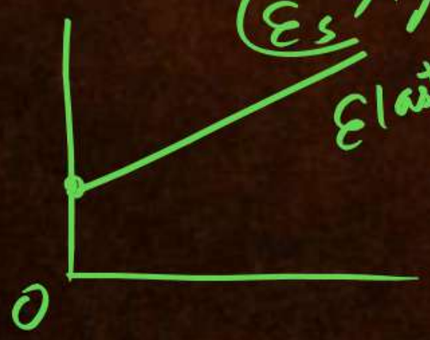


P	Q.S.
10	100
20	100

2. Unit-elastic supply

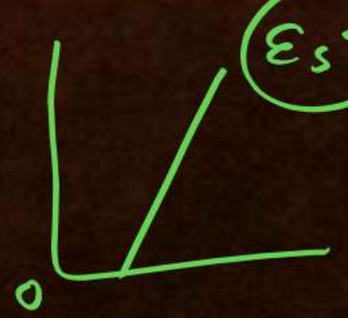


(4) $E_s > 1$ Elastic

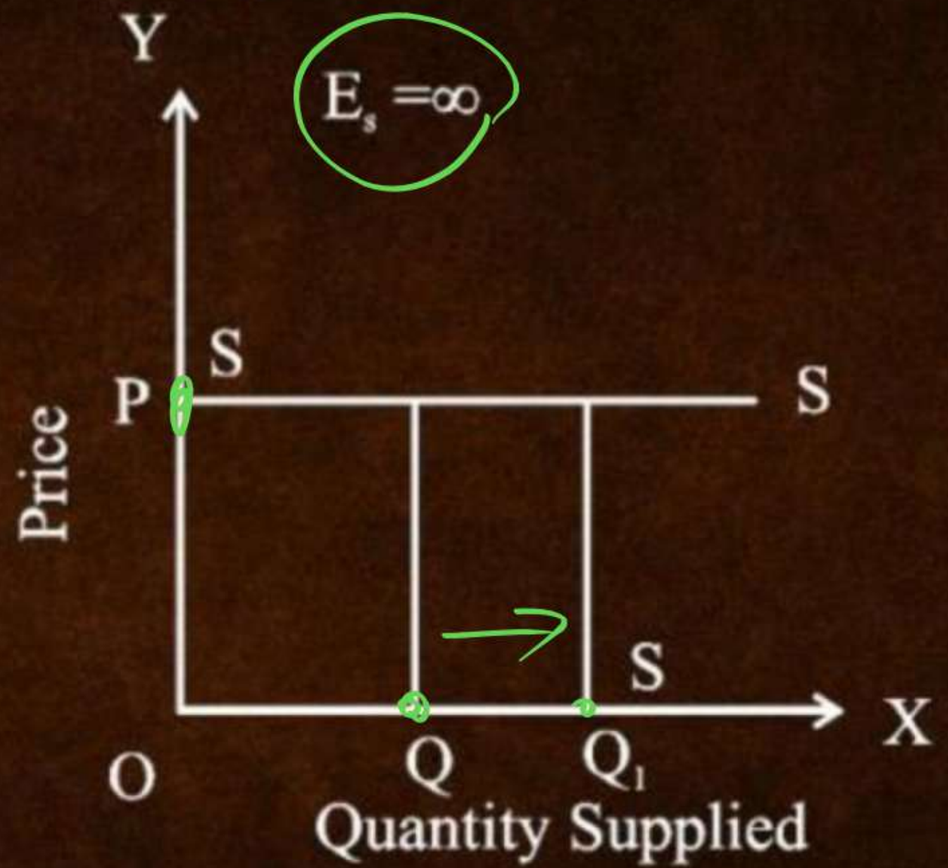


% ΔS = % ΔP

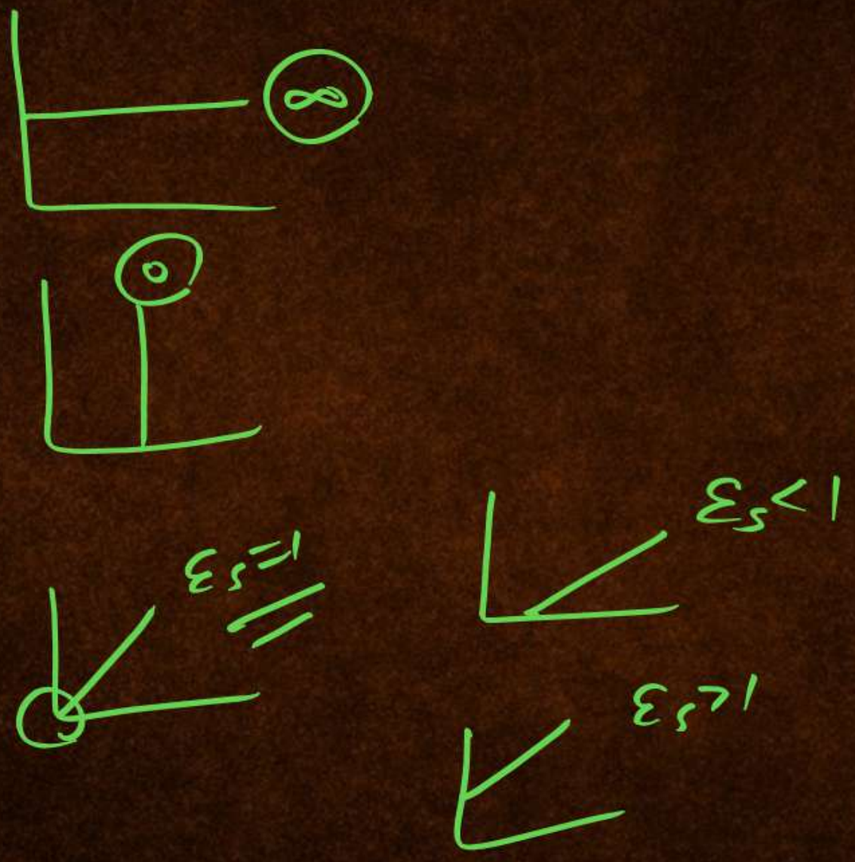
(5) $E_s < 1$ & inelastic



3. Perfectly elastic supply



P	Q.S.
10	100
10	200


∞
0
$\varepsilon_s = 1$
$\varepsilon_s < 1$
$\varepsilon_s > 1$

Point-elasticity: Just as in demand, point-elasticity can be measured with the help of the following formula:

$$ES = \frac{dq}{dp} \times \frac{p}{q}$$

Arc-Elasticity: Arc-elasticity i.e. elasticity of supply between two prices can be found out with the help of the following formula:

$$Es = \frac{q_1 - q_2}{q_1 + q_2} \div \frac{p_1 - p_2}{p_1 + p_2} \text{ Or } Es = \frac{q_1 - q_2}{q_1 + q_2} \times \frac{p_1 + p_2}{p_1 - p_2}$$

$$\frac{\Delta q}{\Delta p} \times \frac{p_1 + p_2}{q_1 + q_2}$$

Determinants of Elasticity of Supply

Following are the general determinants of elasticity of supply:

(a) If increase in production causes substantial increase in costs, producers will have less incentive to increase quantity supplied in response to increase in price and therefore, price elasticity of supply would be less.

Similarly, Products that involve more complex production processes or require relatively longer time to produce exhibit lower elasticity of supply.

(b) The longer the period of time, the more responsive the quantity supplied to changes in price and the greater the supply elasticity.

(c) Supply is more elastic when there is large number of producers and there is high degree of competition among them.

