

ECONOMICS

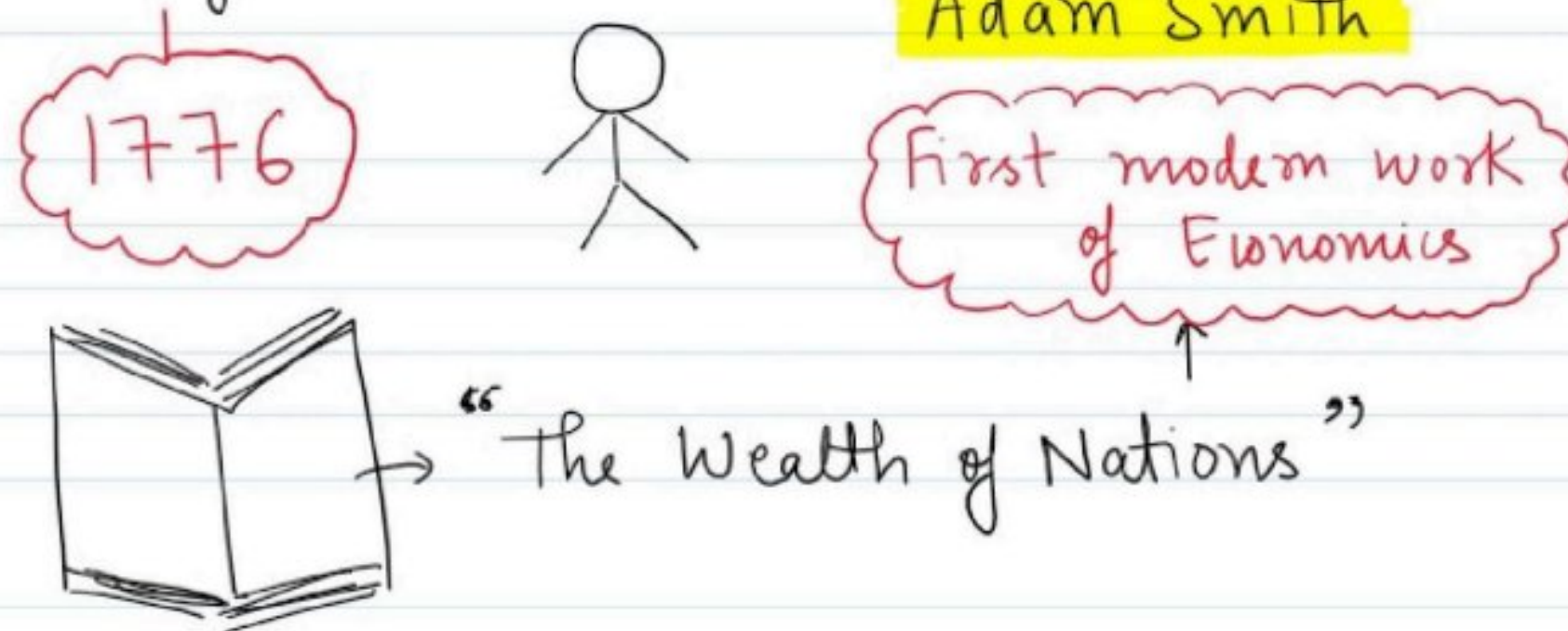
CH-1

UNIT - 1

Nature and Scope of Business Economics

→ Basic Introduction

- Economics is derived from Greek word **OIKONOMIA** (means Household)
- Till 19th century Economics was known as **Political Economy**
- Father of Economics



- Economics is study of processes by which the **relatively scarce resources** are allocated to satisfy **unlimited human wants**

Two fundamental facts

Unlimited human wants

साधन
(Resources)

Means to satisfy the wants are limited

* Modern Economists say that **it** is a narrow definition. In day to day events there are various **economic issues**. **Study of economics cannot ensure that all problems will be appropriately tackled, but it would enable us to examine a problem in its right perspective.**

Classmate since 2007-2008

Global crises 2007-2008
Corona Pandemic 2019-2020



Business Economics

The survival
& success of any
business depends on
sound decisions

Various
theories &
techniques

(+)

Business Economics Integrates
economic theory with Business Practice

* Business Economics is also known as Managerial Economics or "Applied" Economics

It fills the gap between
economic theory and
Business Practice

* Business economics has close connection with
Economic theory (Micro & Macro), Statistics,
Mathematics, Operation Research etc

* Joel Dean defined Business Economics in
terms of the use of economic analysis in
"formulation of Business policies"



NATURE of BUSINESS ECONOMICS

→ NATURE of BUSINESS ECONOMICS

Business Economics is **Science** → Cause & Effect Relationship

$$\begin{matrix} P \uparrow & D \downarrow \\ P \uparrow & S \uparrow \end{matrix}$$

Business Economics is an **ART** → कला

Based on **MICRO** Economics

Incorporates elements of **MACRO** analysis

Business Economics uses theory of **Markets**
 CH4

Business Economics is **PRAGMATIC***

Practical

Interdisciplinary in nature

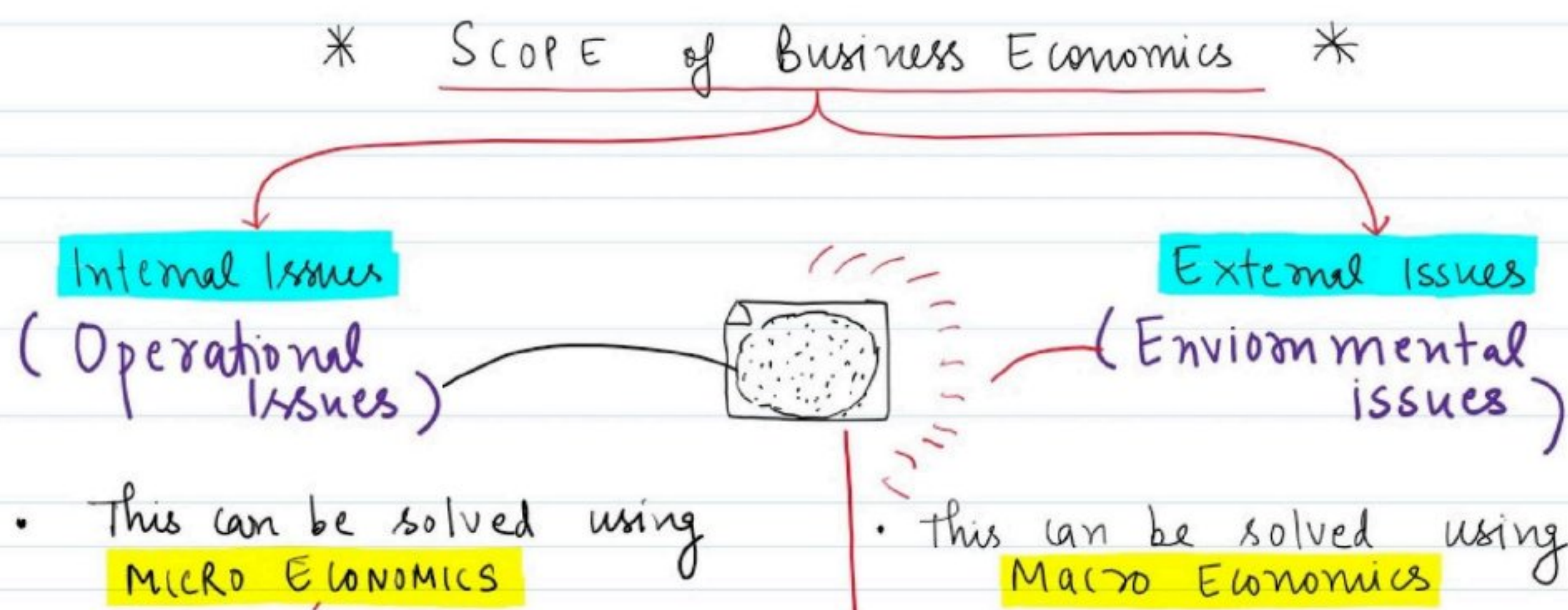
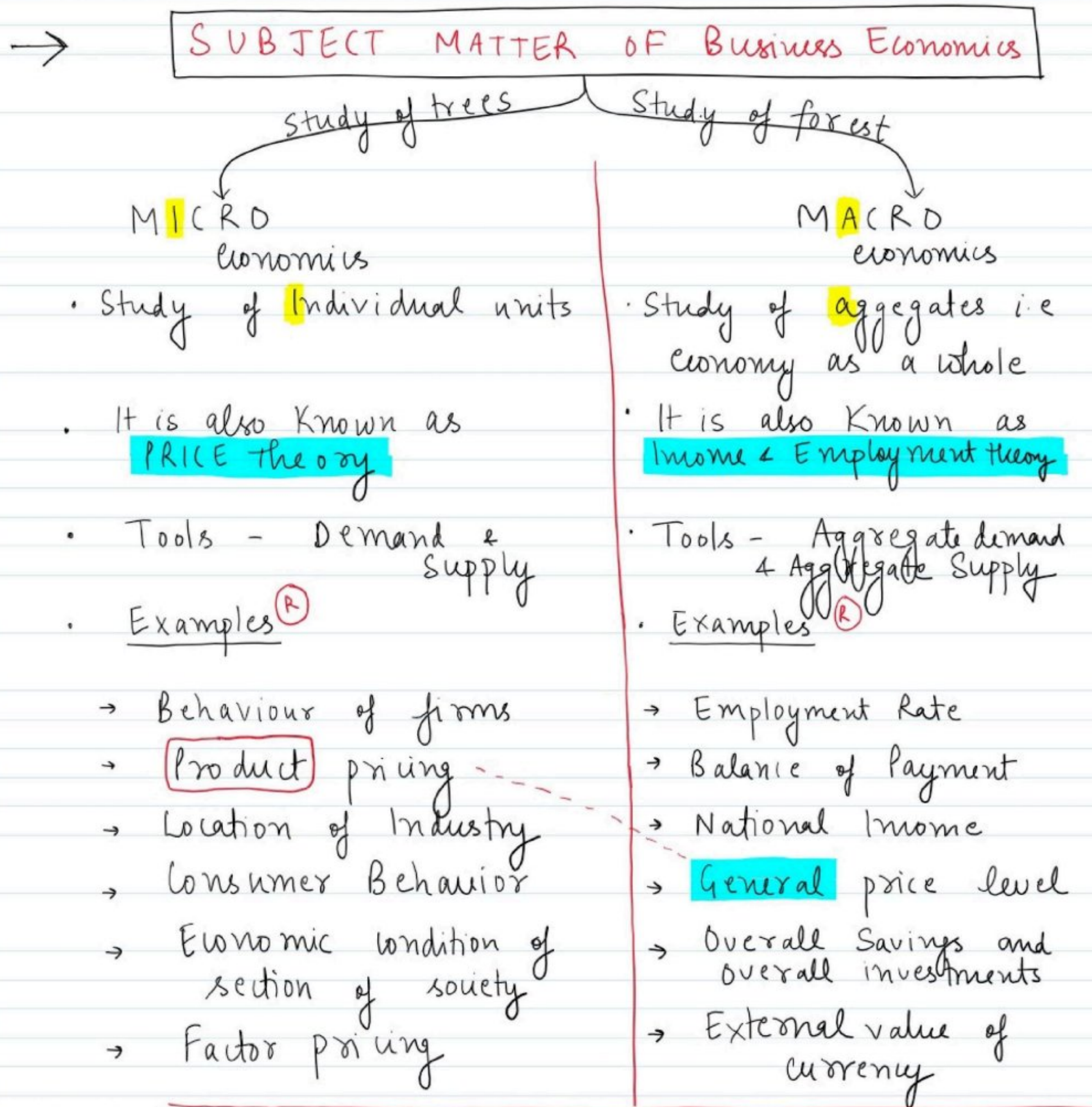
Macro eco OR Micro eco discipline (subjects)
 Maths Stats

Business Economics is **NORMATIVE**

POSITIVE नहीं है

POSITIVE	NORMATIVE
① What is (क्या है)	What ^{should} <u>ought to be</u> (क्या होना चाहिए)
② It can be verified [Mercury is the largest planet]	It cannot be verified [Burger is better than Pizza]
③ It is not suggestive (सलह नहीं)	It is suggestive (सलह)

(सलह नही)	(सलह)
④ Value judgements (X) (judge नही करेगा)	Value judgements (✓) (judge करेगा)



- This can be solved using **MICRO ECONOMICS**
- **Demand** analysis and forecasting
- **Production** + **Cost** analysis
- **Inventory** management
- Market structure and **"pricing policies"**
- Resource allocation
- **Capital** and **Investment** decision
- **"Profit analysis"** - i.e. management of profits under conditions of uncertainty
- **Risk** and **Uncertainty** analysis
 - Can be predicted
 - Cannot be predicted

- This can be solved using **Macro Economics**
- Type of Economic system (**Capitalist**, **socialist** + **Mixed**)
- Stage of **Business cycle** (Ch 5)
- **General trends** in **National Income**, **employment** etc
- Working of **Central Bank**
- Socio-Economic **organisations**
 - eg - **Trade Unions**
- **Social + Political environment**



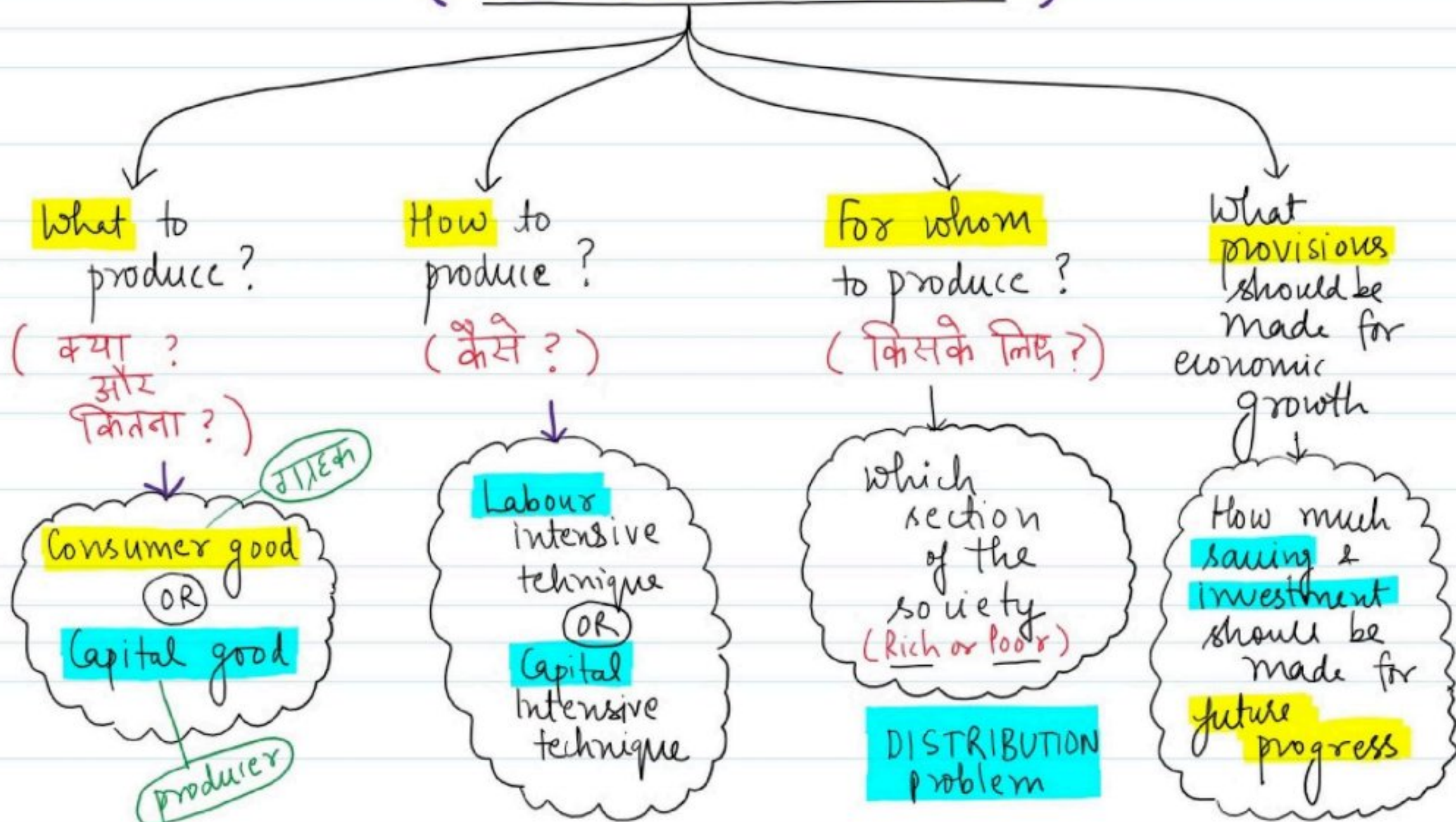
X ——— X ——— X ——— X ——— X ——— X

CH-1 Unit 2

ECONOMICS

BASIC PROBLEMS OF AN ECONOMY

(CENTRAL PROBLEMS)



* **CAPITALIST ECONOMY** *

Free Market

CAPITALIST ECONOMY

Free Market Economy

OR

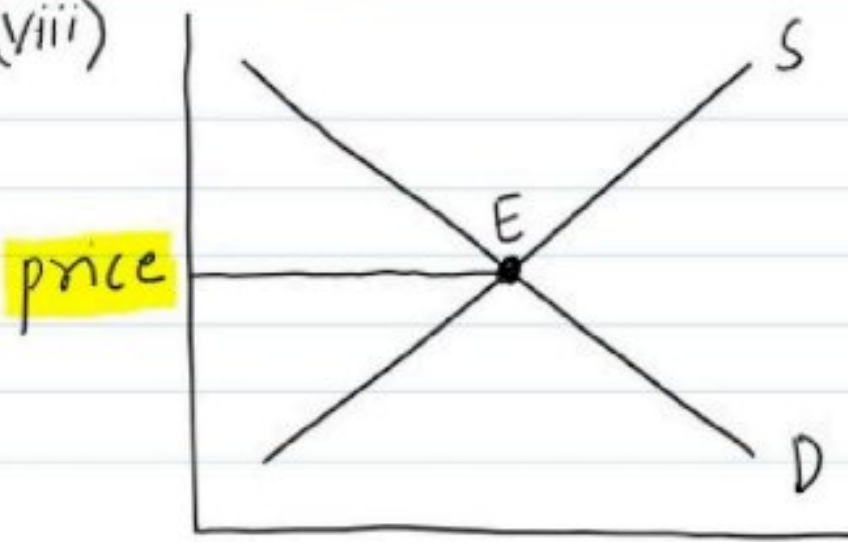
Laissez-Faire

US economy, Hong Kong, South Korea etc

policy of leaving things to take their own course

FEATURES

- (i) Right to private property
- (ii) Freedom of enterprise
- (iii) Freedom of economic choice
- (iv) Profit Motive
- (v) Consumer Sovereignty "is KING"
- (vi) High competition.
- (vii) NO Government
- (viii)



MERITS

- (i) Self regulating price mechanism
 - (ii) Greater efficiency & incentive to work
 - (iii) Economic growth is faster
 - (iv) "Optimum" allocation of resources
 - (v) Consumers are benefitted
 - (vi) Freedom of choice
 - (vii) Rewards men of initiative and punishes inefficient
 - (viii) Democratic framework is there.
- "सबको आजादी"

DEMERITS

- (i) INEQUALITY - Two classes of society
 - Rich (H) → HAVES
 - Poor (R) → HAVE-NOTS
- (ii) Property Rights > Human Rights
 - £10 → Rich (H)
 - Drugs → Poor (R)
- (iii) Demand pattern does not represent real needs of society.
- (iv) NO security of employment
- (v) Consumer Sovereignty is a MYTH
 - King → Producers profit
- (vi) Less merit goods education, health etc.
- (vii) Economic Instability & formulation of "Monopolies".