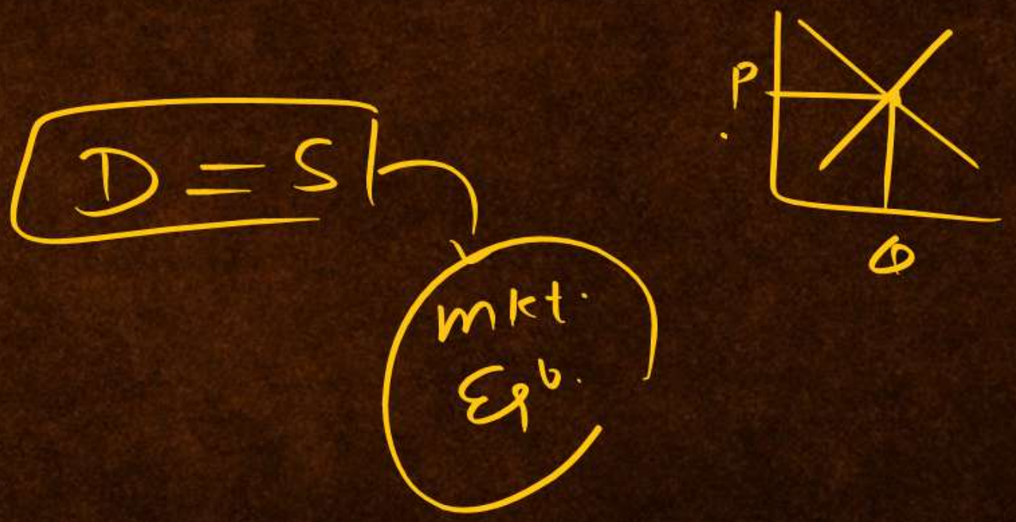
(d) Supply will be elastic if firms are not working to full capacity.

(e) If key raw materials and inputs are easily and cheaply available, then supply will be elastic

(f) If firms have adequate stocks of raw materials, components and finished products, they will be able to respond with higher supply as price rises.

(g) The ease and cost of factor substitution influence price elasticity of supply. Commonly available and easily substituted factors allow for quick production response to price changes.

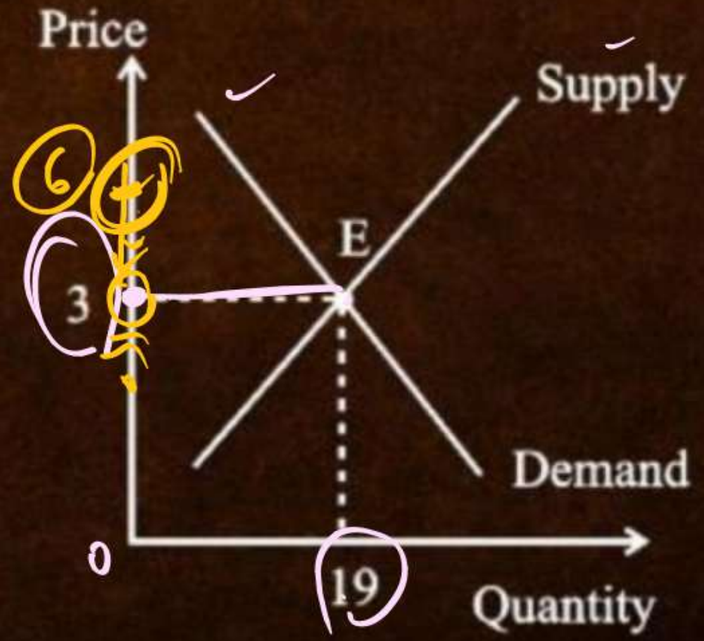
(h) If both capital and labour are occupationally mobile, then the elasticity of supply for a product is higher than if capital and labour cannot be easily switched.

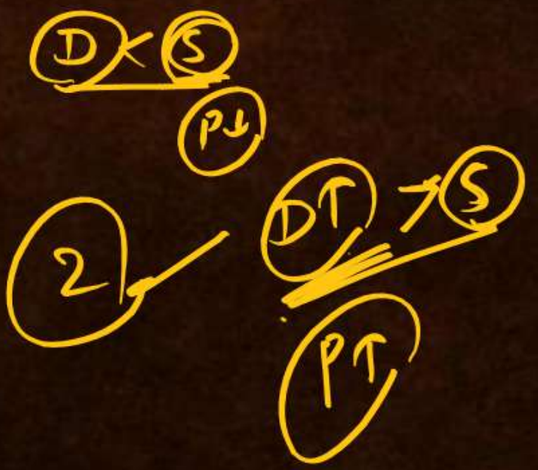

D=S
mkt.
Eqb.
P
Q

Equilibrium Price

- Total Utility The equilibrium price in a market is determined by the intersection between demand and supply. It is also called the market equilibrium.
- At this price, the amount that the buyers want to buy is equal to the amount that sellers want to sell.
- The competitive market equilibrium represents the 'unique' point at which both consumers and suppliers are satisfied with price and quantity.
- Equilibrium price is also called market clearing price.
- The determination of market price is the central theme of micro economic analysis. Hence, microeconomic theory is also called price theory

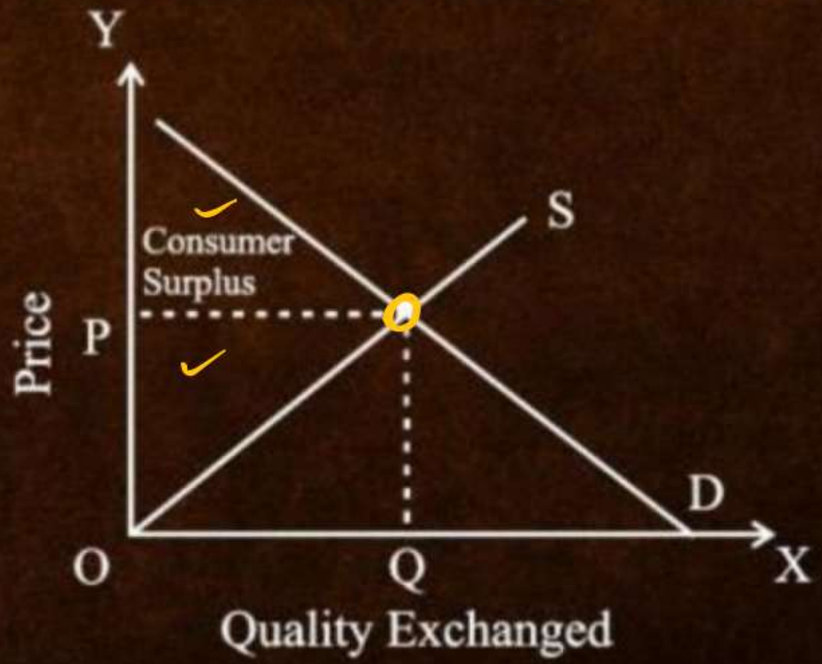
Price	Demand	Supply	Impact On Price
5	6	31	Downward
4	12	25	Downward
3	19	19	Equilibrium
2	25	12	Upward
1	31	6	Upward



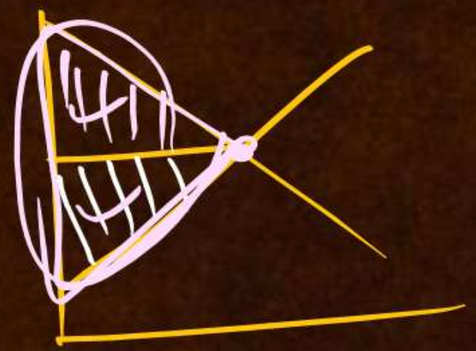


Market Equilibrium and Social Efficiency

- Social efficiency represents the net gains to society from all exchanges that are made in a particular market. It consists of two components: consumer surplus and producer surplus.
- consumer surplus is a measure of consumer welfare whereas Producer surplus is the benefit derived by producers from the sale of a unit above and beyond their cost of producing that unit.

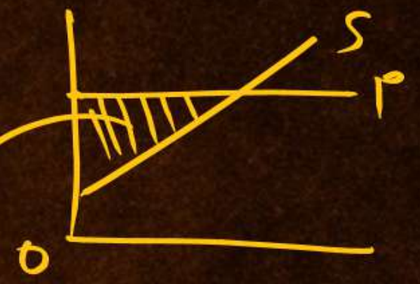


- Producer surplus can be calculated as the area above the supply curve and below the market price.
- It represents the additional revenue or profit that producers gain when the market price exceeds their production costs.



Producer → 10 — 6

16



QUIZ!

QUESTION

#Q. When economists speak of the utility of a certain good, they are referring to

A The demand for the good

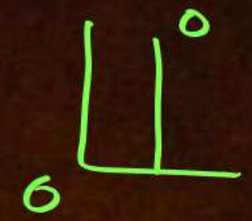
B The usefulness of the good in consumption

C The expected satisfaction derived from consuming the good

D The rate at which consumers are willing to exchange one good for another

QUESTION

#Q. A vertical supply curve parallel to Y axis implies that the elasticity of supply is:



A Zero (A)

B Infinity

C Equal to one

D Greater than zero but less than infinity

QUESTION

#Q. An increase in the supply of a good is caused by :