* SOCIALIST ECONOMY *

(Command Economy or Centrally Planned Economy)

Eg :-
North Korea
CHINA
Earlier USSR

Propounded by Karl Marx and
Frederic Engels

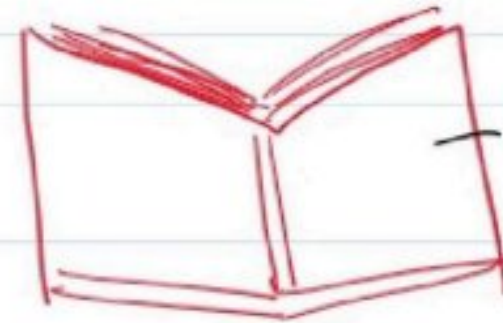
1848



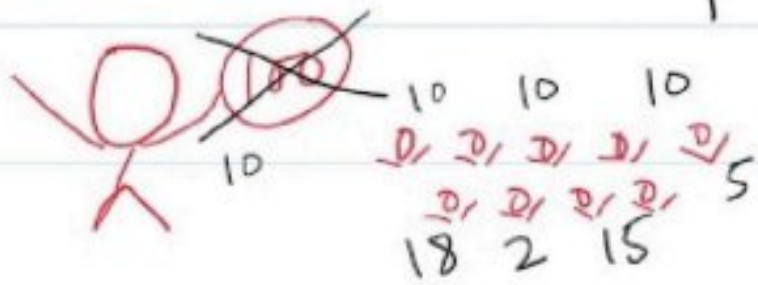
Communist

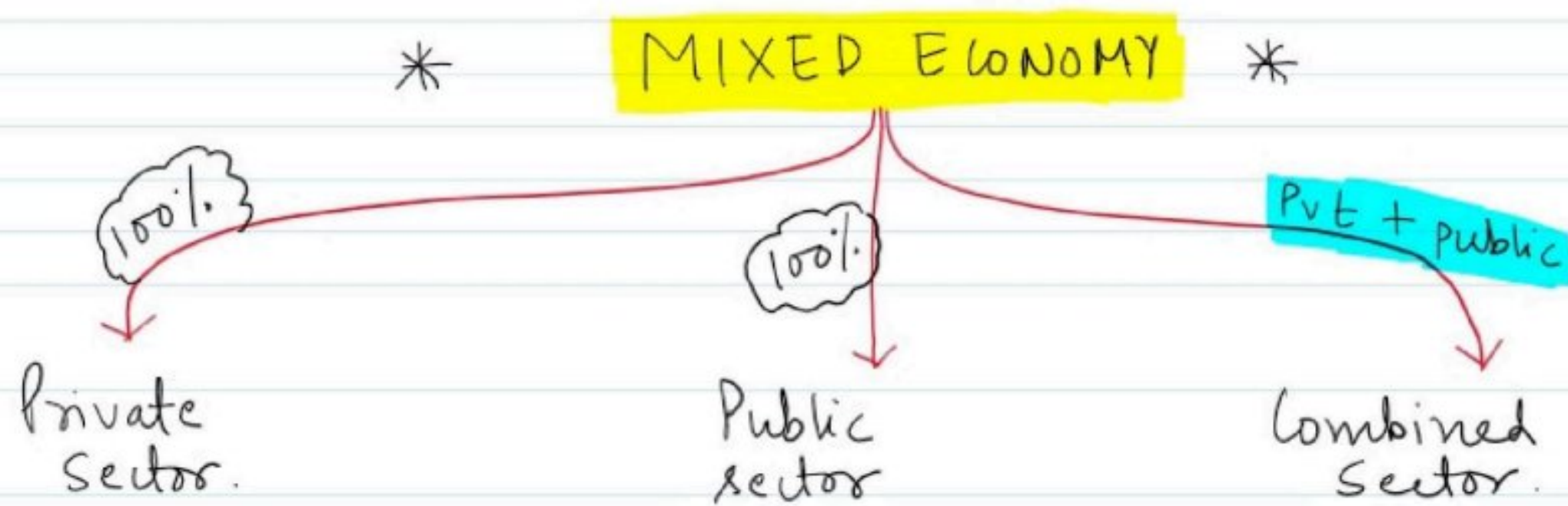
EASIER VSSK

1848



Communist Manifesto

Features	Merits	Demerits
① Collective ownership  ② Economic Planning (5 years Plans) ③ NO consumer choice. ④ Relatively equal income distribution. ⑤ <u>Absence</u> of competition ⑥ <u>Minimum Role of Price Mechanism</u>. ⑦ Social welfare motive	① Equitable distribution of wealth. ② Balanced economic growth ③ No wastage of resources on advertisement ④ Less unemployment & less business fluctuation. ⑤ Ensures Right to work and freedom from hunger. ⑥ Labourers are protected against exploitation	① Inefficiency, Corruption, Red tapism etc ② Less freedom of choice. ③ No incentive for hardwork in form of profit ④ Administered prices. ⑤ "State monopolies"



Benefits of Capitalist (+) Socialist

However it is not always a golden path

* HOW TO SOLVE PROBLEMS ??

	WTP ?	H T P ?	FWTP ?
	On the basis	Least lost	who have

	WTP ?	HTP ?	FWTP ?
→ Capitalist	On the basis of consumer's preference	Least cost of production	who have buying capacity
Socialist	Government decides	Government decides	Government decides.

ECONOMICS

CH 2

Unit 1 : Theory of Demand & Elasticity of Demand (Imp.)

- ① Demand : Desire (+) means to (+) willingness to use those means for that purchase
(मँग) (इच्छा) (साधन)

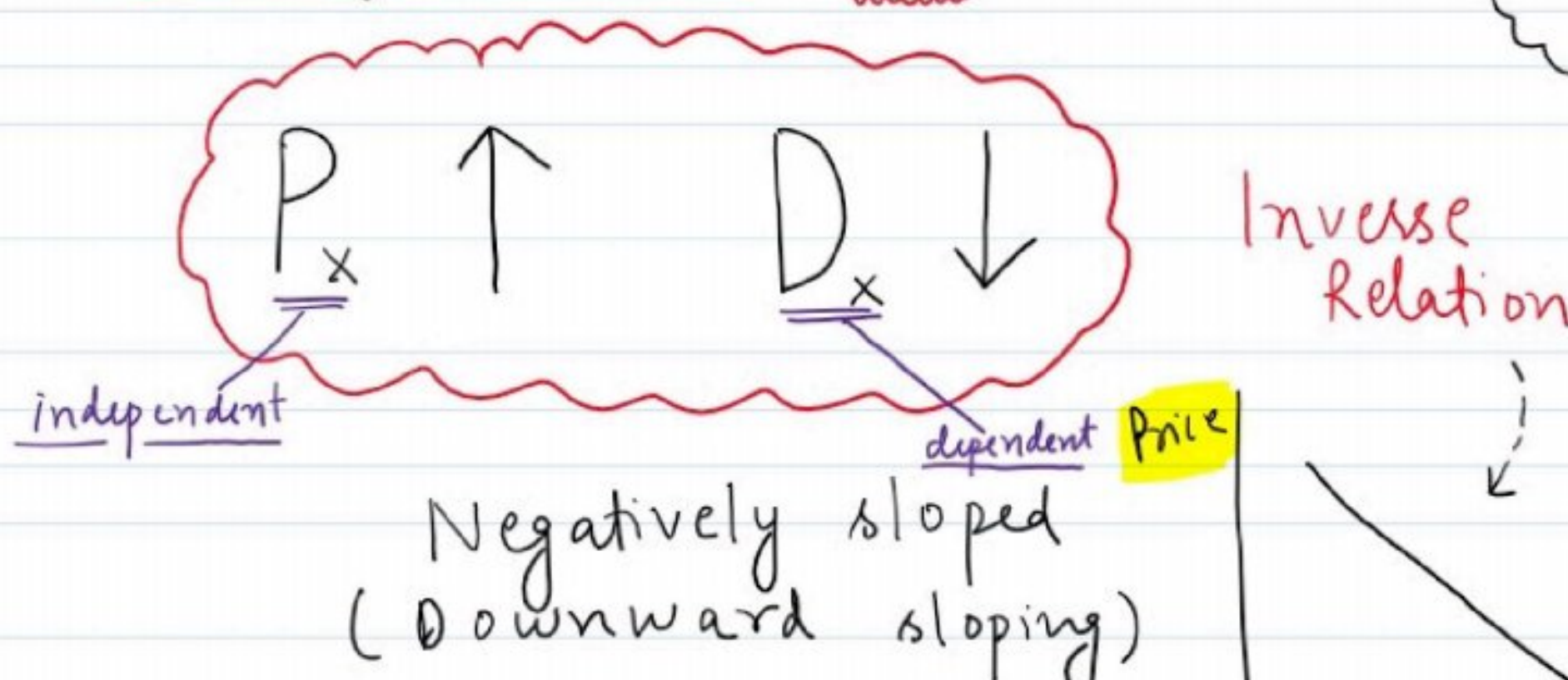
Price (£)	Units (Qty)
£ 10	50 units
£ 1000	40 units
£ 5000	20 units

Given price → Quantity demanded is a FLOW concept

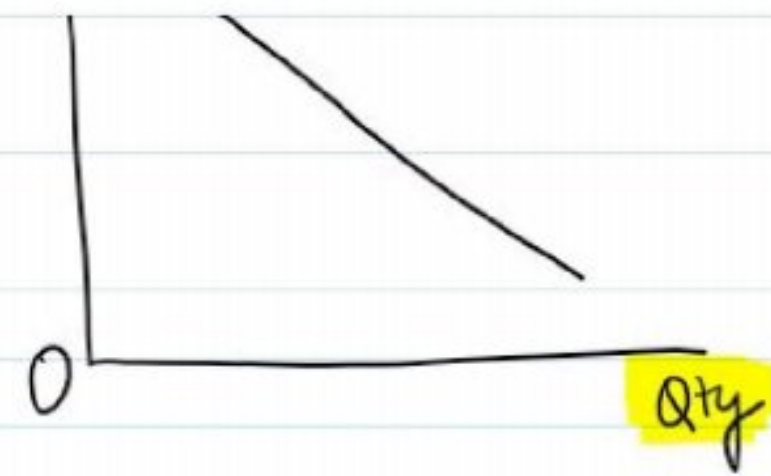
DEMAND

- ② Factors affecting Demand (Determinants of demand)

- (i) Price of the Good (P_x)



Negatively sloped
(Downward sloping)



(ii) Price of Related Good (P_R)

there are two types of **Related Goods**



Substitute goods

(Motor cycle)

Complimentary goods

(petrol)

Price (Motor cycle) ↓

Demand (car) ↓

DIRECT relation
(Positive)

Price (petrol) ↑

Demand (car) ↓

INVERSE relation
(Negative)

(iii) **INCOME of the consumer (Y)**

Normal Good

Superior Quality

Wheat
Color TV

(High income group)

$Y \uparrow D \uparrow$

Positive Income effect.

Inferior good

Inferior (cheap) Quality

Bajra
B+W TV

(Low income group)

$Y \uparrow D \downarrow$

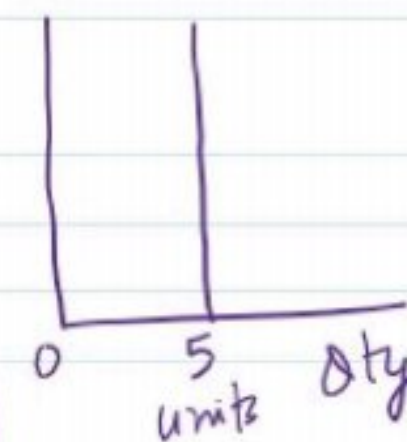
Negative Income effect

Necessity good

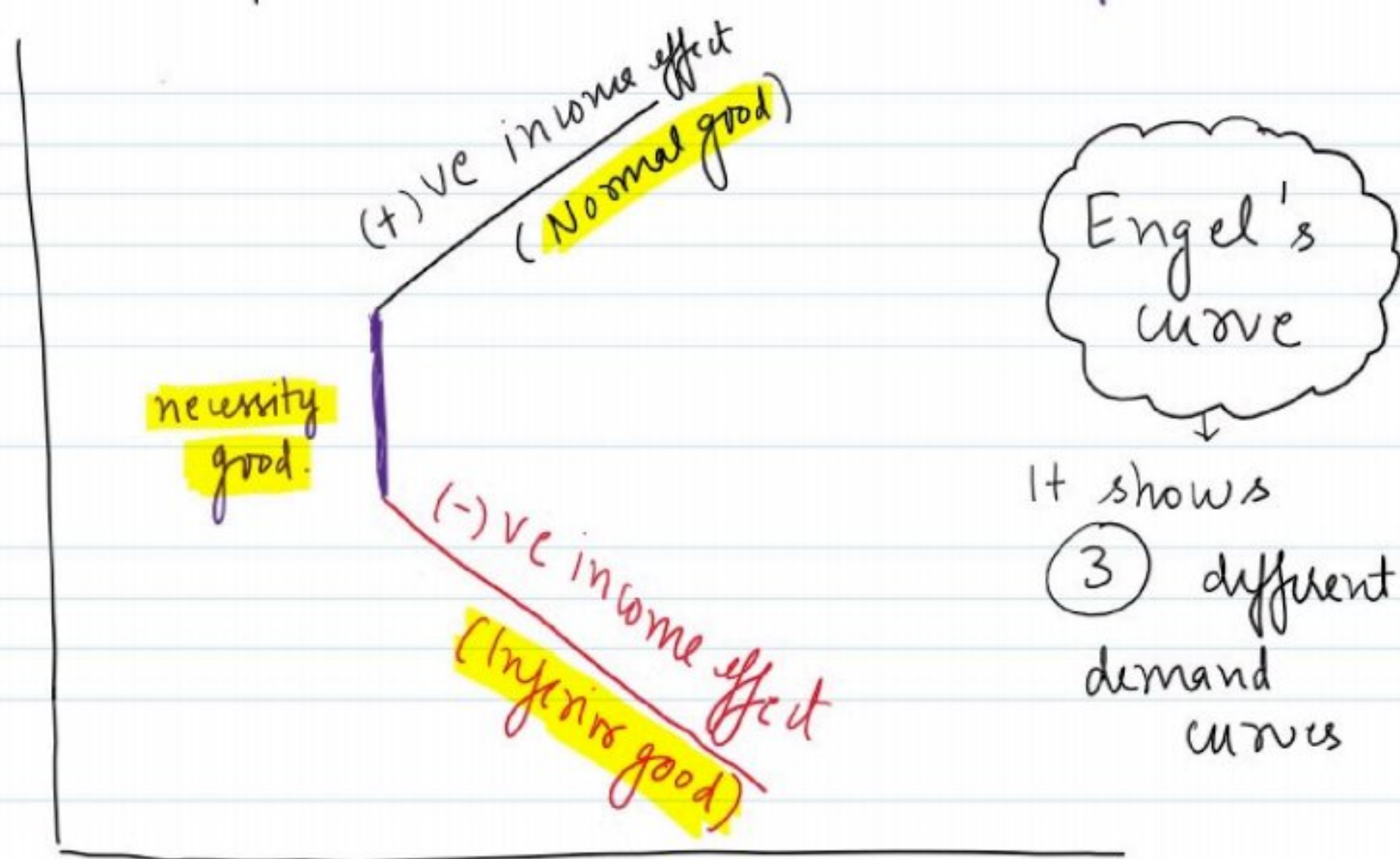
SALT

etc

NO change in demand



effect



(iv) Taste & Preference (T)

Favourable Taste $D (\uparrow)$
 Unfavourable Taste $D (\downarrow)$

(a) Demonstration effect - आपने पड़ोसी को देख कर आप Mobile खरीद रहे हो.

(b) Bandwagon effect - सब ले रहे हैं तो हम भी खरीद लेते हैं. (its in Fashion)

(c) Snob effect - When product is too common then $D \downarrow$

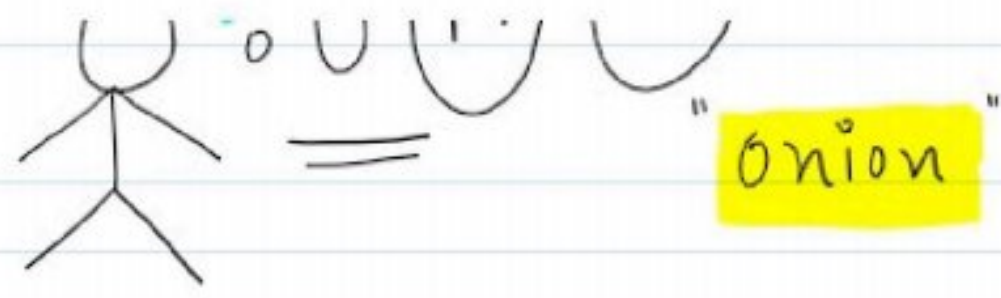
(d) Veblen effect - Conspicuous Consumption
 "Very expensive"
 (Diamonds, expensive car etc)

(5) Others (O)

(i) Population $(\uparrow)$ Demand $(\uparrow)$

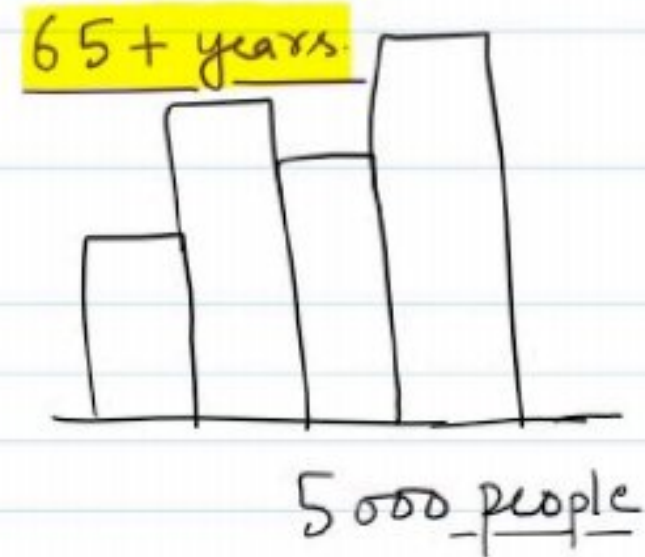
(ii) $\star$ Consumer expectation about future prices

future $\uparrow$ onion $(P \uparrow)$ $(P \uparrow)$ आज $D (\uparrow)$
 "onion"



D(↑)

(iii) Age Distribution



(iv) National Income & distribution



③ $Q_x = f(P_x, P_R, Y, T, O)$

Quantity of Good X is function of Price of Good X, Price of Related Good, Income, Taste & preference, other factors.

Dependent INDEPENDENT VARIABLE

Demand Function

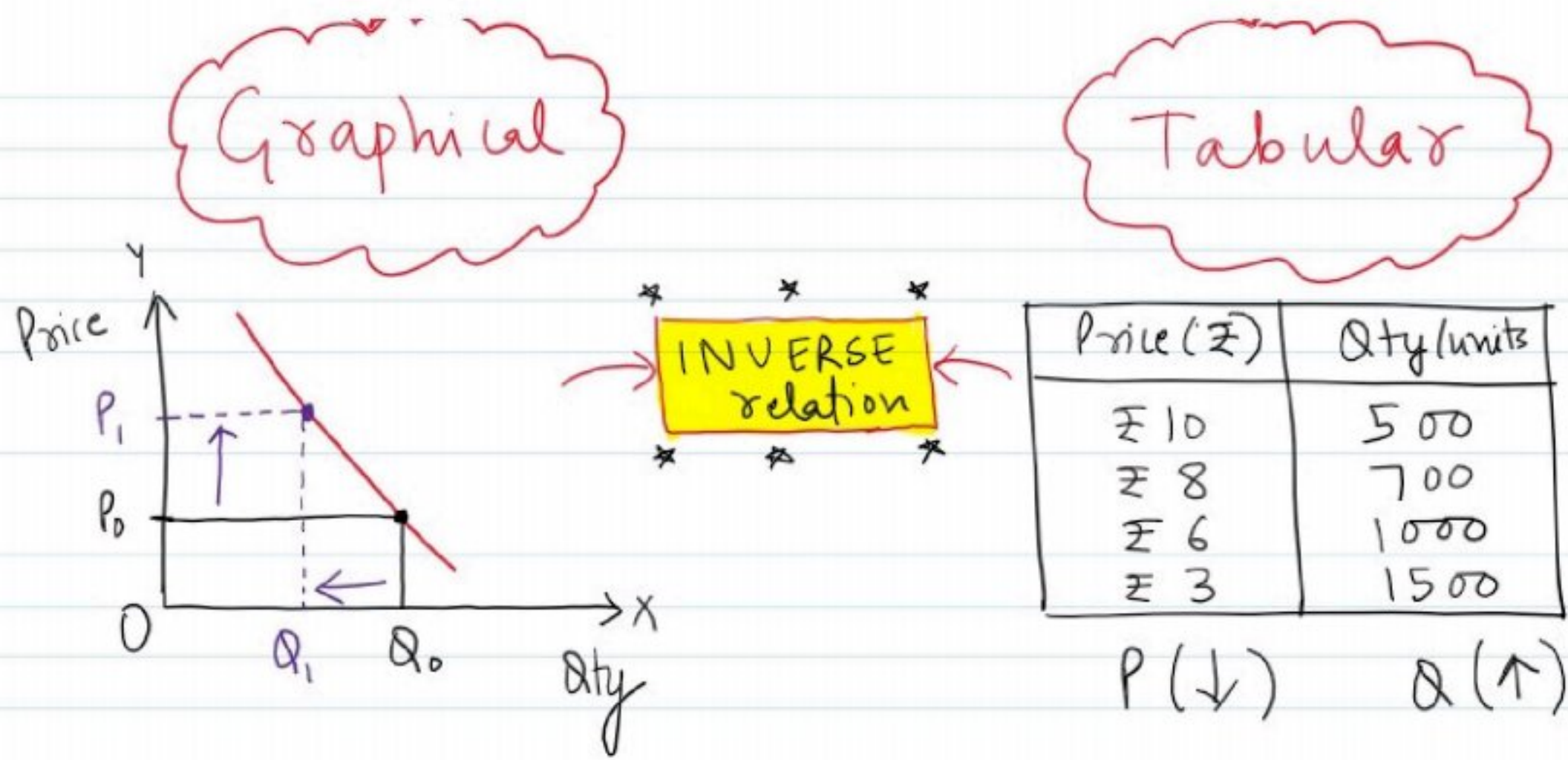
$y = f(x)$
 $y = x^2 + 1$

dependent 10, 5, 2 independent 1, 2, 3

④ Demand Curve & Demand Schedule

{ Graphical }

{ Tabular }



⑤ Law of Demand

$$Q_x = f(P_x, P_R, Y, T, O)$$

INVERSE
NO CHANGE ASSUMPTION

→ ALFRED MARSHALL

→ P_R, Y, T, O do not change → CETERIS PARIBUS

→ Law of Demand is **QUALITATIVE** Statement

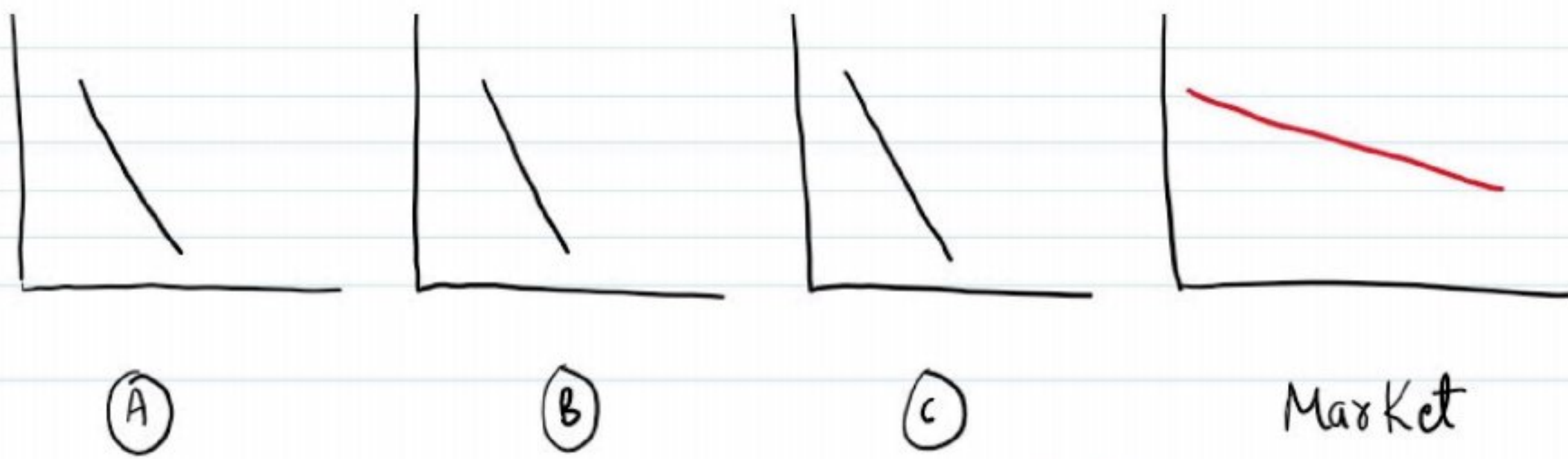
being other things constant

⑥ Market demand Curve & Market demand Schedule

Price	Qty (A)	Qty (B)	Qty (C)	Market demand
£1	100 units	140 units	160 units	400 units
£2	80 units	110 units	130 units	320 units
£3	60 units	80 units	100 units	240 units
£4	40 units	50 units	60 units	150 units
£5	20 units	30 units	20 units	60 units

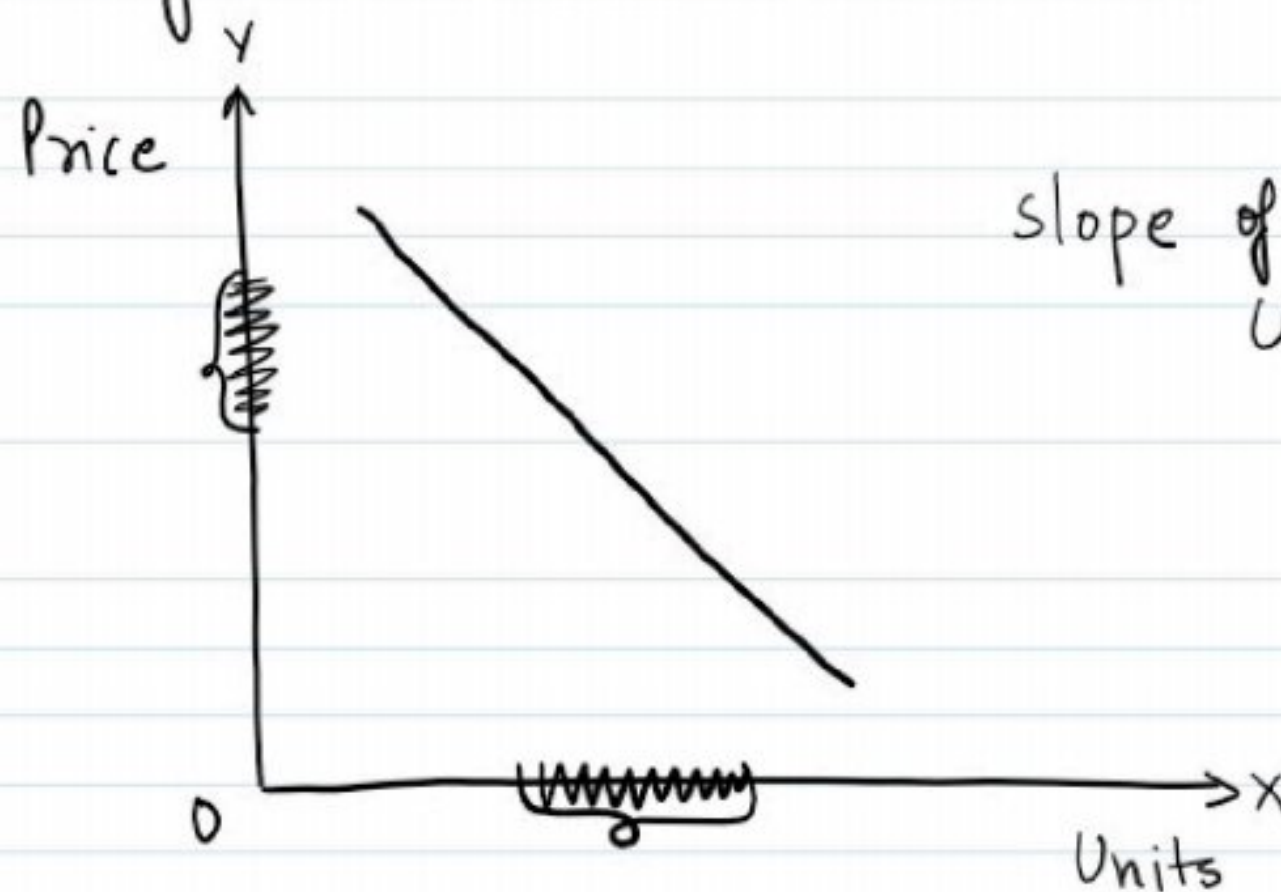
Individual
Individual
Individual





* Market demand curve is always flatter as compared to Individual demand curve.

⑦ Straight line demand Curve

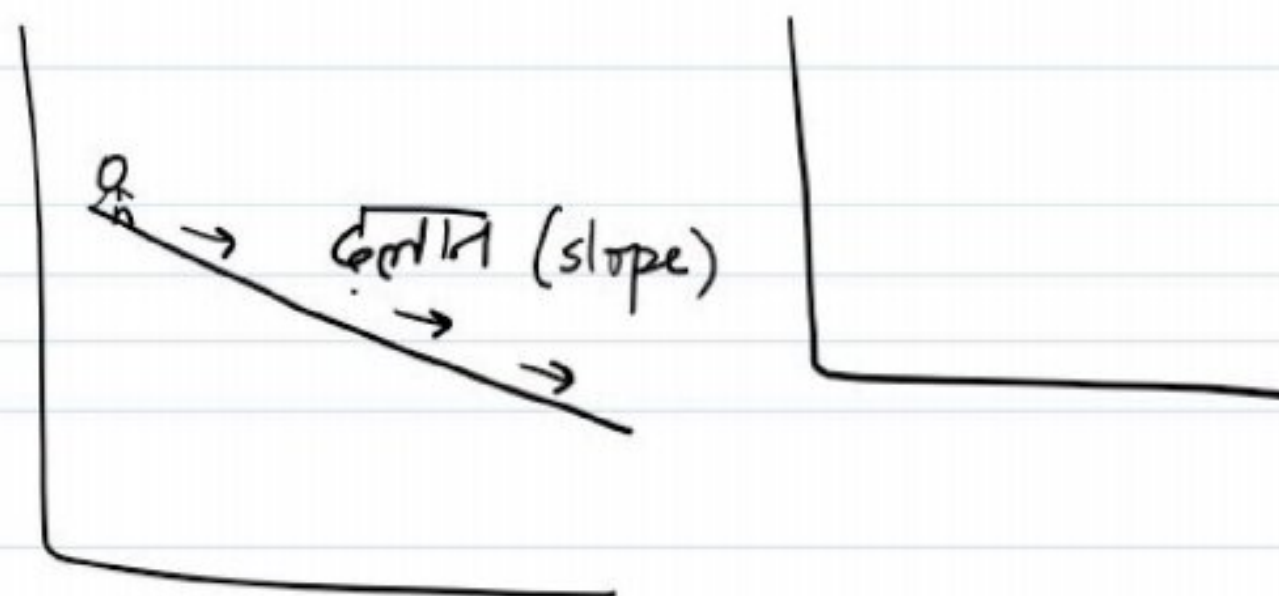
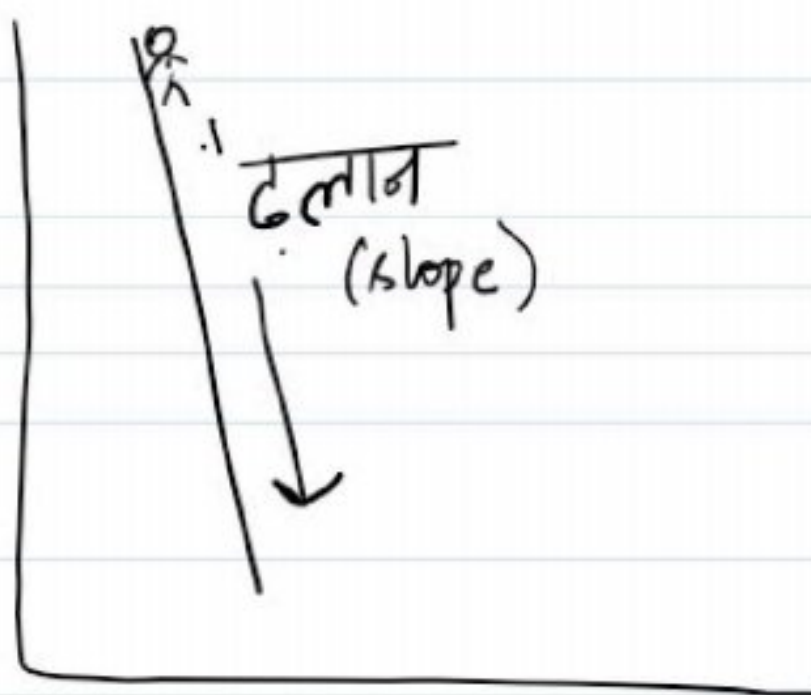
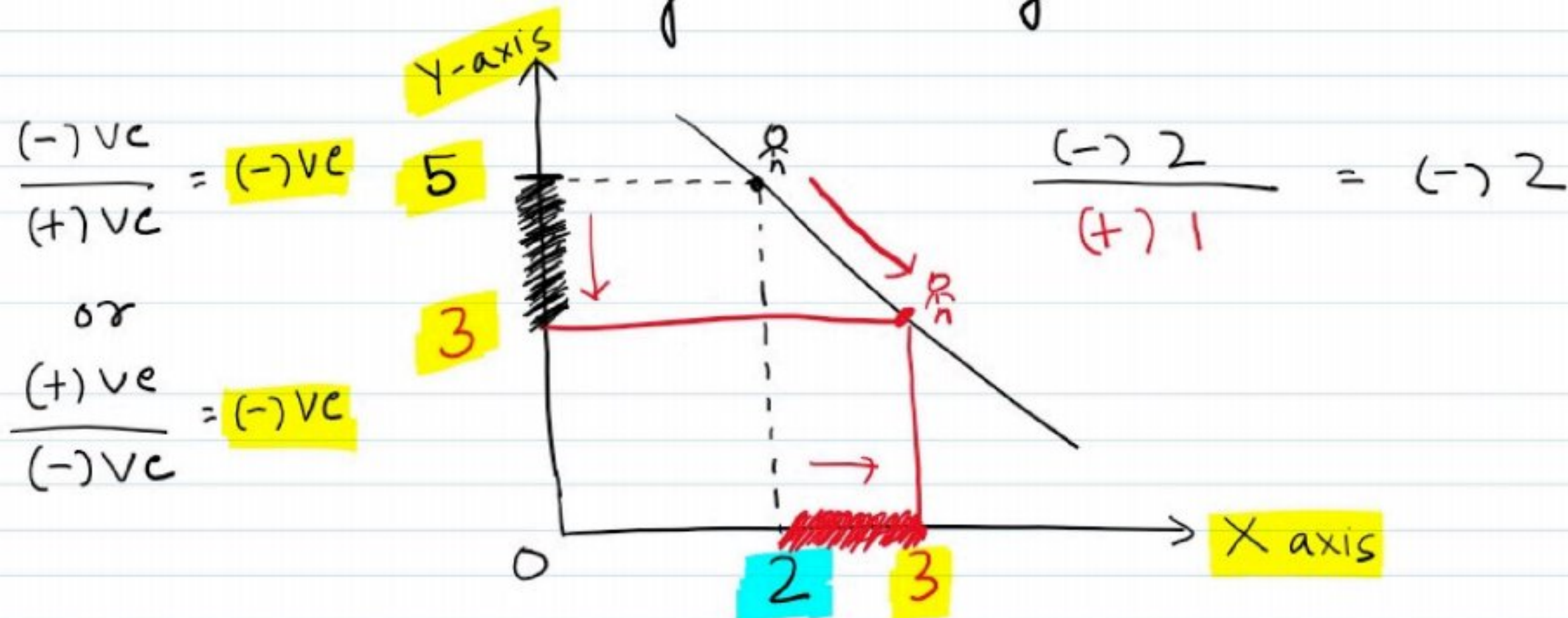


$$\text{slope of demand wave} = (-) \frac{\Delta P}{\Delta Q}$$

Slope is always Negative

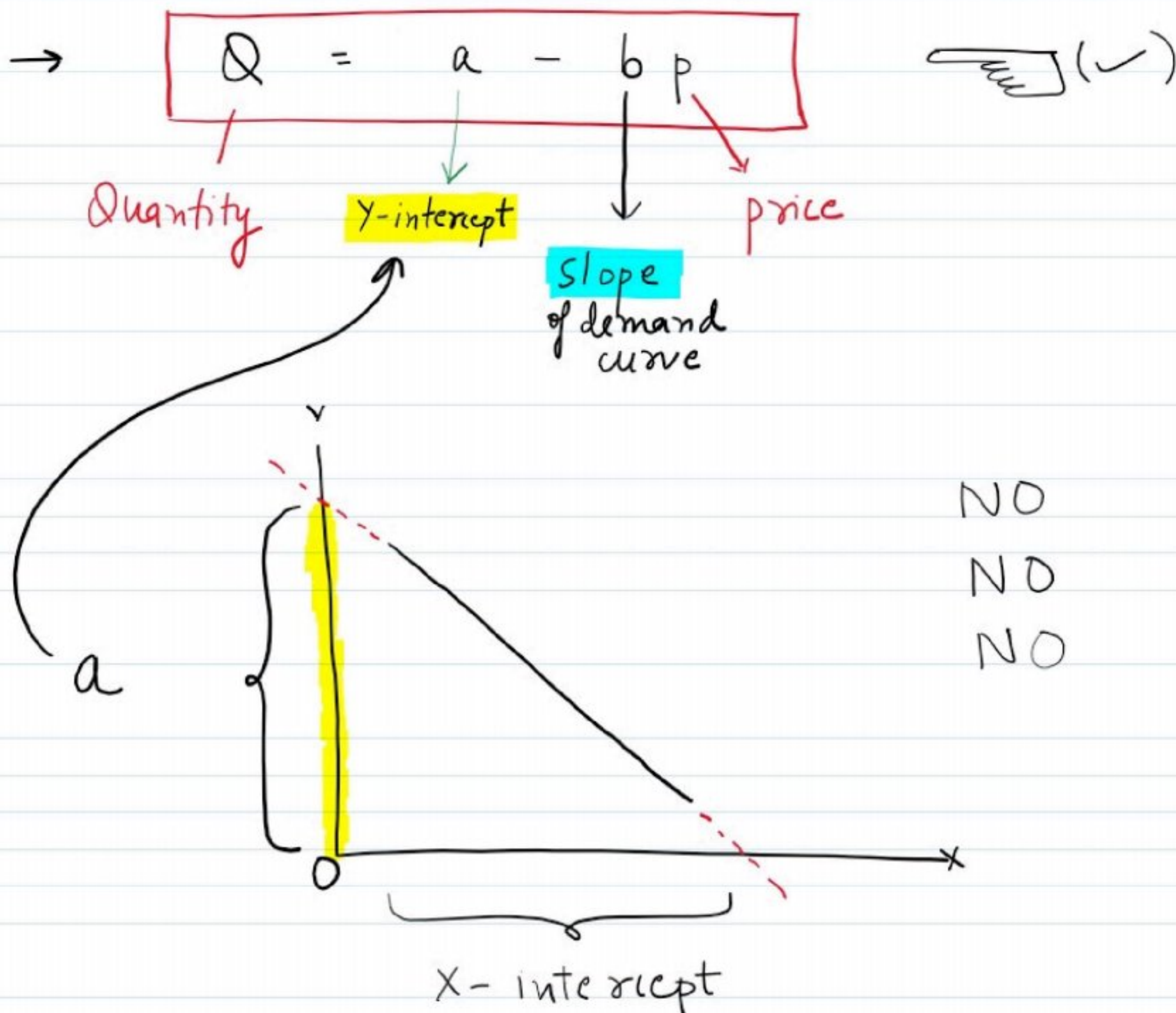
ΔP = Change in Price

ΔQ = Change in Quantity



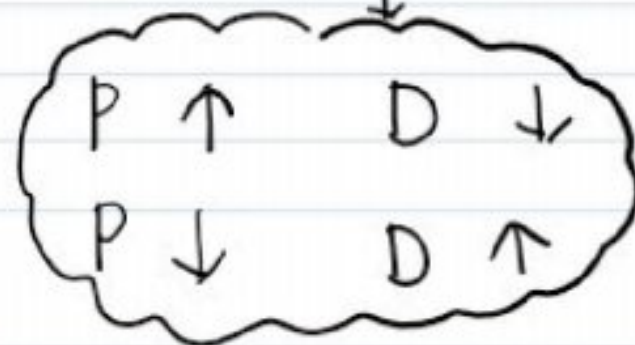
$$\text{slope (ढाल)} = \frac{\text{Change in Y-axis}}{\text{Change in X-axis}}$$

$$\text{slope (ढलान)} = \frac{\text{change in Y-axis}}{\text{change in X-axis}}$$



★ 8
Imp

Why does law of demand operate ???



WHY ??

(i) MARSHALL

Law of diminishing Marginal Utility

— When a consumer consumes more & more of good, his utility (satisfaction) goes on decreasing.

Marshall.

Price	Burger (Units)	Utility.	Law
₹100	1	50 utils	satisfaction कम
₹85	2	40 utils	
₹60	3	25 utils	
₹15	4	5 utils	
	-	-	

£15 ← 4

5 utils " "

£1 ← 5

0 util

INVERSE Relation.

(ii) JR Hicks & Allen.

Price effect = Substitution effect (+) Income effect

(a) Substitution effect.

(eg Tea, Coffee)

Price Tea (↓)

Substitution effect.

Demand Tea (↑)

↓
Coffee drinker

↓
Switch to Tea

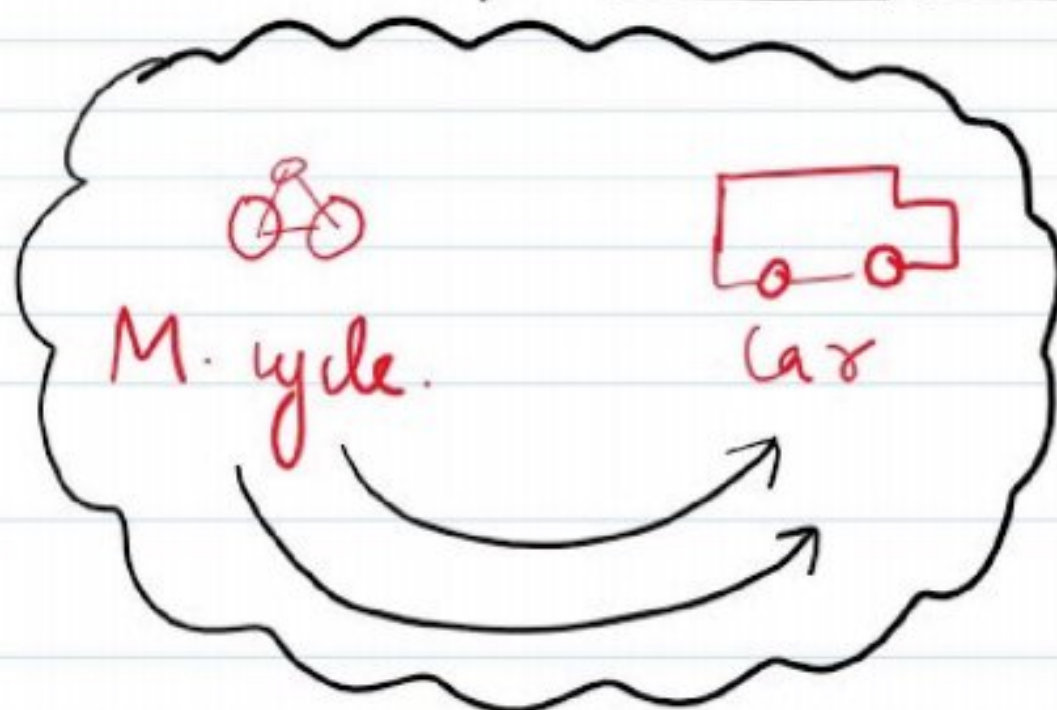
* Substitution effect is always POSITIVE

* Substitution effect is stronger when :-

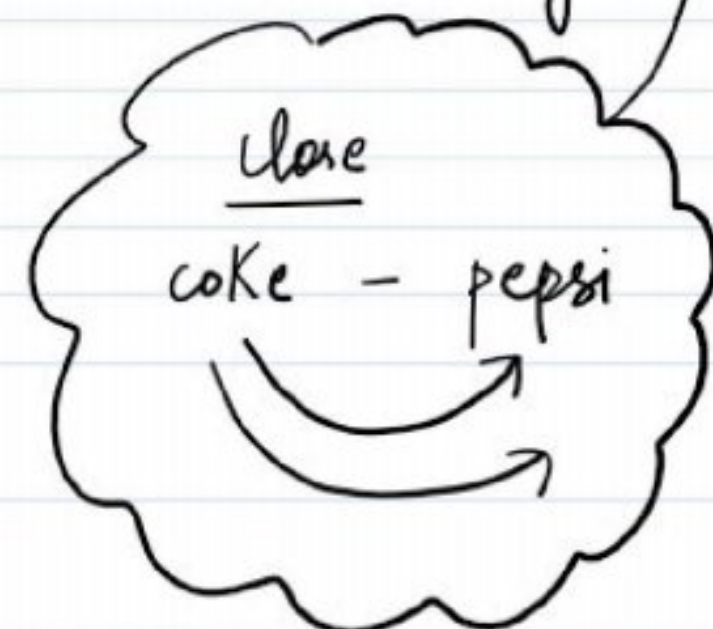
a) goods are close substitute

b) low cost of switching

c) Lower inconvenience while switching.