ST

A Improvements in its production technology ST

B Fall in the prices of other goods which can be produced using the same inputs ST

C Fall in the prices of factors of production used in its production ST

D all of the above. ✓ D

QUESTION

#Q. Elasticity of supply refers to the degree of responsiveness of supply of a good to changes in its:

A Demand

B Price (B)

C Cost of production

D State of technology

QUESTION

#Q. A horizontal supply curve parallel to the quantity axis implies that the elasticity of supply is:

$E = \infty$

A Zero

B Infinite (B)

C Equal to one

D Greater than zero but less than one

QUESTION

#Q. Contraction of supply is the result of:

P↓ S↓

A Decrease in the number of producers S↓

B Decrease in the price of the good concerned B

C Increase in the prices of other goods

D Decrease in the outlay of sellers

QUESTION

#Q. Conspicuous goods are also known as

A Prestige goods

B Snob goods

C Veblen goods

D All of the above

D

QUESTION

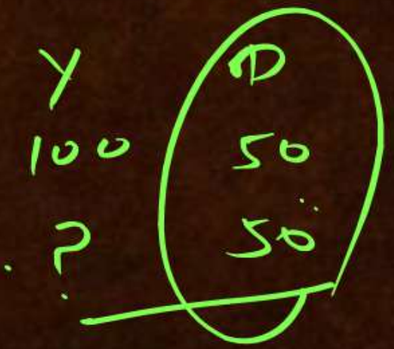
#Q. The quantity purchased remains constant irrespective of the change in income. This is known as

A negative income elasticity of demand

B income elasticity of demand less than one

C zero income elasticity of demand

D income elasticity of demand is greater than one



QUESTION

#Q. The luxury goods like jewellery and fancy articles will have

A low income elasticity of demand

B high income elasticity of demand B

C zero income elasticity of demand

D none of the above

QUESTION

#Q. A relative price is

$\frac{P_x}{P_y}$

A price expressed in terms of money

B what you get paid for babysitting your cousin

C the ratio of one money price to another

D equal to a money price

QUESTION

#Q. An example of goods that exhibit direct price-demand relationship is

A Giffen goods

B Complementary goods

C Substitute goods

D None of the above

QUESTION

#Q. If price of computers increases by 10% and supply increases by 25%. The elasticity of supply is :

$\frac{25}{10} = 2.5$

A 2.5 (A)

B 0.4

C (-) 2.5

D (-) 0.4

QUESTION

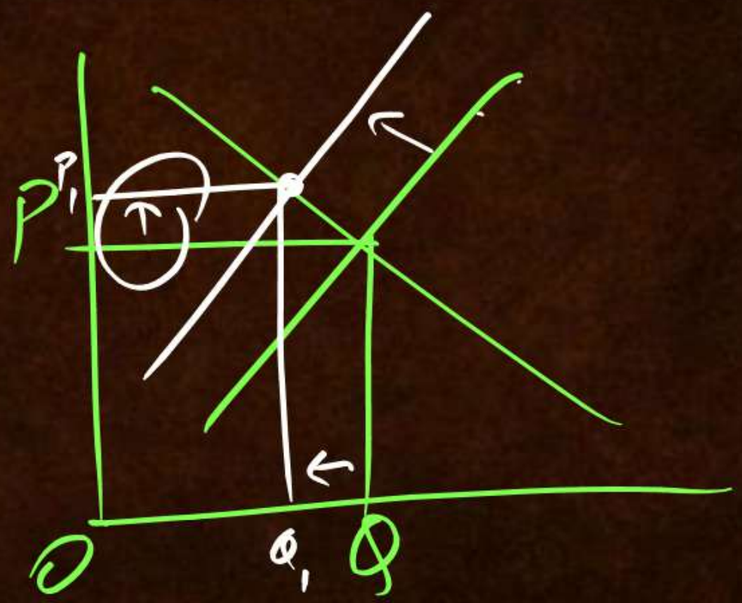
#Q. If the supply of bottled water decreases, other things remaining the same, the equilibrium price _____ and the equilibrium quantity _____

A increases; decreases

B decreases; increases

C decreases; decreases

D increases; increases



QUESTION

#Q. Comforts lie between

A inferior goods and necessaries

B luxuries and inferior goods

C necessaries and luxuries

D none of the above

QUESTION

#Q. In a very short period, the supply

A can be changed

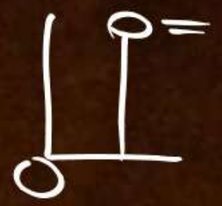
B can not be changed (B)