~~close~~



b) Income effect

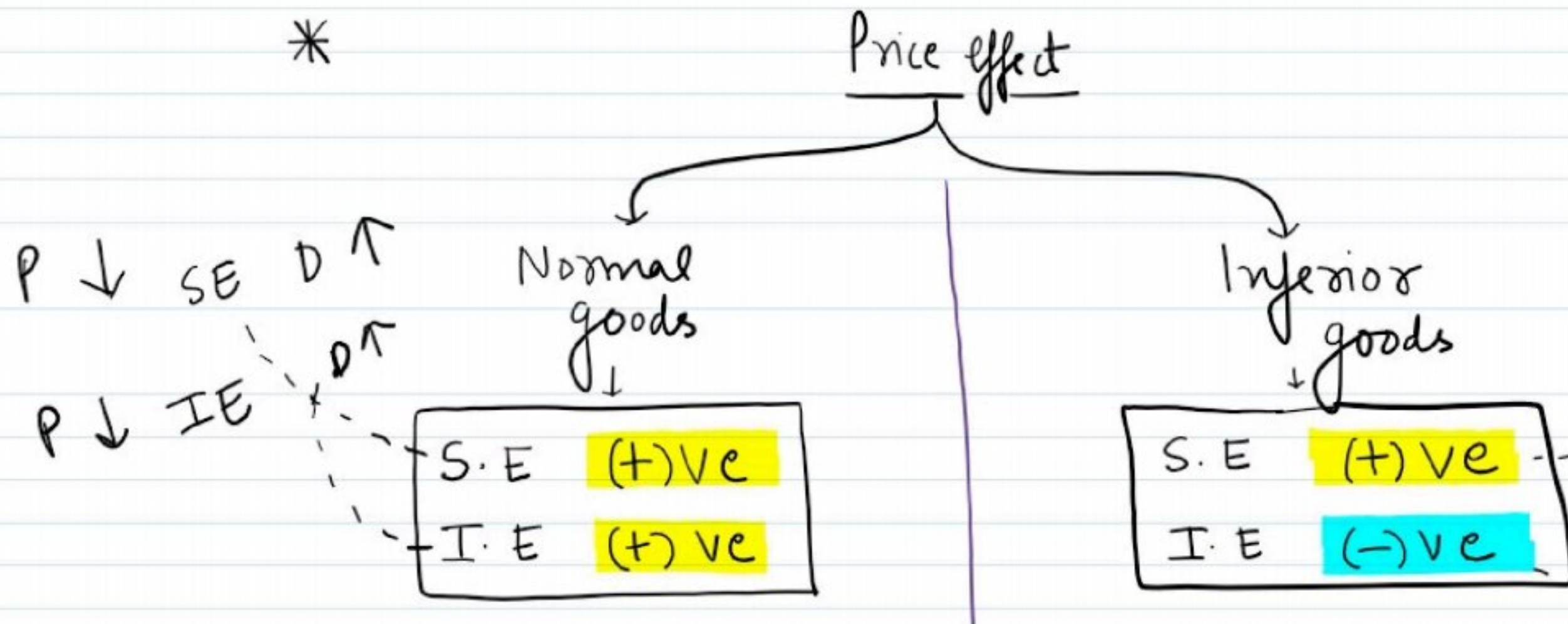
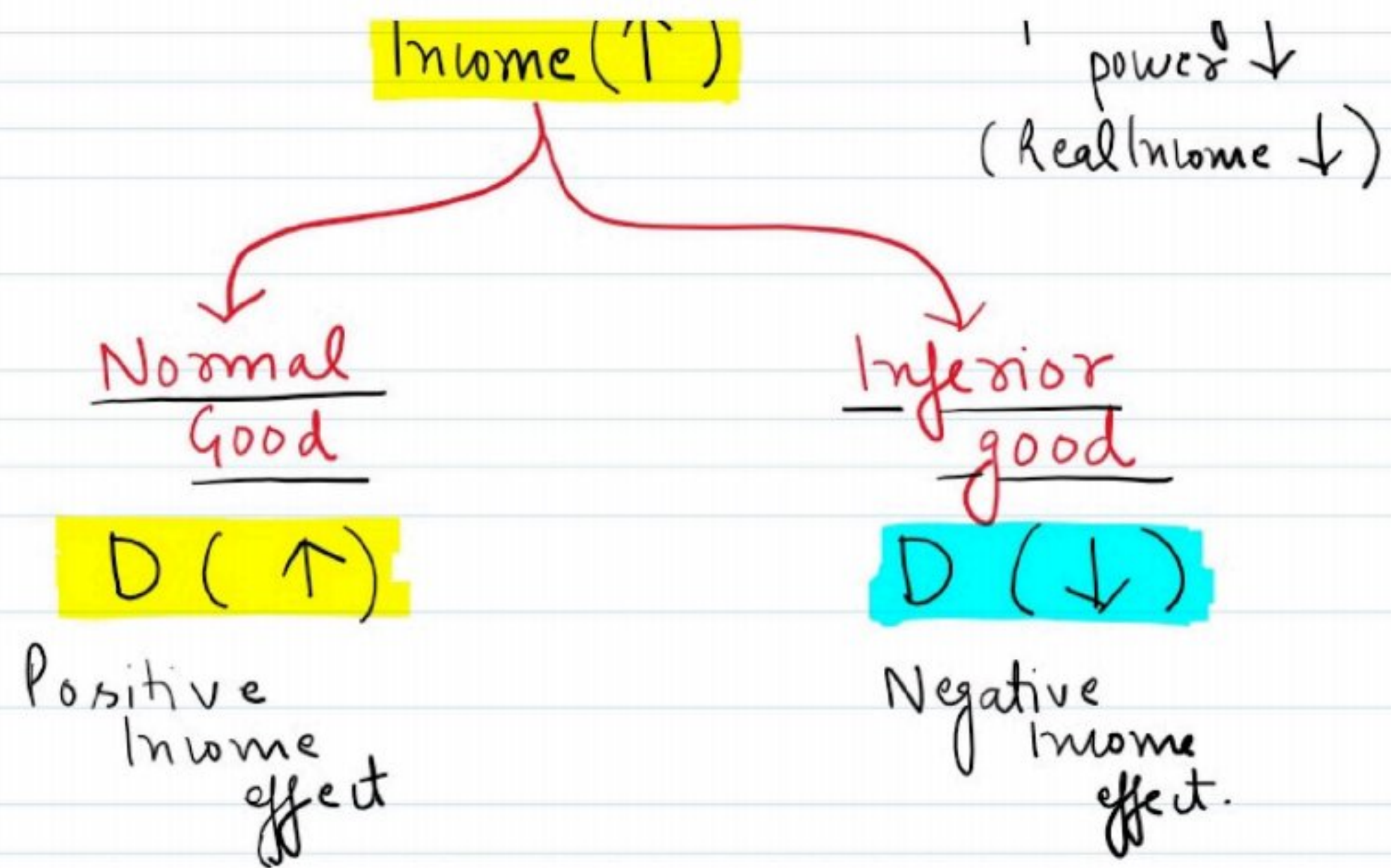
Price (↓) Real Income (↑)

£100 income

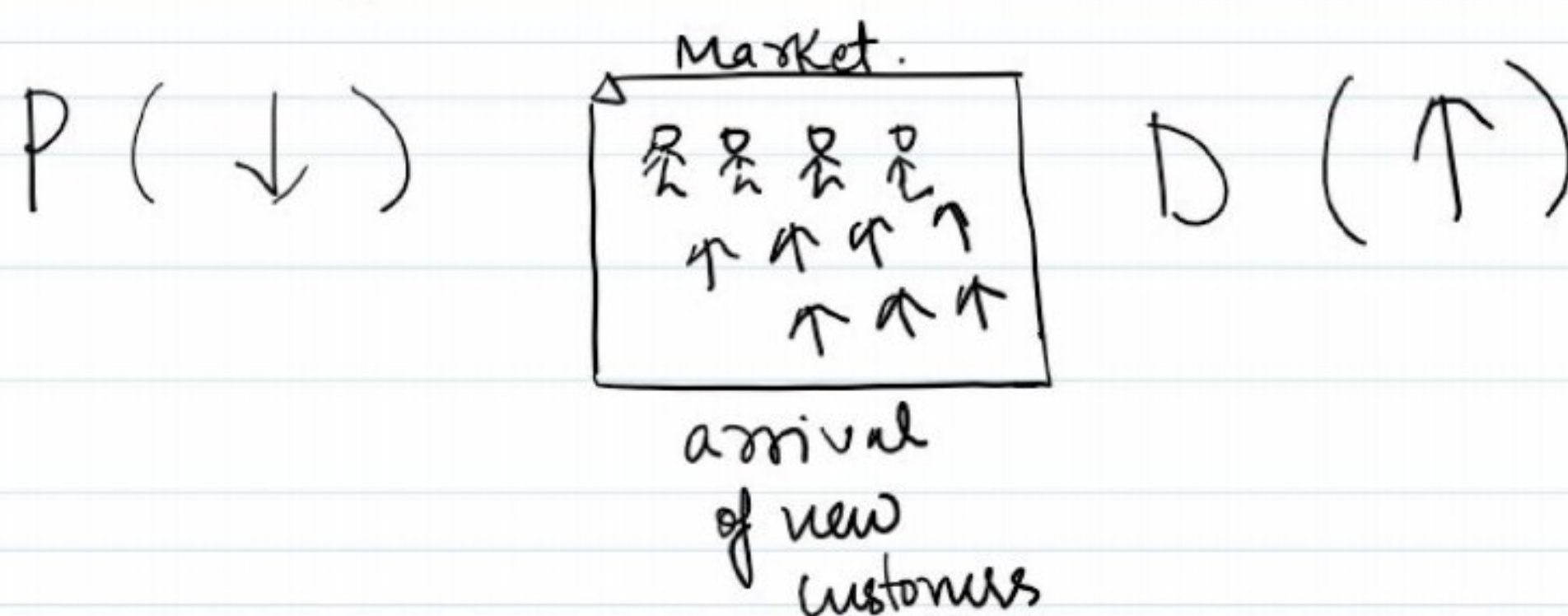
price ~~£50/-~~
£100

purchasing power ↓

(Real Income ↓)

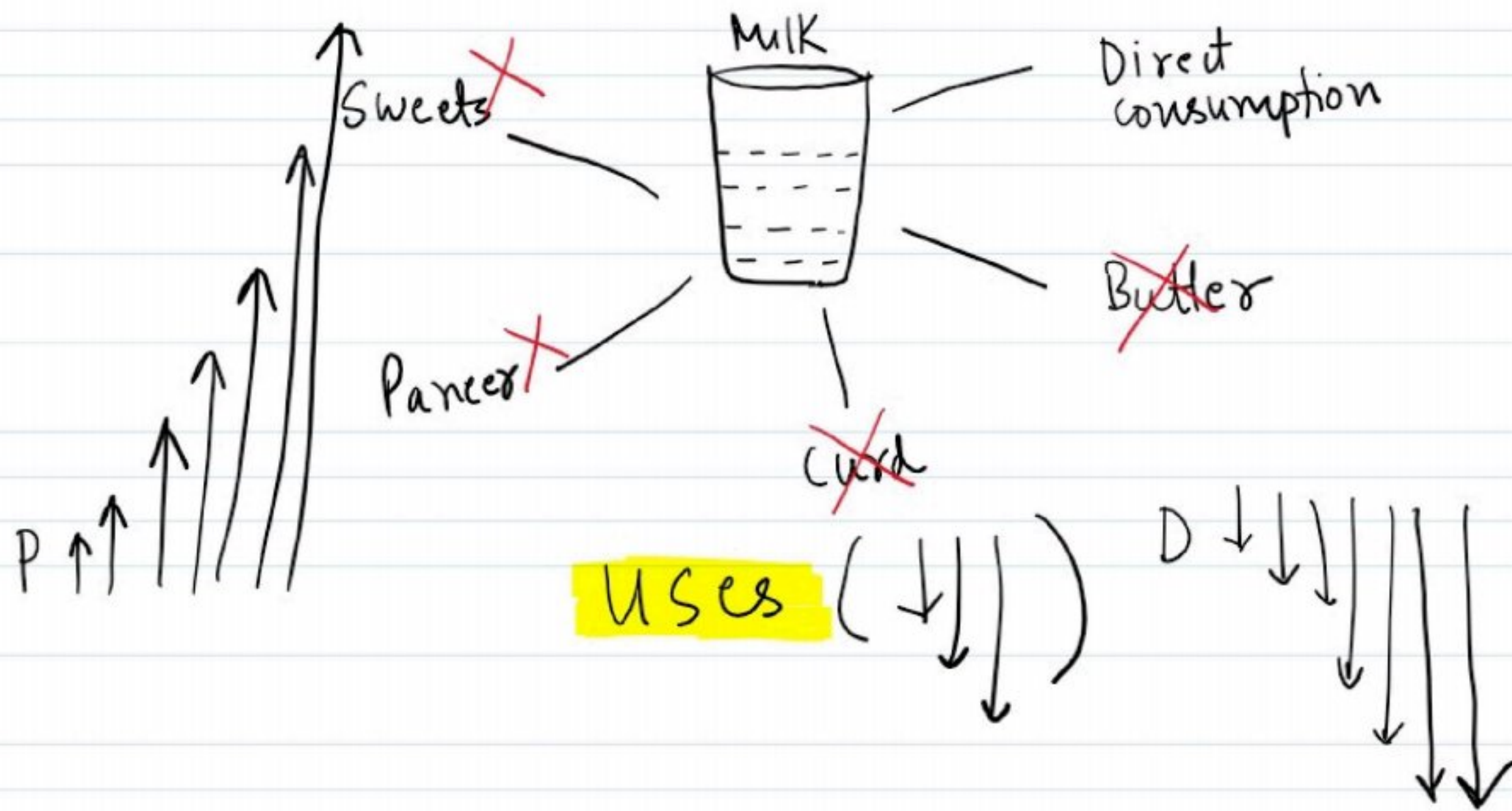


(iii) Arrival of new customers



... Demand ...

(iv) Different Uses ^{of new customers} (Milk, electricity)



* Exceptions of Law of Demand

(जो Law of demand follow नहीं करते)

$P \uparrow D \uparrow$

$P \downarrow D \downarrow$

(i) Conspicuous goods (Snob goods or Veblen goods)

$P \uparrow D \uparrow$

eg Very expensive goods (prestigious goods) like Diamonds

(ii) "Giffen" Goods

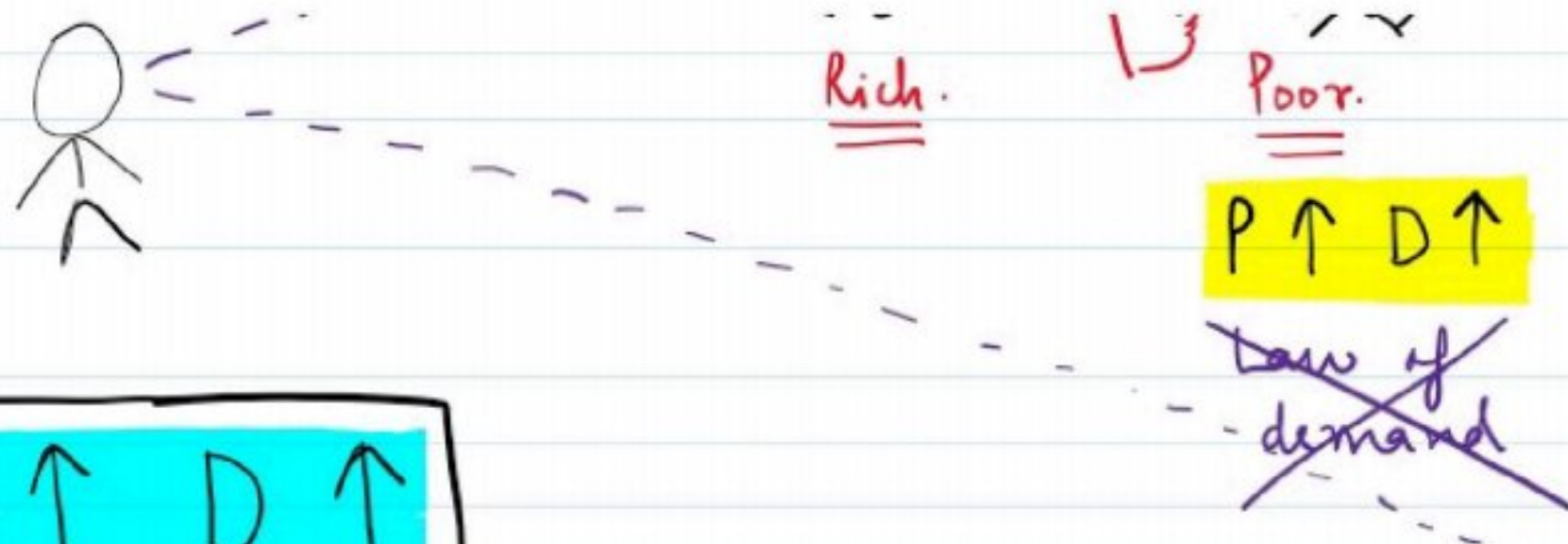
→ Sir Robert Giffen (Scottish Economist)

→ Meat + Bread



Meat
£ 500
Rich.

Bread
£ 5
Poor.



→ $P \uparrow D \uparrow$

(R)* All Giffen goods are inferior goods but all inferior goods are not Giffen

Not Giffen



g:- inferior Superior

Toned Milk :- (Full cream Milk)

$P \uparrow D \downarrow$

(iii) Conspicuous necessities



TV, Mobile, AC



जरूरत

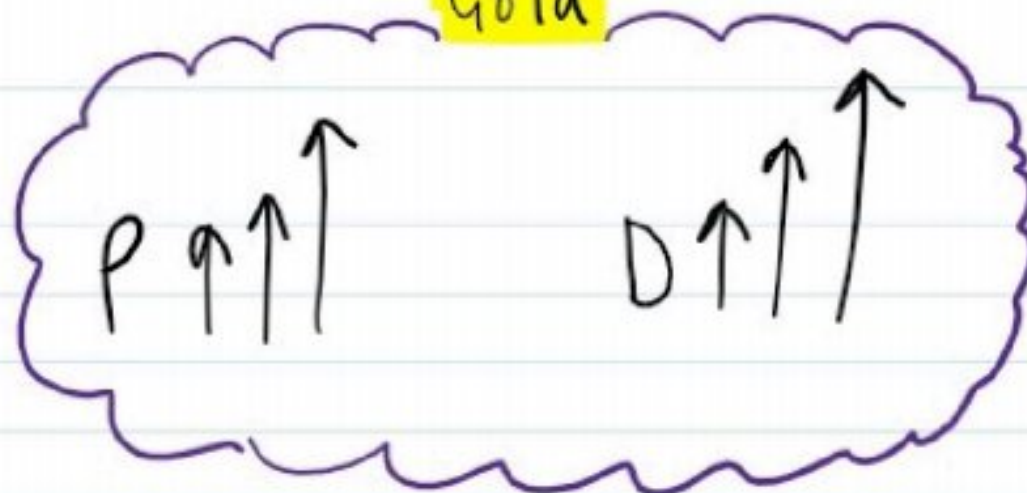
$P \uparrow$

Demand do not change

(iv) future rise in prices.



Gold



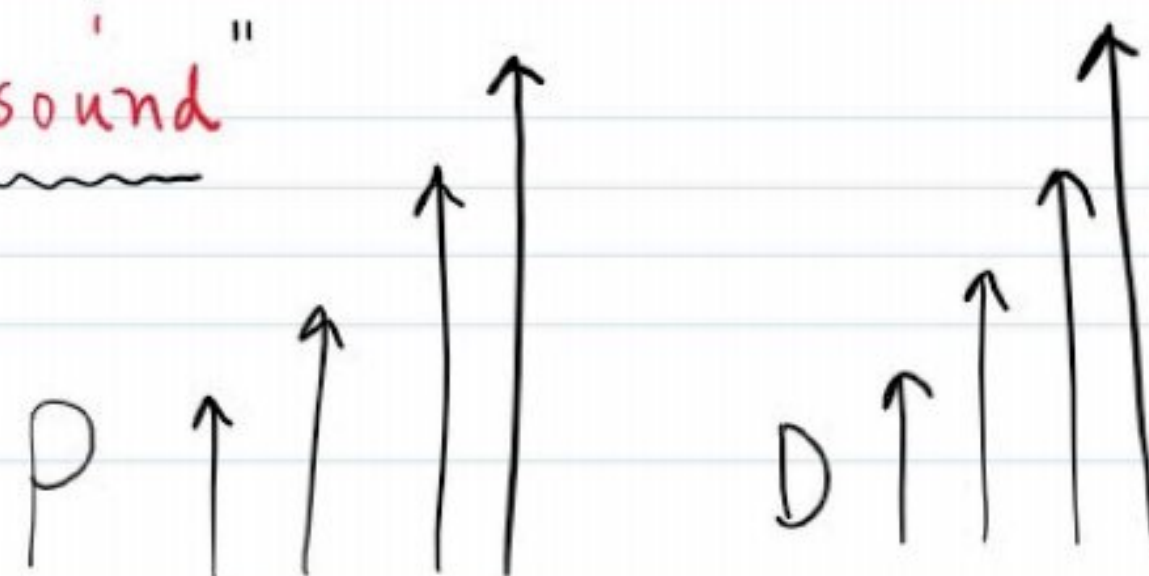
future में और costlier हो जाएगा

Shares ✓ Bitcoin ✓ ↑↑

(v) Irrational Behavior, Speculative Goods



"Unsound"



Shares → BUY
Bitcoin → SELL

x — x — x — x — x — x — x

$$D_x = f(P_x, P_R, Y, T, O)$$

$$D_x = f(P_x, P_R, Y, I, U)$$

(आप) Papa Mother Bro Sis GF BF दोस्त

Change in Quantity demanded

Quantity is affected due to Change in Price

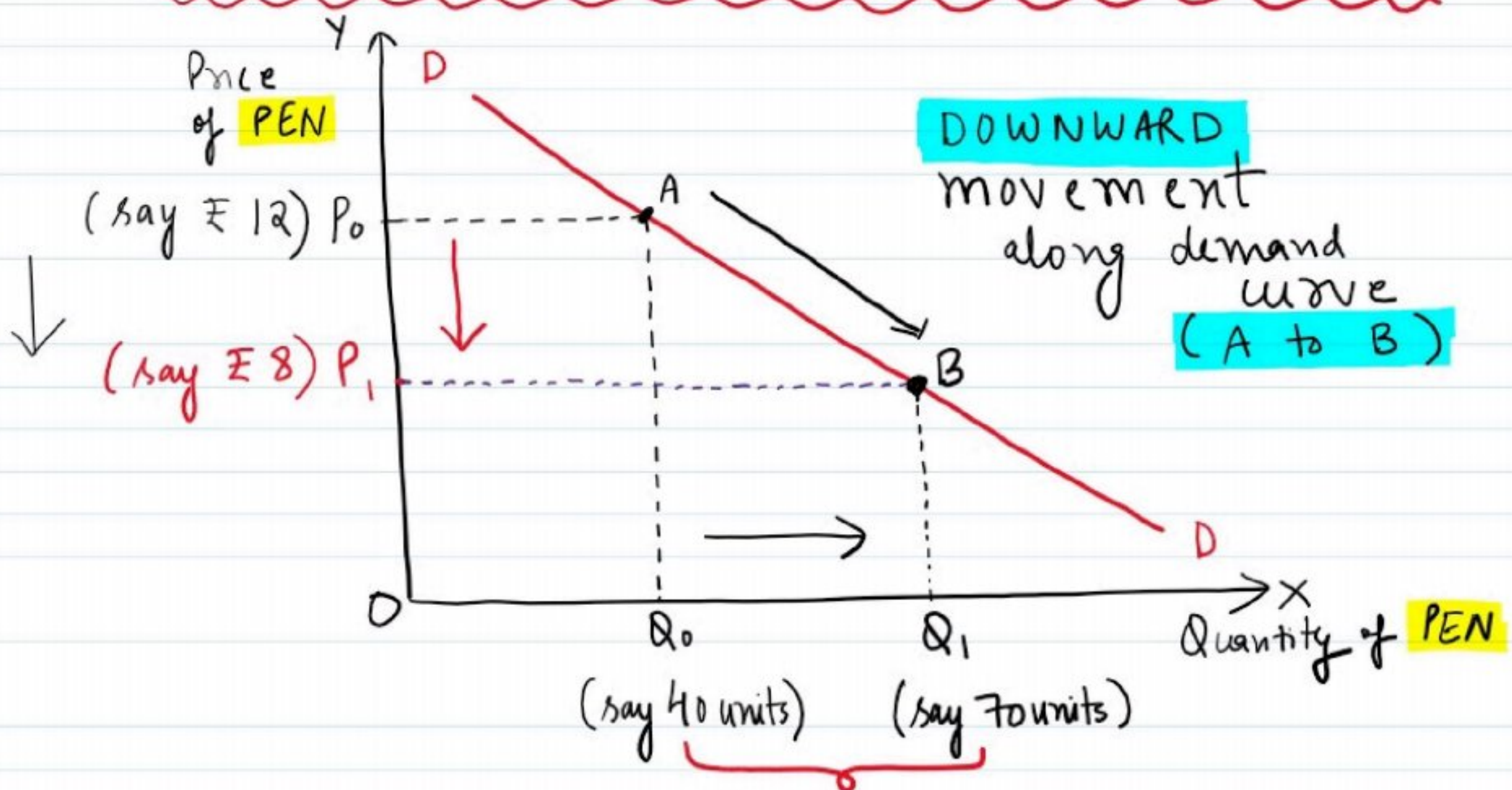
Types : a) Expansion
b) Contraction

Change in Demand

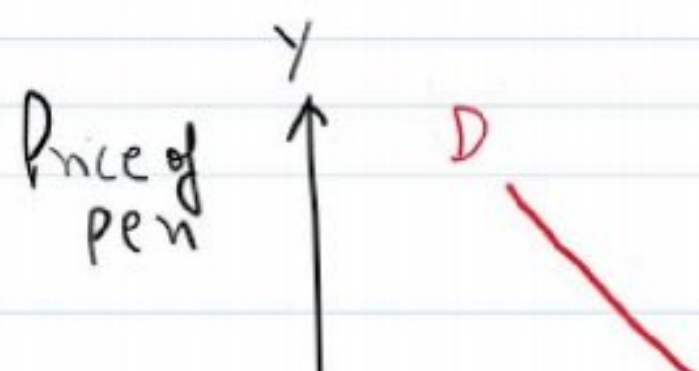
Quantity is affected due to change in factors other than P_x (P_R, Y, T, D)

Types a) Increase
b) Decrease

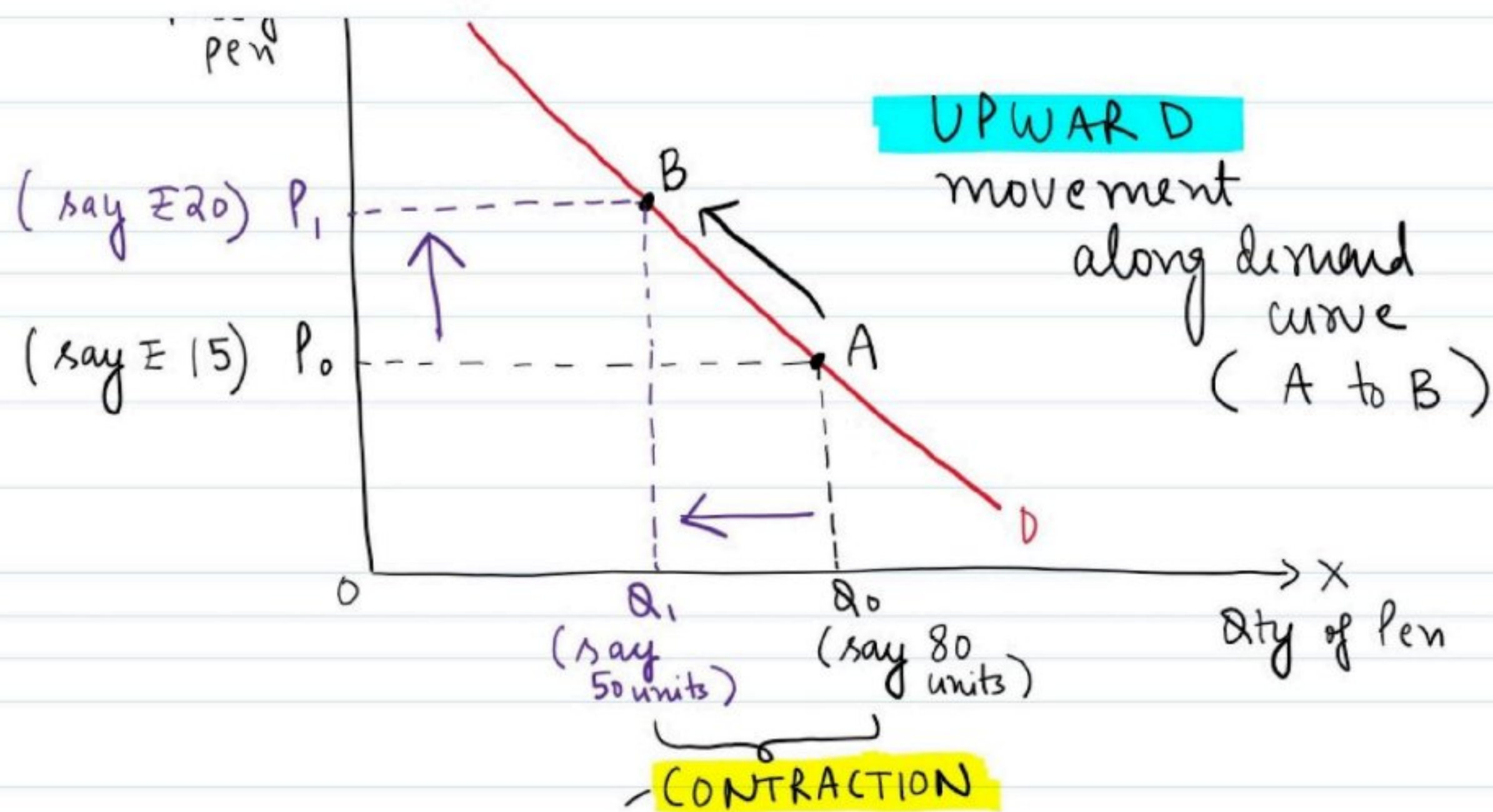
* EXPANSION & CONTRACTION



Increase in Quantity Demanded



UPWARD



Decrease in Quantity Demanded

✶✶

Increase in demand

P_x remains Same

- (i) **Rise** in Price of Substitute good.
- (ii) **Fall** in Price of complementary goods
- (iii) **Increase** in Income (Normal good)
- (iv) **Fall** in Income (Inferior good)
- (v) **Favourable** change in Taste
- (vi) **Increase** in population
- (vii) **Future expectation** of Rise in price.
- (viii) **Number of consumer**

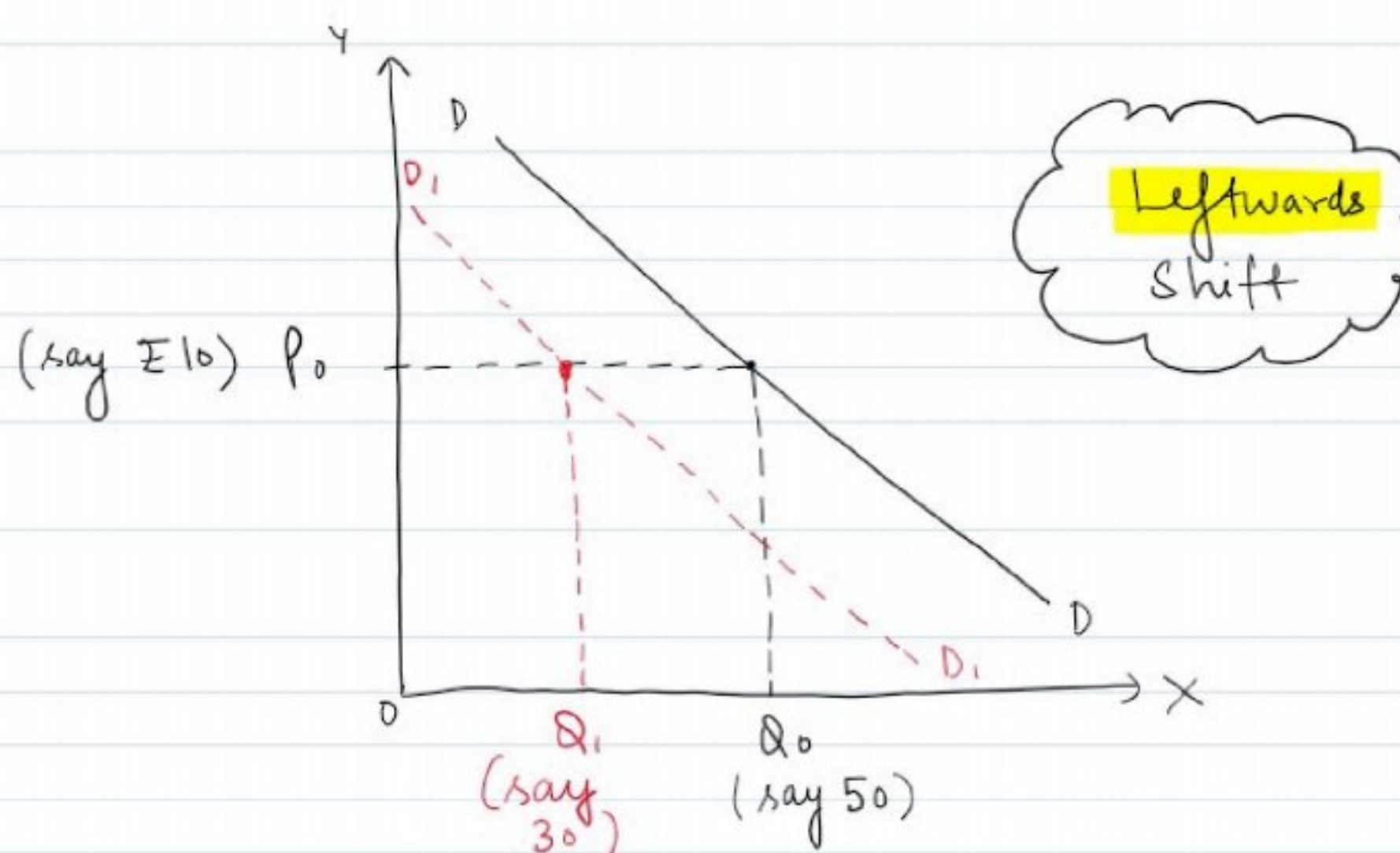
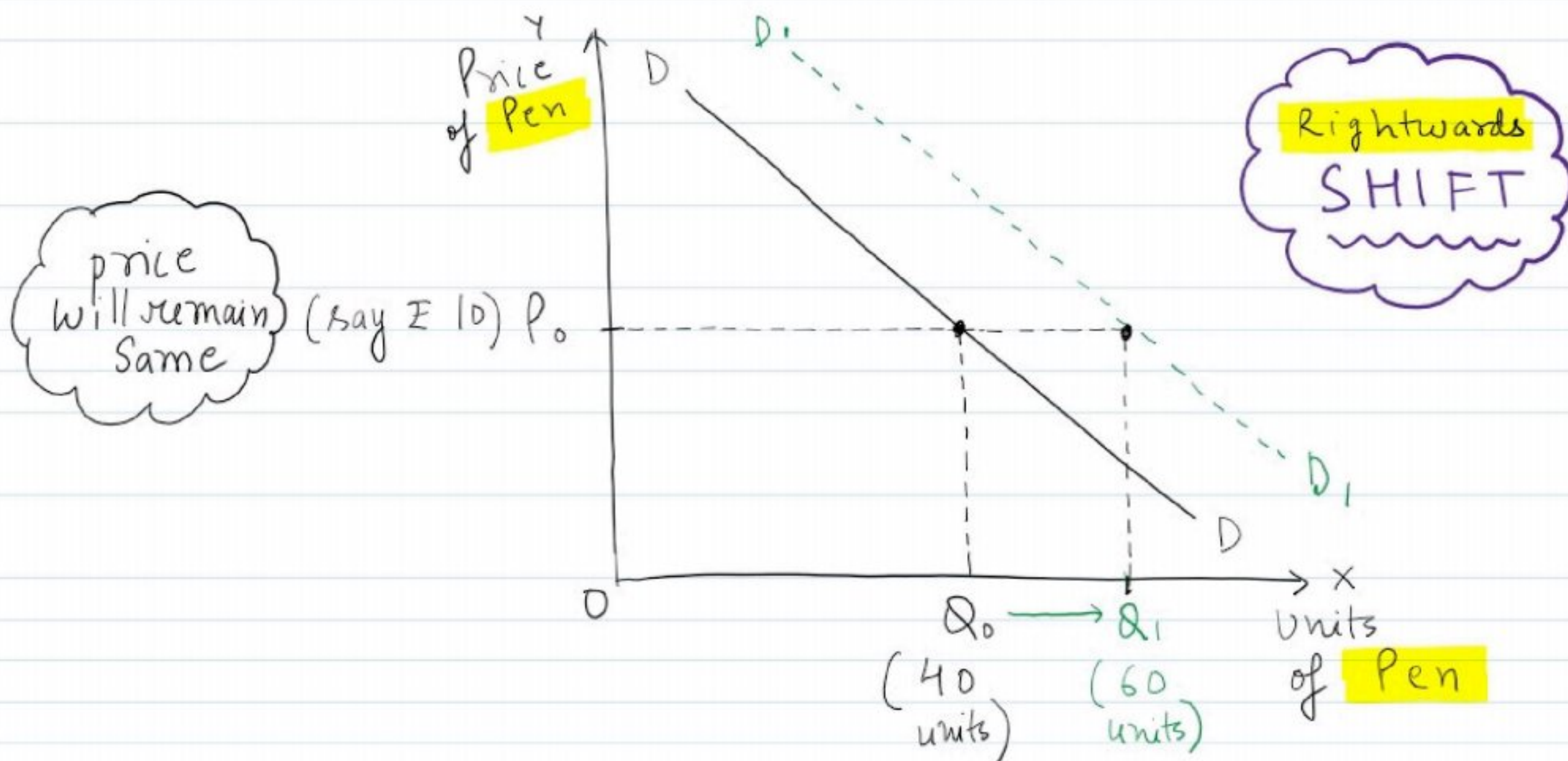
Decrease in demand

P_x remains Same

- (i) Fall in Price of Substitute good
- (ii) Rise in price of complementary goods
- (iii) Decrease in Income (Normal good)
- (iv) Rise in Income (Inferior good)
- (v) **Unfavourable** change in taste
- (vi) Fall in population
- (vii) Future expectation of Fall in price
- (viii) Number of consumer decreases.

(iii) Number of consumer increases

(iv) Number of consumer decreases.



* ELASTICITY OF DEMAND *

→ Elasticity of demand means ^{आप} change in demand due to change in variable like price of the good (P_x), Price of related good (P_R), Income of consumer (Y) or Advertisement expenditure.

Elasticity	Formula
→ (i) Price elasticity (always negative)	$\frac{\% \text{ change in Quantity}}{\% \text{ change in Price of good } (P_x)}$
→ (ii) Cross elasticity	$\frac{\% \text{ change in Quantity}}{\% \text{ change in Price of Related Good } (P_R)}$

→ (ii)	cross elasticity	$\frac{\% \text{ change in Price of Related Good (PR)}}{\% \text{ change in Quantity}}$
→ (iii)	Income elasticity	$\frac{\% \text{ change in Quantity}}{\% \text{ change in Income (Y)}}$
→ (iv)	Advertisement elasticity	$\frac{\% \text{ change in Quantity}}{\% \text{ change in Advertisement}}$

$$\% \text{ change} = \frac{\text{New} - \text{old}}{\text{old}} \times 100$$

$$= \frac{\text{नया} - \text{पुराना}}{\text{पुराना}} \times 100$$

$$\frac{87 - 72}{72} \times 100$$

eg :- class XI $\Rightarrow$ 72

class XII $\Rightarrow$ 87

$$\% \text{ change} = 20.833\%$$

→ Elasticity of demand has 5 degrees :-

(i) $E_d > 1$ - $\% \text{ change in } Q > \% \text{ change in Variable}$

(ii) $E_d = 1$ - $\% \text{ change in } Q = \% \text{ change in Variable}$

(iii) $E_d < 1$ - $\% \text{ change in } Q < \% \text{ change in Variable}$

(iv) $E_d = 0$ - $\% \text{ change in } Q = 0$

(v) $E_d = \infty$ - $\% \text{ change in Variable} = 0$

$$\frac{19}{17} \quad \frac{57}{14}$$

$$\frac{55}{68} \quad \frac{66}{66}$$

Fraction $\Rightarrow \frac{N}{D}$

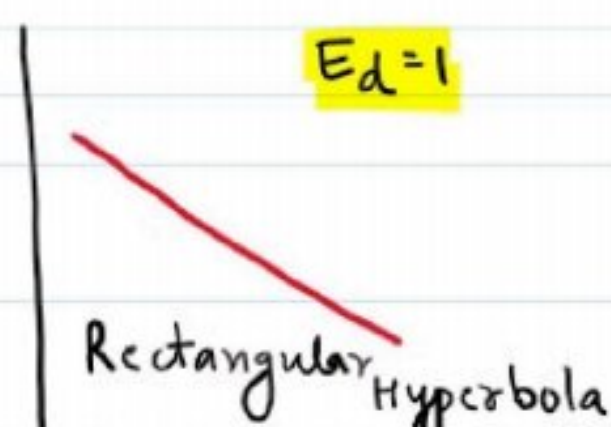
$N > D$ $\Rightarrow$ Answer > 1

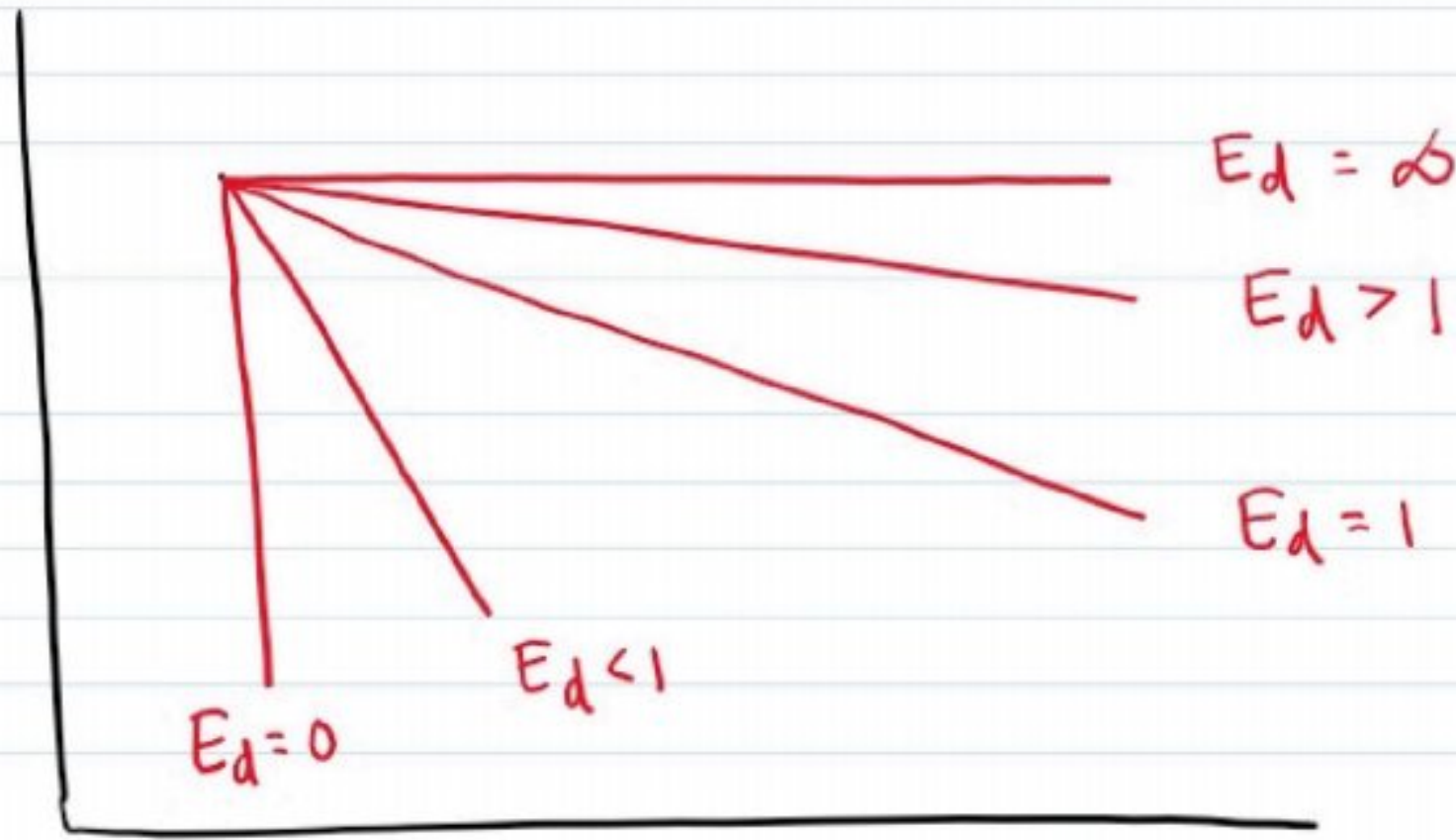
$N < D$ $\Rightarrow$ Answer < 1

$N = D$ $\Rightarrow$ Answer $= 1$

N is Zero $\Rightarrow$ Ans $= 0$

D is Zero $\Rightarrow$ Ans $= \infty$



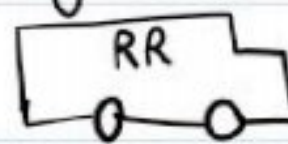


x — x — x — x — x — x — x — x

* METHODS *

(Price Elasticity)