C can be increased

D none of the above

QUESTION

#Q. Elasticity of supply is zero means



A perfectly inelastic supply

B perfectly elastic supply

C imperfectly elastic supply

D none of the above

QUESTION

#Q. **Elasticity of supply is greater than one when**

$E_s > 1$

$\% \Delta Q > \% \Delta P$

A. Proportionate change in quantity supplied is more than the proportionate change in price (A)

B. Proportionate change in price is greater than the proportionate change in quantity supplied

C. change in price and quantity supplied are equal

D. None of the above

QUESTION

#Q. At higher prices people demand more of certain goods not for their worth but for their prestige value – This is called

A Veblen effect

B Giffens paradox

C Speculative effect

D None of the above

A

QUESTION

#Q. Supply is a _____ concept.

A Stock

B Flow and stock

C Flow

D None of the above

QUESTION

#Q. The cross elasticity between Bread and DVDs is:

A Positive

B Negative

C Zero

D One

QUESTION

#Q. The effect on consumer surplus of a fall in price from E to F is

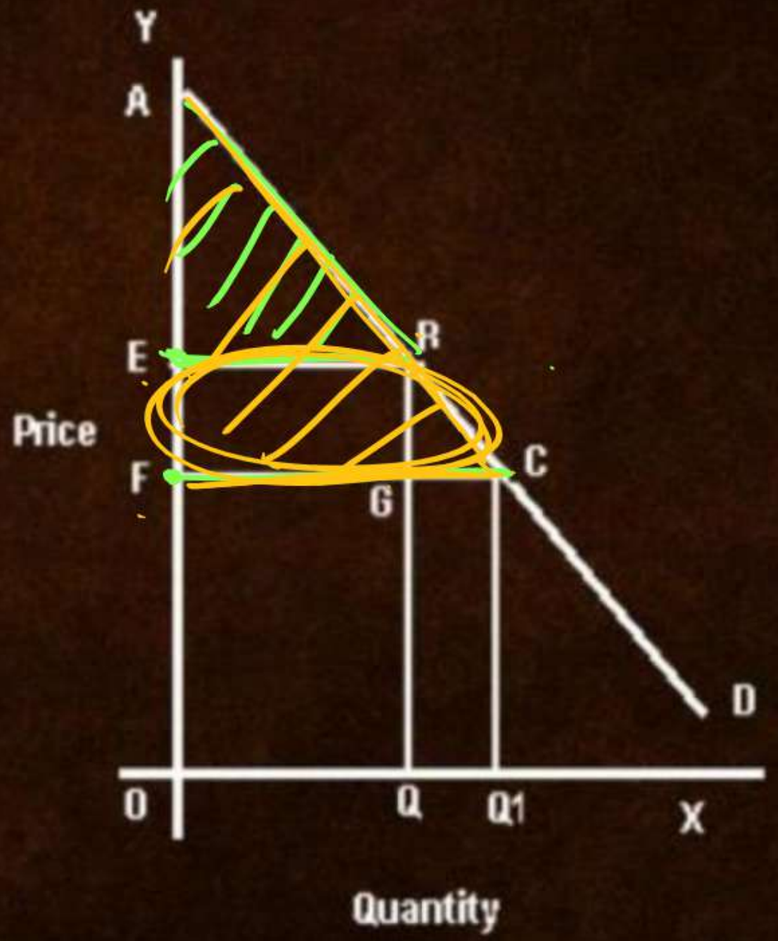
A. A decrease in consumer surplus by EFGR