- ① Point elasticity - Use this method when the change is negligible i.e. Minimal
- 

eg  £100,00,00,000

£99,99,99,999

$$E_d = \frac{\% \text{ change in Quantity}}{\% \text{ change in Price}}$$

$$E_d = \frac{Q_1 - Q_0}{P_1 - P_0} \times \frac{P_0}{Q_0}$$

Q_1 = New Qty

P_1 = New Price

Q_0 = old Qty

P_0 = Old Price

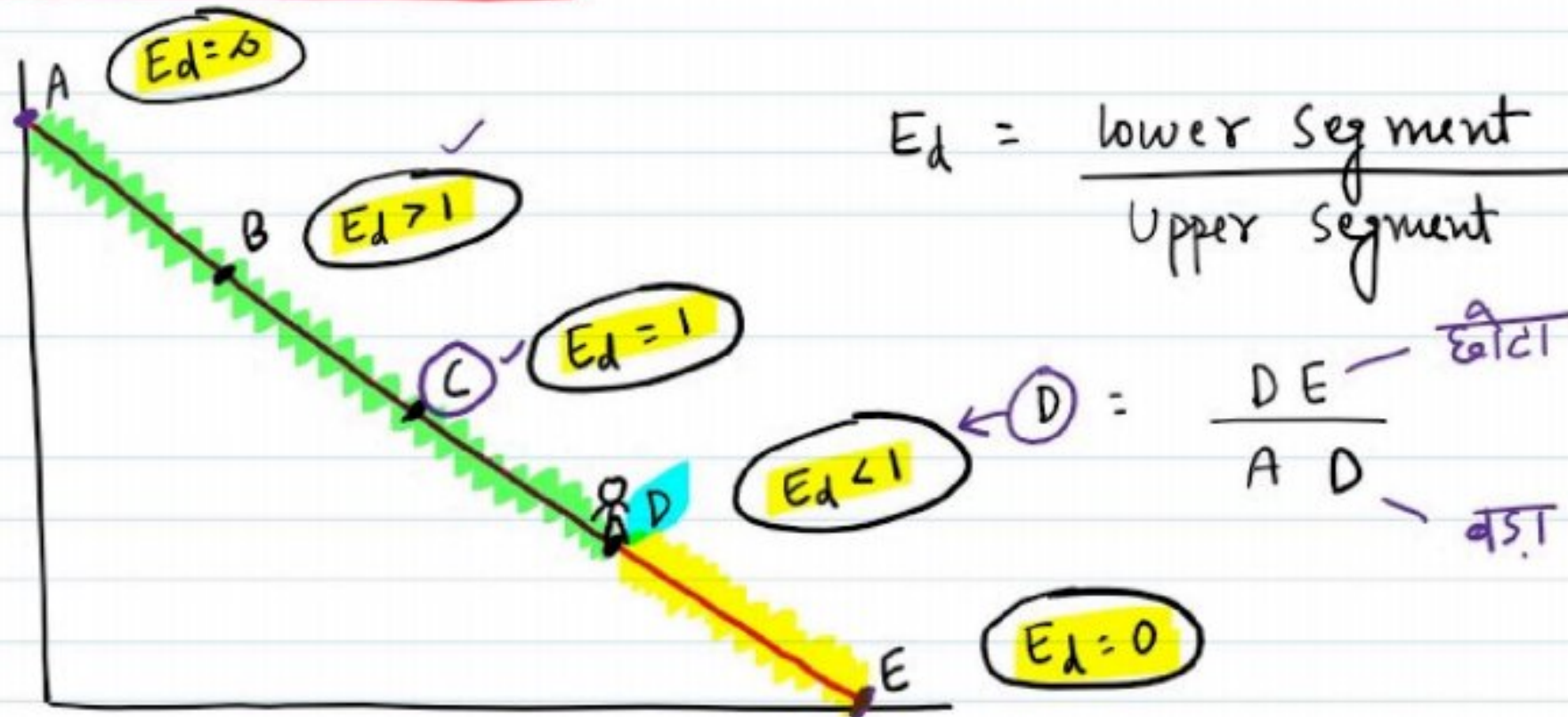
$$E_d = \frac{\Delta Q}{\Delta P} \times \frac{P_0}{Q_0}$$

change in Quantity change in Price

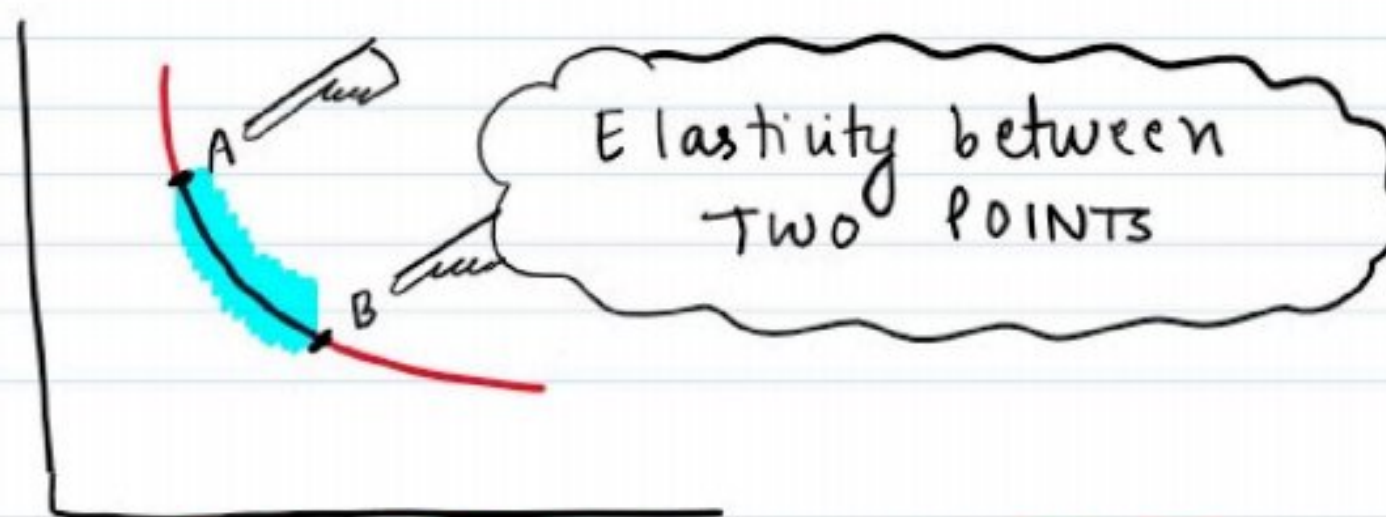
slope of demand curve = $\frac{\Delta P}{\Delta Q}$

$$E_d = \frac{1}{\text{slope of demand curve}} \times \frac{P_0}{Q_0}$$

(2) Geometric Method (Linear Demand curve)



③ ARC Method (Non-linear demand curve)

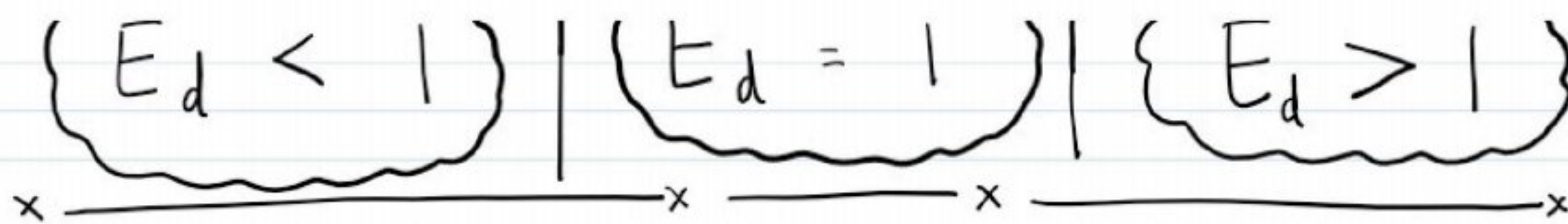


$$E_d = \frac{Q_0 - Q_1}{Q_0 + Q_1} \times \frac{P_0 + P_1}{P_0 - P_1}$$

④ Total Expenditure / Total Outlay / Total Revenue method

$$T.E = P \times Q$$

Case ①	Case ②	Case ③
Price: ₹1, ₹2 Qty: 6 units, 5 units T.E: ₹6, ₹10 P(↑) TE(↑) SAME Direction $E_d < 1$	Price: ₹3, ₹4 Qty: 4 units, 3 units T.E: ₹12, ₹12 P(↑) TE (do not change) $E_d = 1$	Price: ₹5, ₹6 Qty: 2 units, 1 unit T.E: ₹10, ₹6 P(↑) TE(↓) OPPOSITE Direction $E_d > 1$

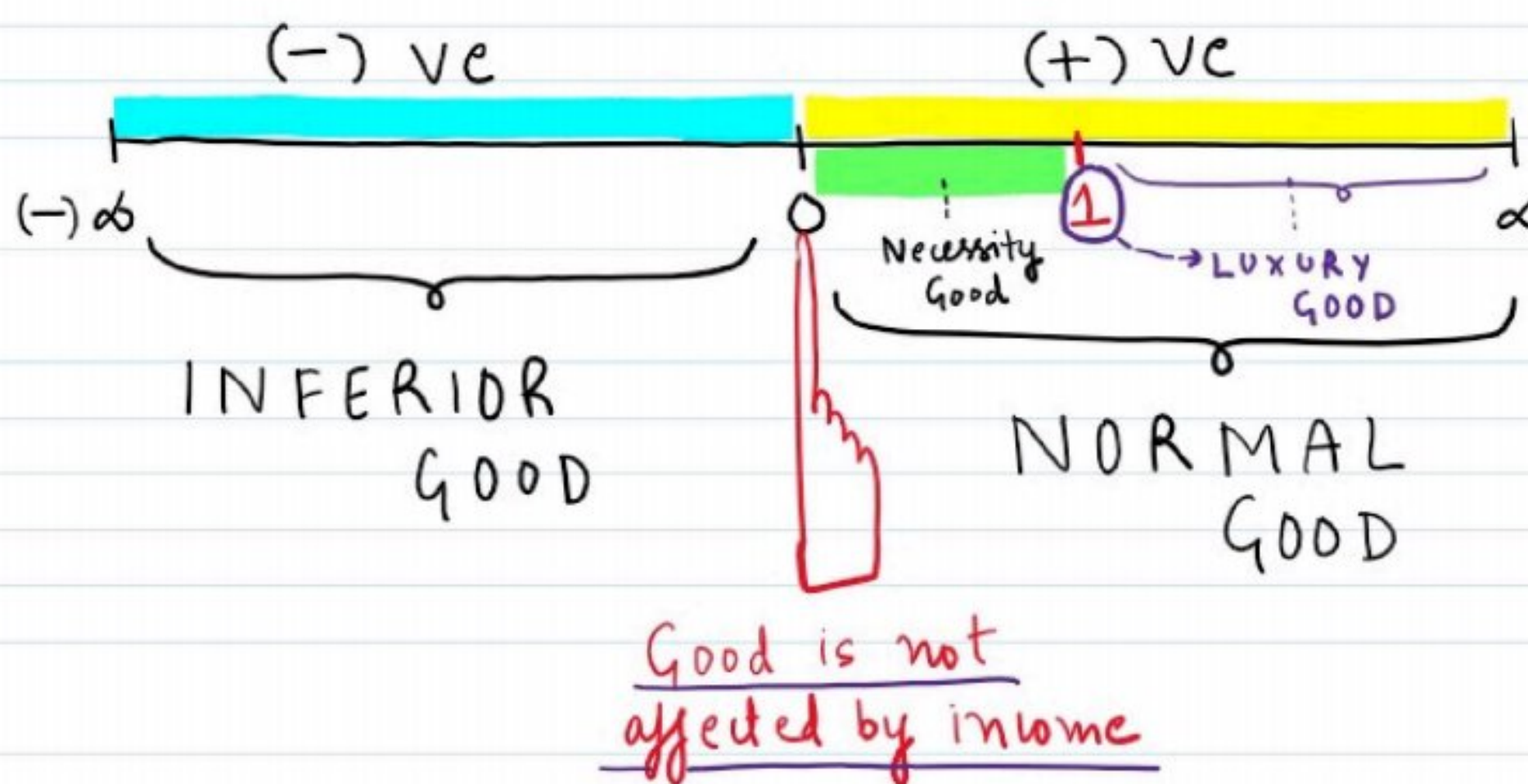


Q1- $P(\uparrow)$; $E_d > 1$; TE $(\downarrow)$

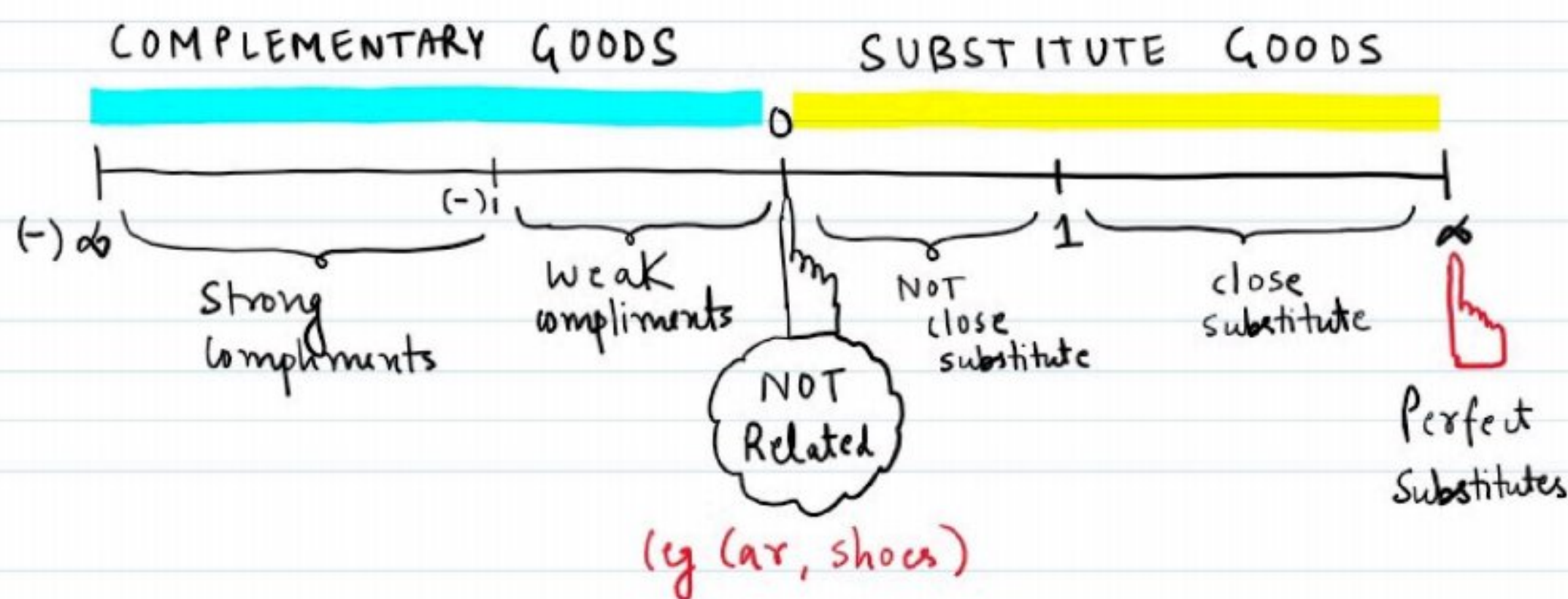
Q2- $P(\downarrow)$; $E_d < 1$; TE $(\downarrow)$

Q3- TE $(\downarrow)$ $E_d > 1$ $P(\uparrow)$

* Income elasticity *



* CROSS ELASTICITY *



* Factors affecting Elasticity of Demand *

Elastic $E_d > 1$
Inelastic $E_d < 1$

(i) Availability of Substitutes

Goods having close substitutes - $E_d > 1$

[demand आसानी change]

↑ demand → [demand आसानी change]

(ii) Number of uses

g Milk

- D.C
- Sweet
- Pancer
- Butter
- Curd
- etc

$E_d > 1$

Book

→ पढ़ाई

$E_d < 1$

(iii) Share in consumer's Budget

£10,000

High share

Low share

Shoes

£9,499

$E_d > 1$

Match box

£10

$E_d < 1$

(iv)

Time Period

→ Long (10 year) : $E_d > 1$

→ Short (1 second) : $E_d < 1$

(v)

Nature of Good

→ LUXURY : $E_d > 1$

→ Necessity : $E_d < 1$

(vi) Other factors

a) Consumer habits → $E_d < 1$

b) Tied demand

printer → cartridge $E_d < 1$

c) Minor complementary goods

perfume £5,00,000
5,00,00,00,00,000
 $E_d < 1$

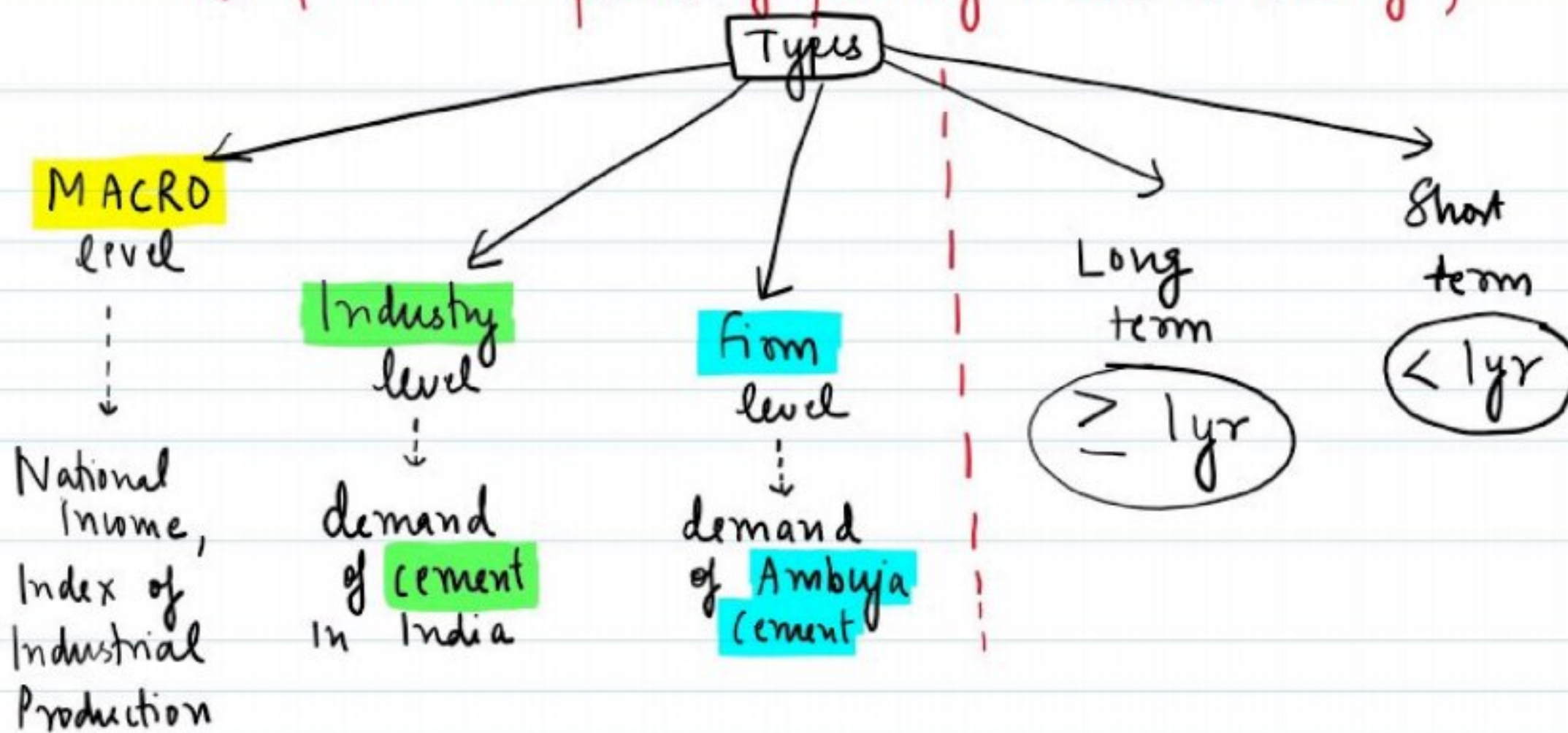
d) Price Range → EXTREMES

Very high : Diamond } inelastic

- d) Price range → inelastic
- Very high : Diamond } inelastic
 Very low : Match box } $E_d < 1$

* Demand forecasting *

(Important in process of planning & decision making)



* Demand distinctions *

(i) Producer good VS Consumer good
 (Machine) (Bread)

(ii) Durable VS Non Durable
 (Non Perishable) (Perishable)
 (Fridge) (Milk)

(iii) Derived demand VS Autonomous demand

product is demanded consequent on purchase of parent product
 { eg - Bricks required for construction of Building }

demand is independent of demand of other good.

(iv) Industry demand VS Firm demand
 demand of cement in India demand of Ambuja cement

in India

Ambuja cement

(v) Short Run demand

vs

Long Run demand

$< 1\text{yr}$

$\geq 1\text{yr}$

Imp.

* Factors affecting Demand of "Consumer goods"

Non durable
(Bread)

→ Income ($\downarrow$)

→ Price ($\downarrow$)

→ Demography

Characteristic of population

Durable
Car

Imp.

→ Social Status

→ "Roads" for automobiles.

→ Family Members.

→ Replacement demand

* Factors affecting Demand of "Producer goods"

(Machine)

→ Growth prospects ($\therefore$) $D \uparrow$

→ $\textcircled{R}$ Consumption of Capital good per unit of "installed capacity"

P 1
5000 hrs

electricity.
£2/unit

P 2
6000 hrs

electricity
£4/unit

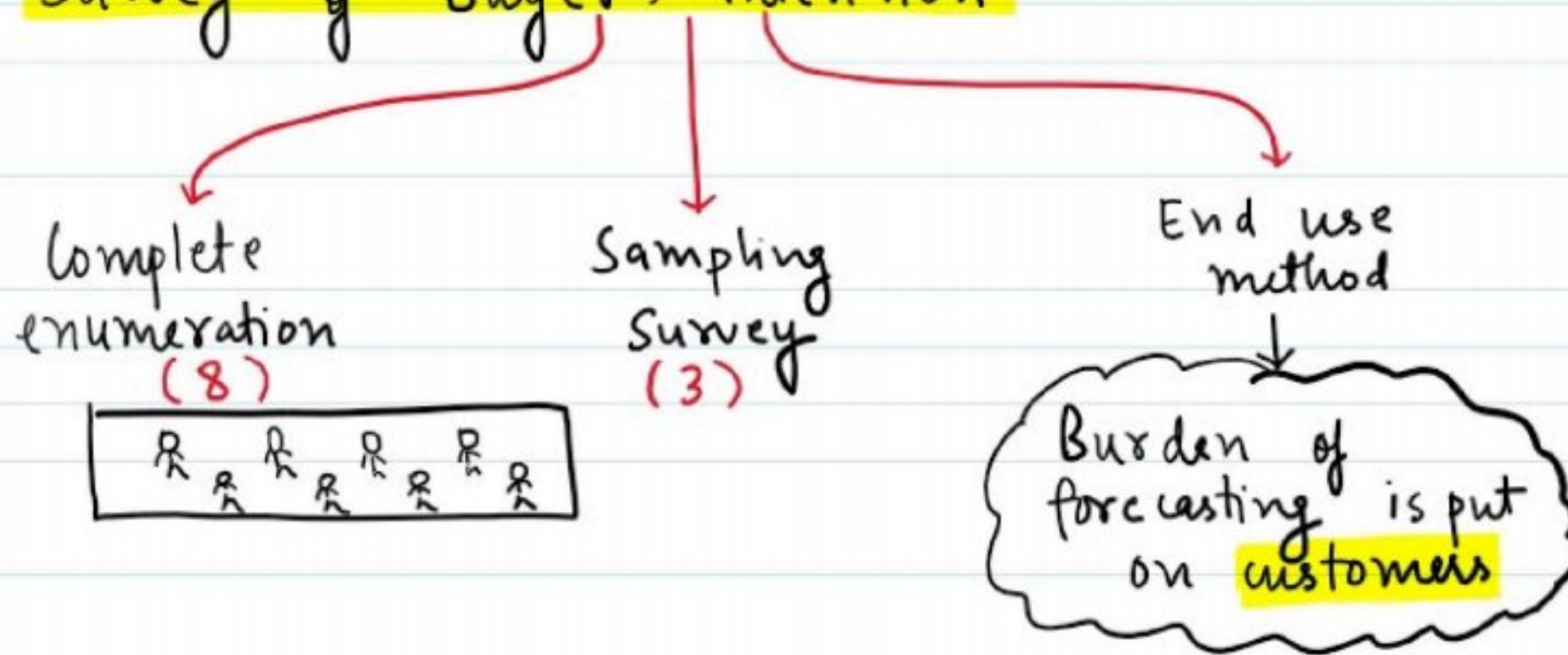
→ Price of Labour ($\uparrow$) Demand of Machine ($\uparrow$)

→ Price of complementary goods (Nuts, bolts, tools etc) $\uparrow$ Demand of Machine ($\downarrow$)

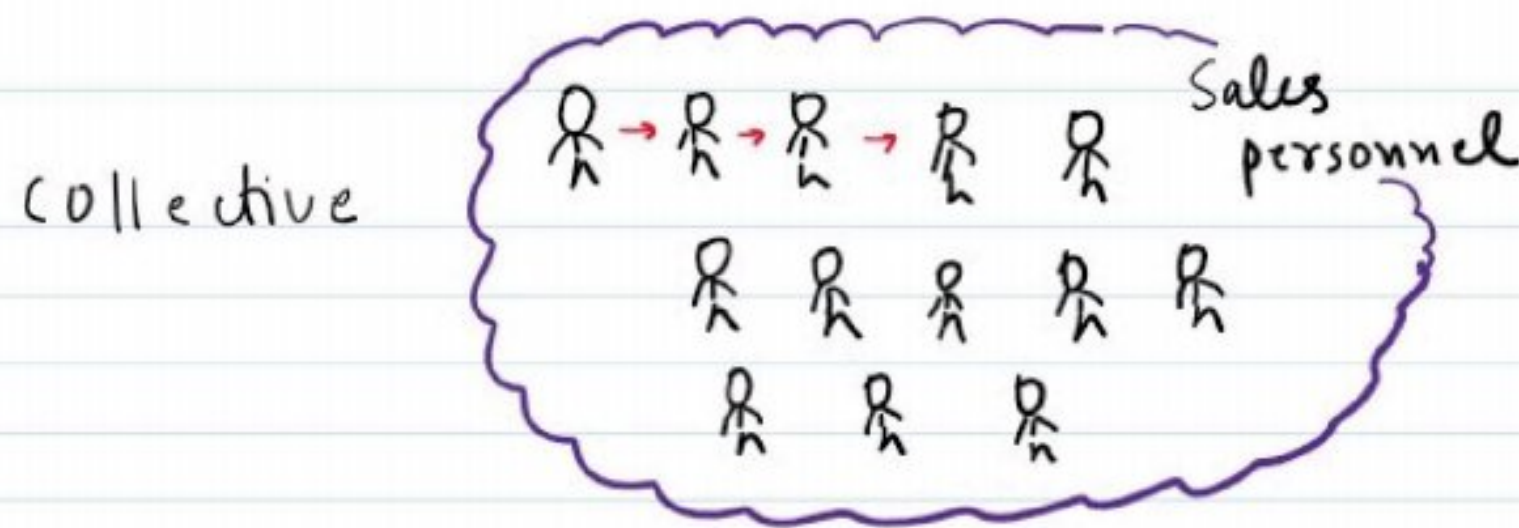
$\textcircled{+}$ → Interest Rates (on Borrowings) ($\downarrow$) Demand of Machine ($\uparrow$)

* Methods of Demand forecasting *

(i) Survey of Buyer's Intention

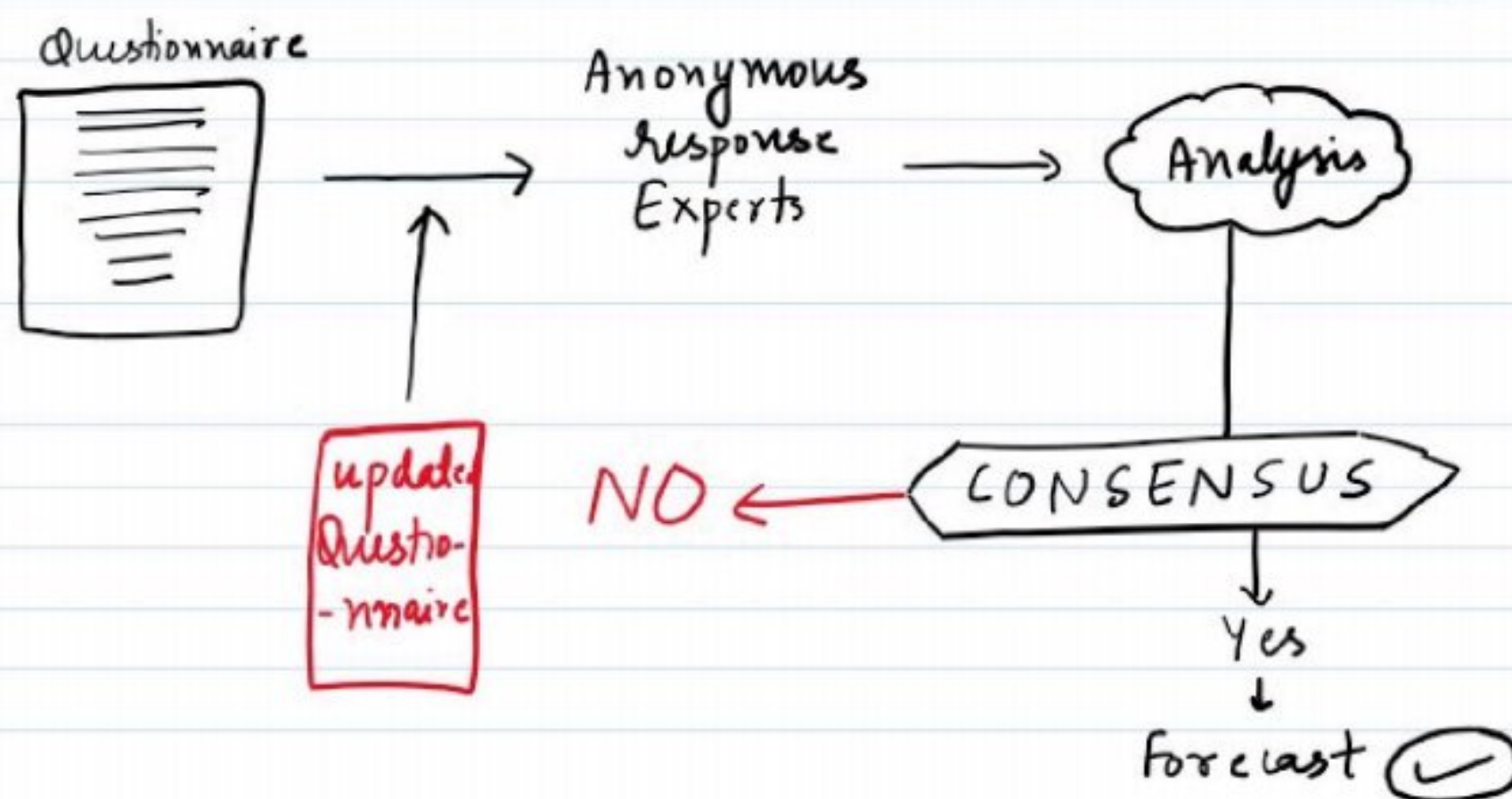


(ii) Collective Opinion method OR Sales Force method OR Grass Roots approach.

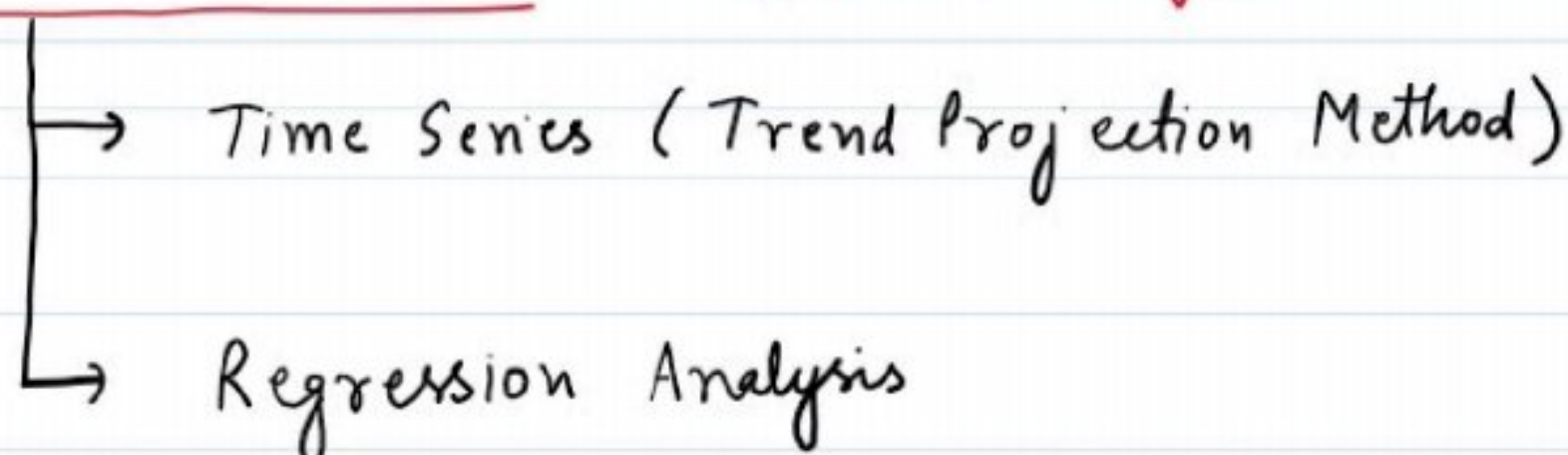


(iii) Expert Opinion Method

Delphi Technique — OLAF HELMER



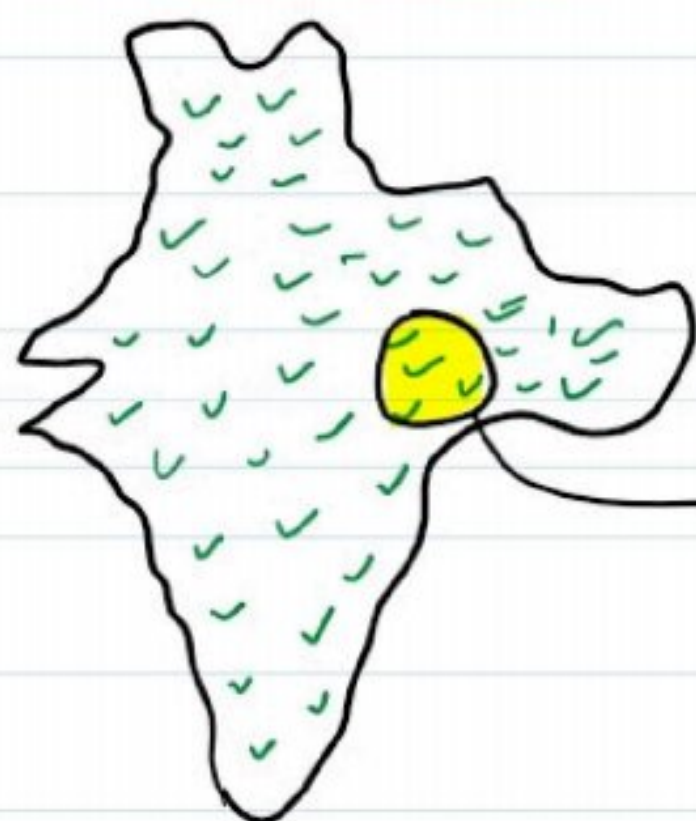
(iv) Statistical methods (Name only)



(v) Controlled Experiments

(v)

Controlled Experiments



"PILOT SURVEY"

controlled experiments

(vi)

Barometric Methods

→ Based on past experience, trying to predict future

आगे - आगे

Leading Indicators

Advance orders for Capital Goods

साथ साथ

Co-incidental indicators

Figure of "Retail" "Sales"

बाद में

Lagging indicators

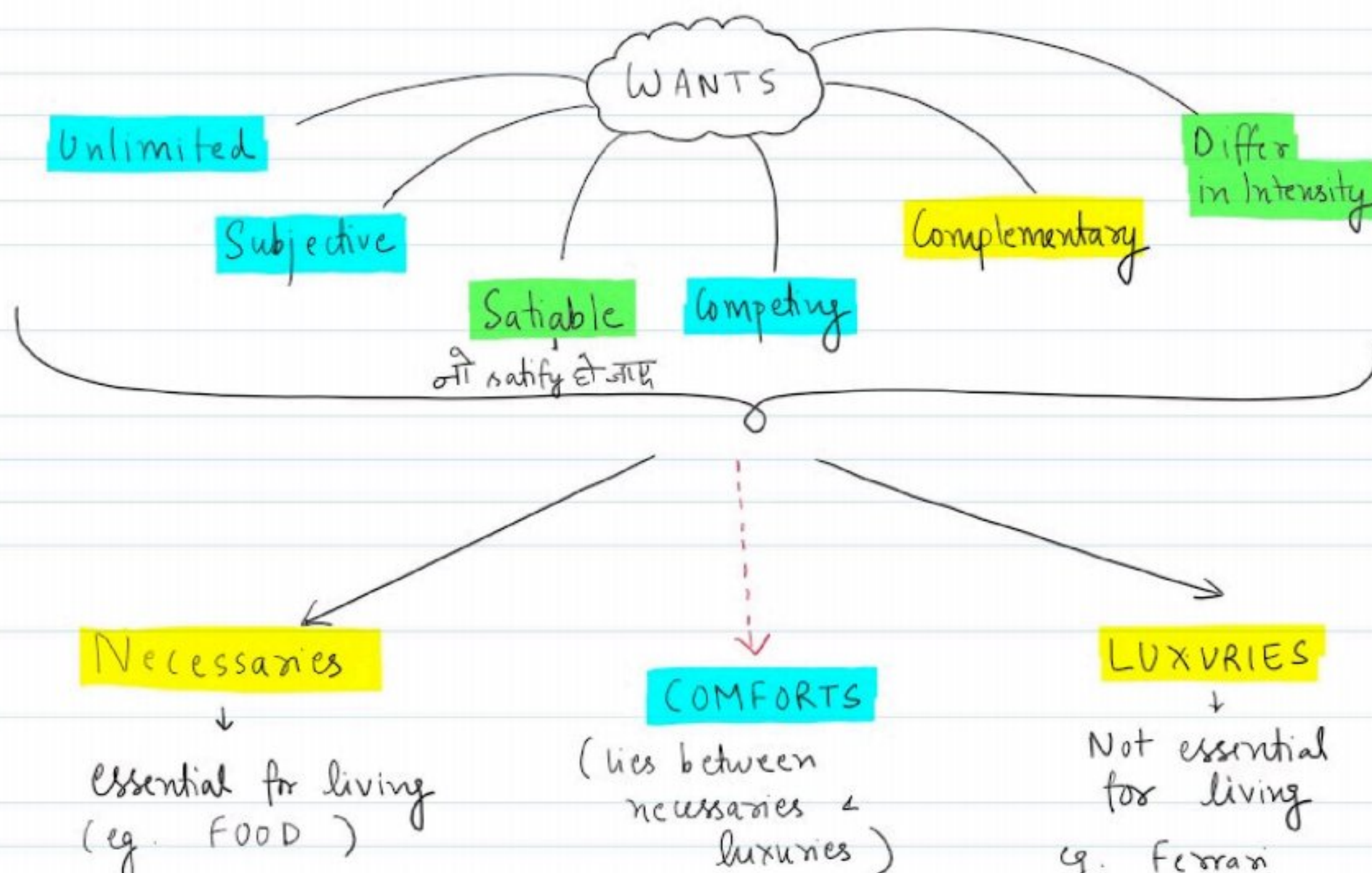
electricity Bill

x ————— x ————— x ————— x ————— x

ECONOMICS

CH 2 Unit 2 :

Consumer Behavior



Essential for living
(eg. FOOD)

(lies between
necessaries &
luxuries)
eg. Good House

... consumption
for living
eg. Ferrari

→

Utility

→ Satisfaction
→ Satiety

→ ~~Usefulness~~

eg: Alcohol, Cigar
↓
Utility (✓)
Usefulness (X)

Utility is "Ethically"
NEUTRAL

→

Theory of Consumer Behavior

CARDINAL

(Alfred Marshall)

↓
Quantifiable ✓

1 Burger ⇒ Satisfaction

↓
Measure ✓
Numeric ✓

ORDINAL

(Hicks & Allen)

Quantifiable X

Ranks (preference) ✓

Burger > Pizza

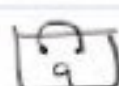
*

MU Analysis

(Alfred Marshall)

① Assumptions :-

a) Consumer is Rational -  who seek Maximum Satisfaction.

b) Utility is Cardinal

c) Money is measuring rod of utility

d) Continuity in consumption i.e. no time gap between consumption

Burger 1 2 3 4 5 6 7 ---
1 1
8 am 8:03 am 8:10 am ✓ ✓ ✓ 11:11:12

e) Homogeneous product

  ...

c) Homogeneous product



f) Good should be divisible in nature
i.e. Quantifiable

① ② ③ ④

② Total Utility & Marginal Utility

	Burger (Units)	Marginal Utility (MU) <i>कितना मजा आया</i>	Total Utility (TU)
Satisfaction	1	10 utils	10 utils
	2	8 utils	18 utils
	3	5 utils	23 utils
Satiety (saturation)	4	0 utils	23 utils
Dissatisfaction	5	(-) 3 utils	20 utils