B. A decrease in consumer surplus by AER

C. A decrease in consumer surplus by EFCR

D. None of the above

D



QUESTION

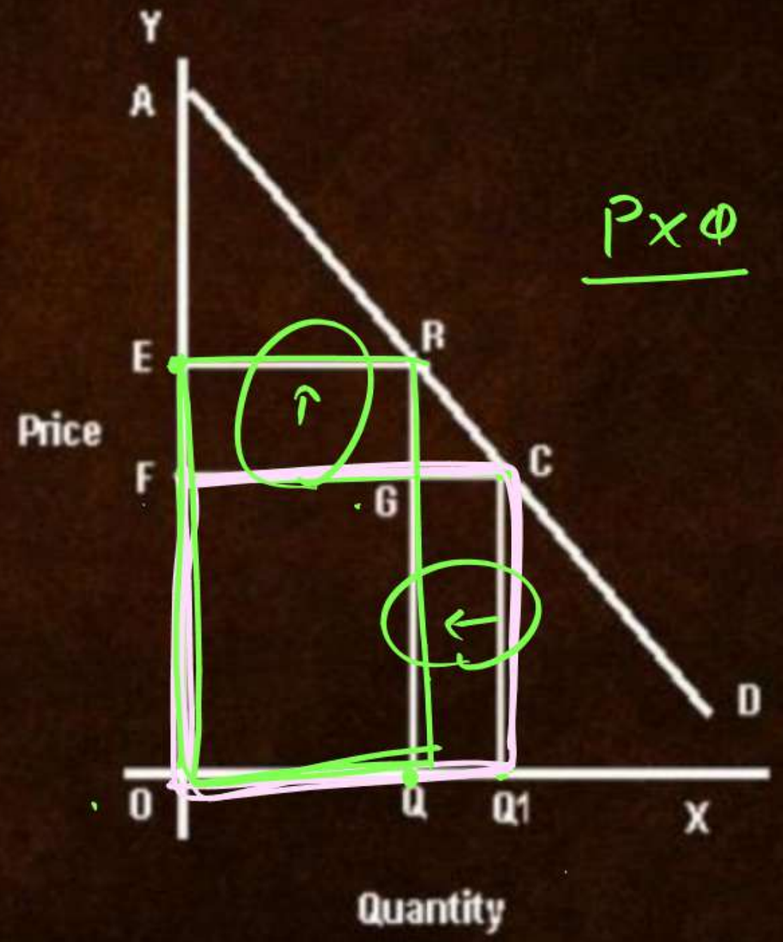
#Q. When price rises from F to E, the increase in revenue earned by the seller is

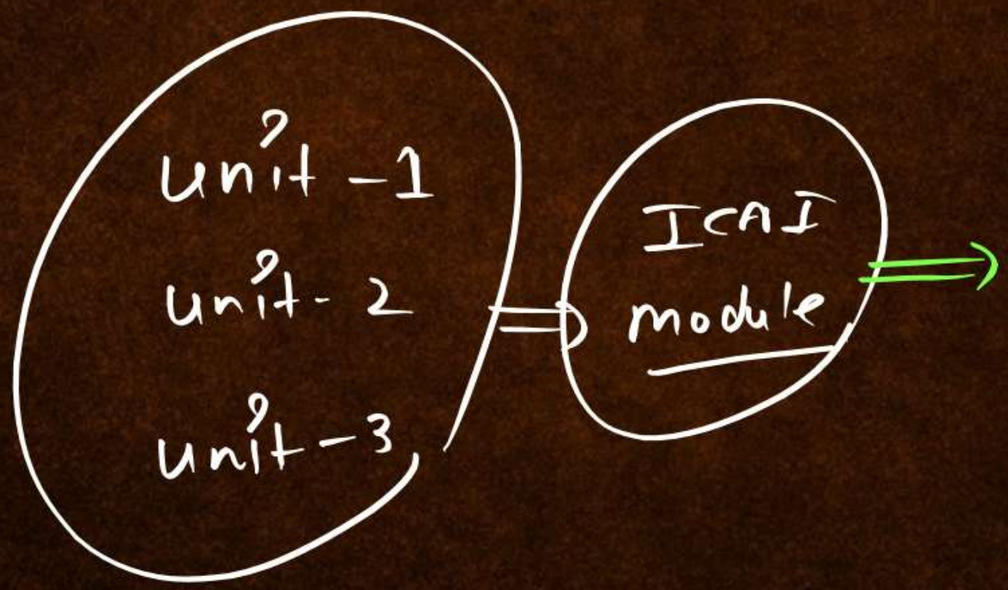
A. Equivalent to area EFGR

B. Equivalent to area EFCR

C. Equivalent to area AER

D. None of the above




Unit-1
Unit-2
Unit-3
ICAI
module

THANK YOU