• Law of Diminishing Marginal Utility

Units ↑ MU ↓

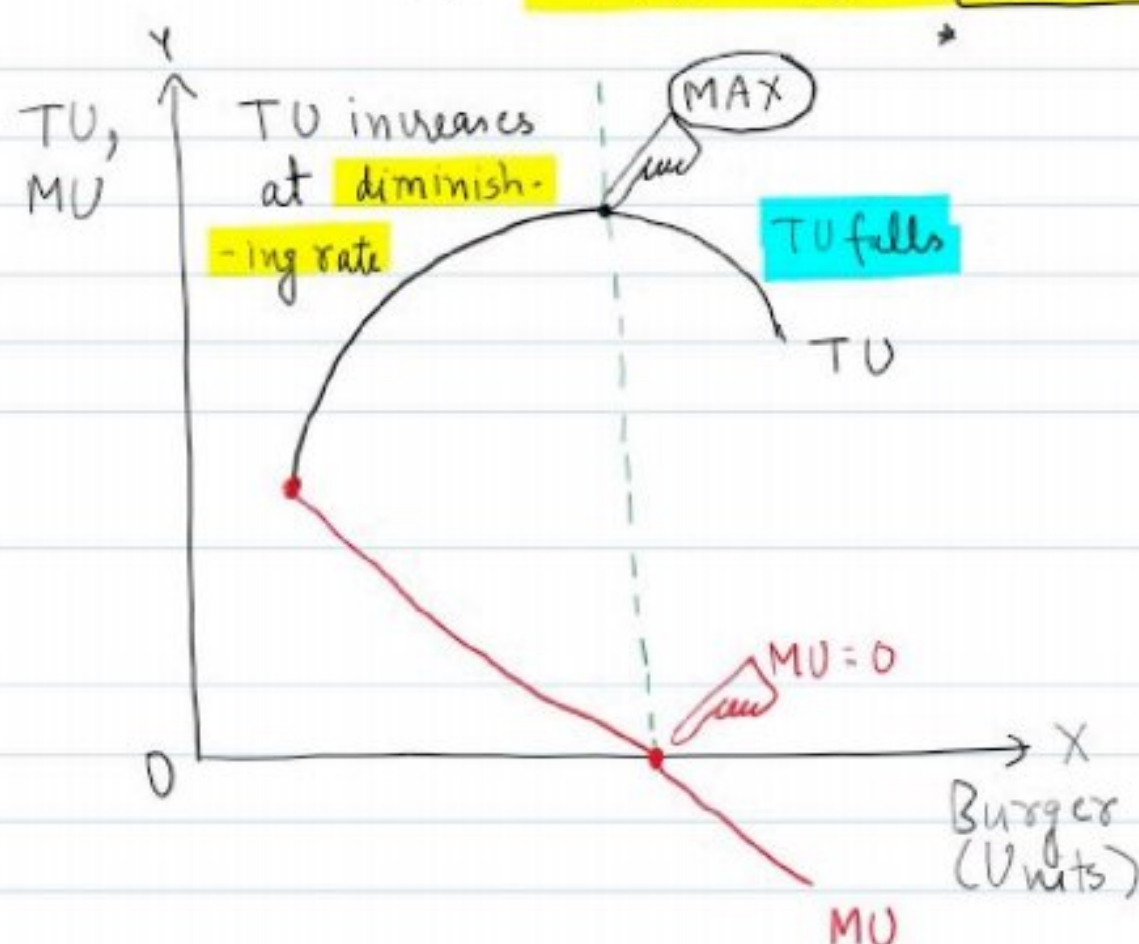
$$TU = MU_1 + MU_2 + MU_3 + \dots + MU_N$$

$$= \sum MU$$

$$MU_N = TU_N - TU_{N-1}$$

$$MU = \frac{\Delta TU}{\Delta \text{units}}$$

∴ MU is SLOPE of TU



- (i) When $MU > 0$; then TU increases at diminishing rate
- (ii) When $MU = 0$, then TU is MAX
- (iii) When $MU < 0$, then TU falls

• Limitations / Exceptions of Law of DMU

- Prestigious goods
- Hobbies

Units ↑ MU ↑

→ Hobbies
→ Habits etc

Units | MU

Q1-

Units	TU	MU
1	8	8
2	13	5
3	16	3
4	16	0
5	15	-1
6	12	-3

Unit 1 TU = MU

13-8
16-13
16-16
15-16
12-15

Q2-

Units	TU	MU
1	10	10
4	40	10

Unit 1 TU = MU

$$\frac{\Delta TU}{\Delta \text{units}} = \frac{40-10}{4-1} = \frac{30}{3}$$

Q3-

Units	MU	TU
1	5	5
5	4	21
8	3	30
15	2	44
25	1	54

1 unit TU = MU

5
21
30
44
54

$$3 = \frac{x-21}{8-5}$$

$$\begin{aligned} \text{MU} &= \frac{\Delta TU}{\Delta \text{units}} \\ 4 &= \frac{x-5}{5-1} \\ 4 &= \frac{x-5}{4} \\ 16 &= x-5 \\ 21 &= x \end{aligned}$$

Q4-

Units	MU	TU
3	10	43
Burger → 7	22	x

$$22 = \frac{x-43}{7-3}$$

$$22 = \frac{x - 43}{4}$$

$$88 = x - 43 \Rightarrow x = 131$$

Alfred
Marshall

* Consumer's equilibrium *

Consumer gets maximum satisfaction by spending his entire income

Single commodity

(eg. Burger)

$$MU = P_x$$

It can be MU_x → Marginal Utility of Good X
or MU_M → Marginal Utility in terms of money

Two commodities

(eg Burger + Pizza)

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y} = MU_M$$

Law of Equi-Marginal Utility

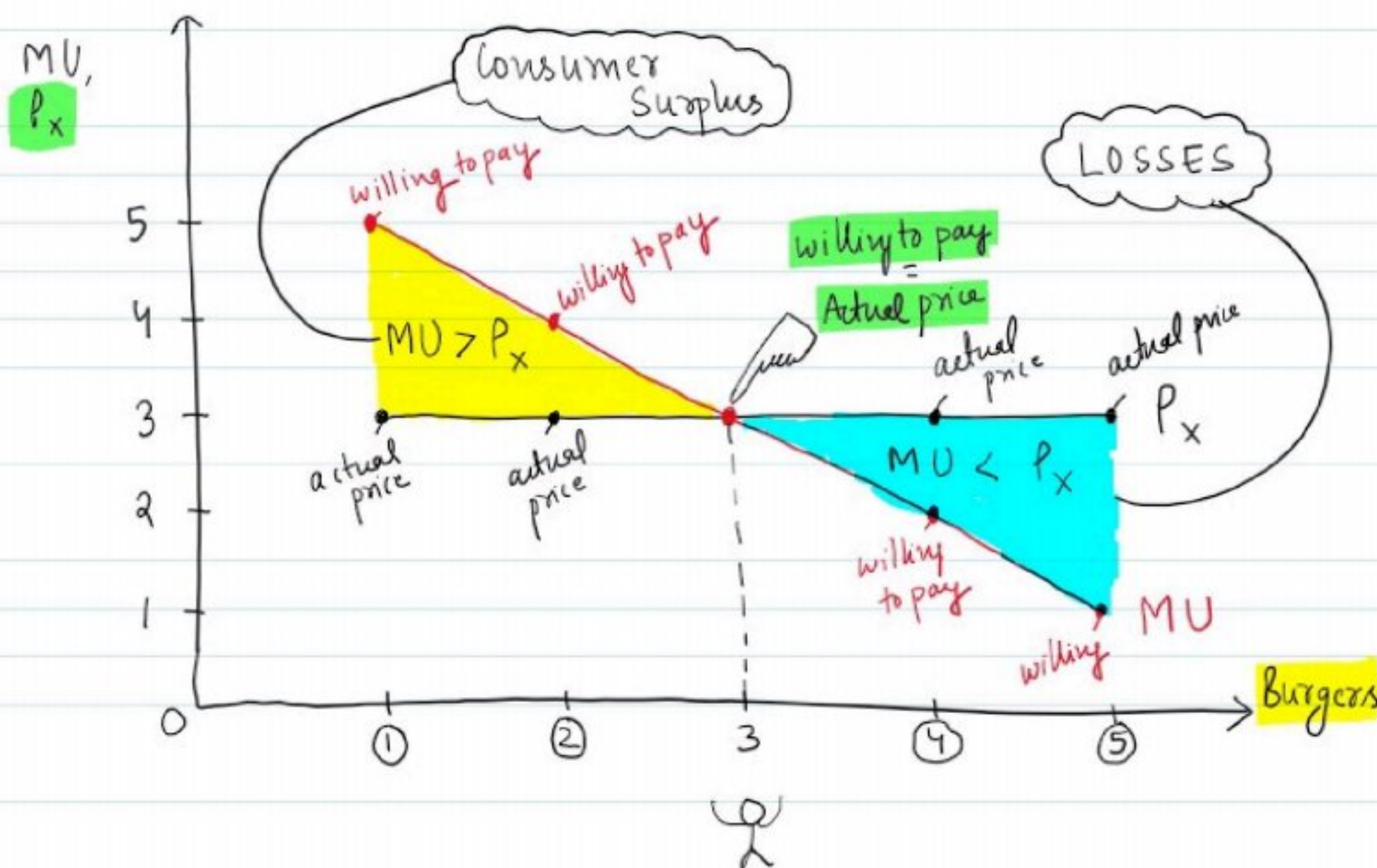
NO Diagram | NO schedule

Marshall



C.E

Burgers (Units)	Price of Good X (Burger) P_x (Actual Price)	MU	Consumer Surplus
1	₹ 3	₹ 5	2
2	₹ 3	₹ 4	1
3	₹ 3	₹ 3	0
4	₹ 3	₹ 2	(-) 1
5	₹ 3	₹ 1	(-) 2



* Consumer Surplus

$$= MU (-) P_x$$

$$= \text{willing to pay} (-) \text{Actual price}$$

→ This concept is based on law of Diminishing Marginal Utility

→ At consumer's equilibrium, Consumer Surplus is Zero

→ Application

- helps business managers
- helps finance minister

willing £6
price = ~~£10~~
= £5

→ LIMITATIONS

- Hypothetical
- Affected by various factors.

Liquor willing £10000
price £2000 (Huge Tax)

Two Commodities (Burger + Pizza)

Let us assume

Price of Burger (P_x) = £1

Price of Pizza (P_y) = £2

Money Income (M) = £13

Burgers	MU_x	$\frac{MU_x}{P_x}$	Pizza	MU_y	$\frac{MU_y}{P_y}$
1	10	10	1	40	20
2	9	9	2	36	18
3	8	8	3	32	16
4	7	7	4	28	14
5	6	6	5	24	12
6	5	5	6	20	10

$$\frac{MU_x}{P_x} = \frac{MU_y}{P_y} = 10$$

10

20

10

X

Y

$$\frac{10}{1} = \frac{20}{2} = 10$$

1 Burger and 6 Pizza.

Total expenditure = ₹1 (+) ₹12 = ₹13 = Money Income

* Consumer's equilibrium

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

OR

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

Q1 ⇒ If $\frac{MU_x}{P_x} > \frac{MU_y}{P_y}$ then

consumer will **INCREASE** the consumption of Good X

Sol:-

Good X consumption ↑
increase
LD MU

$$\frac{10}{2} = \frac{10}{2}$$

$$\frac{8}{5} = 5$$

Q2 → If $\frac{MU_x}{P_x} < \frac{MU_y}{P_y}$ then consumer

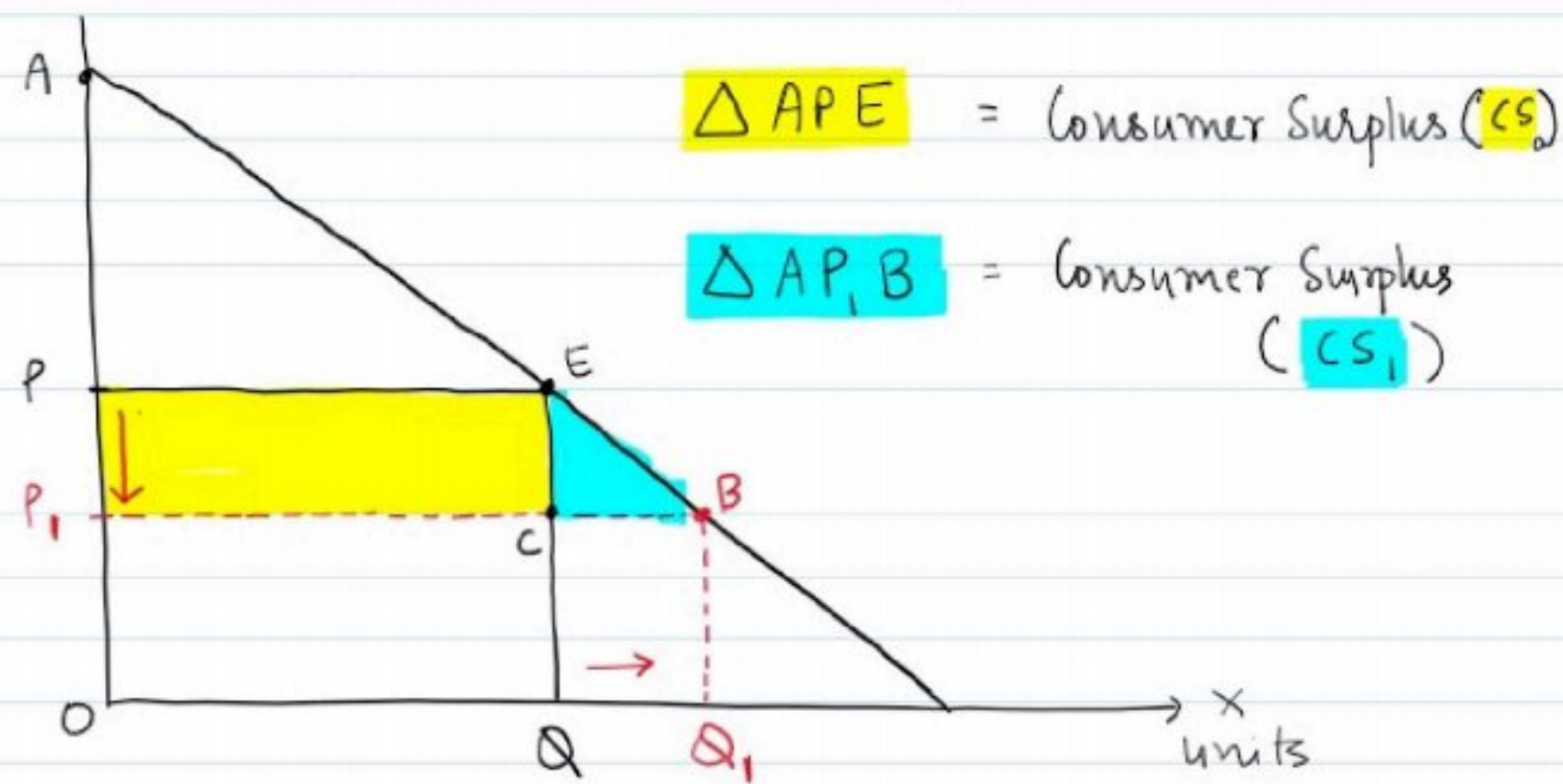
will **DECREASE** the consumption of "Good X"

$$\frac{MU_x \uparrow \uparrow \uparrow}{P_x} = \frac{MU_y}{P_y}$$

* Application based on Consumer Surplus

*

Application based on Consumer Surplus



$$CS_1 - CS_0 = PP_1CE + ECB$$

Increase in Consumer Surplus = PP_1CE + ECB

When price falls

existing buyers
की
सुविधा बढ़ती है

New
Buyers

Q1 - MU curve is also Demand curve

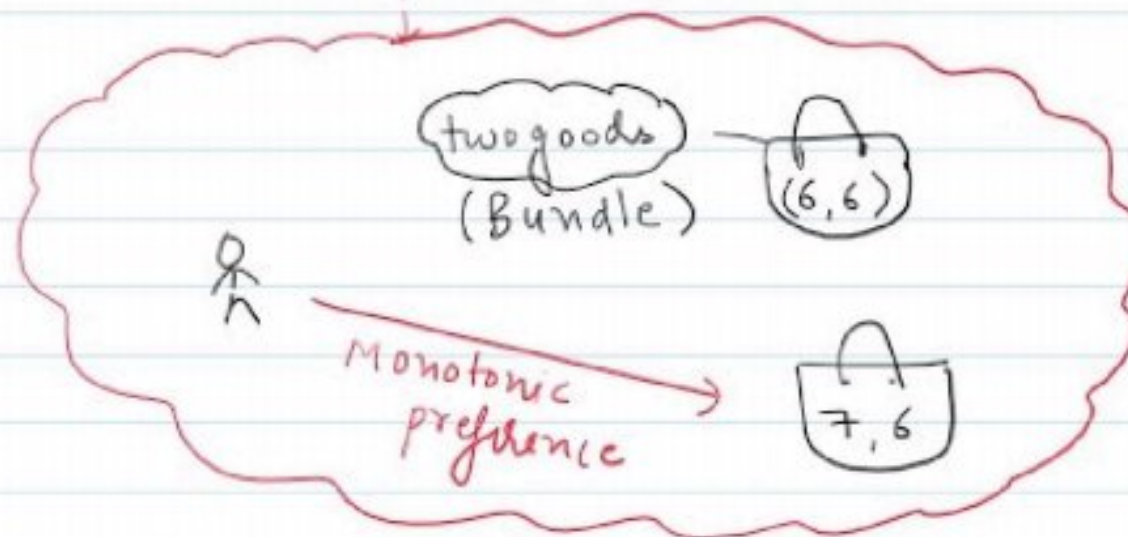
Q2 - Area under MU curve is TU

* HICKS AND ALLEN *

(IC analysis)

① Assumptions

- (i) Consumer is Rational
- (ii) Consumer has monotonic preference

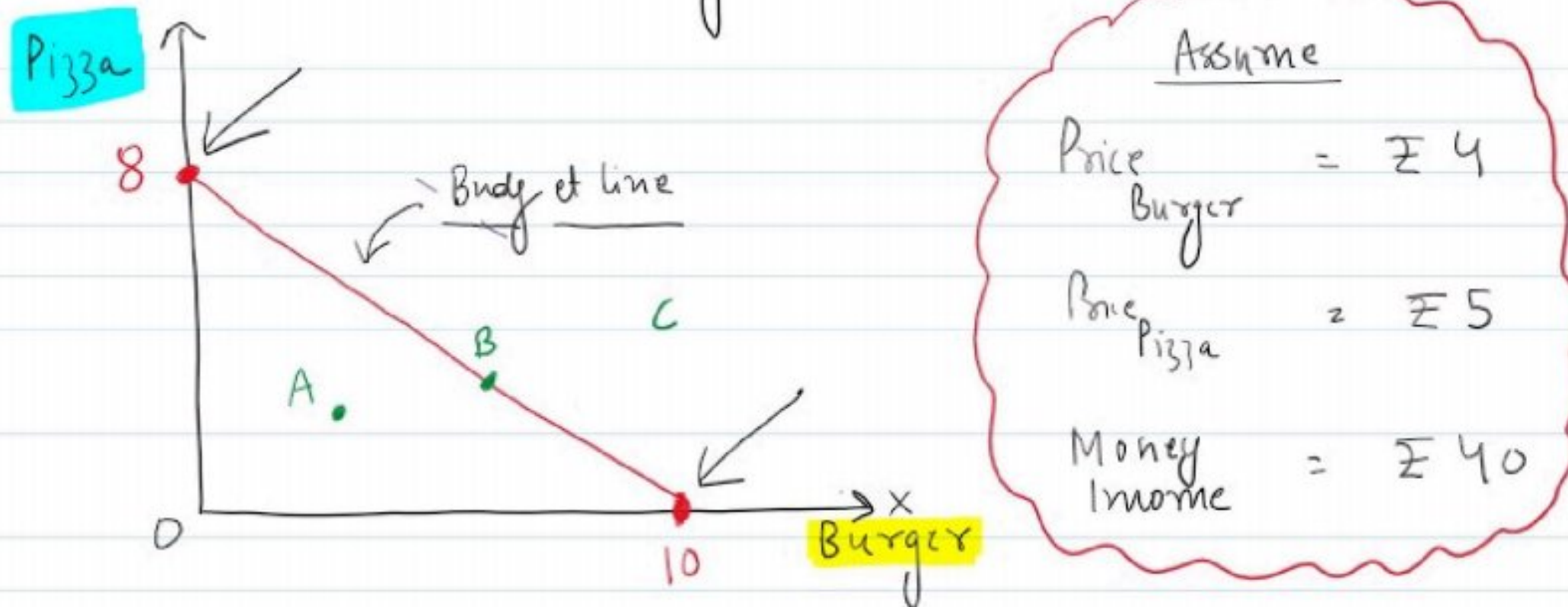


(iii) Choices are transitive

- 1) Burger^① > Pizza^②
 - 2) Pizza > Momos^③
- Burger > Momos** ✓

Burger Momos ✓

- ② **Budget line** - shows all combinations of two goods which the consumer can buy spending his entire given income.



- ☐ A Not spending the entire income
- ☐ B Spending the entire income
- ☐ C Unattainable

Q1. Money Income = £80
 $P_x = £5$
 $P_y = £4$
 Write (i) 4 Bundles which are unattainable
 (ii) 5 Bundles which at below Budget line level.
 (iii) 3 Bundles exactly on Budget line.

$$\begin{aligned} 16 \times 5 &= 80 \\ 1 \times 4 &= 4 \end{aligned}$$

☐ slope = $\frac{5}{4}$
 = 1.25

Sol:- (i) (16, 1) (25, 5) (30, 10)
 (35, 40)

(ii) (2, 1) (1, 1) (5, 4) (6, 2) (4, 3)

(iii) (8, 10) (4, 15) (12, 5)

→ **Budget line equation**

$$P_x \cdot Q_x (+) P_y \cdot Q_y = M$$

Price of Good X Qty of Good X Price of Good Y Qty of Good Y Money Income

Expenditure on Good X Expenditure on Good Y

TOTAL EXPENDITURE = Money

$$\text{TOTAL EXPENDITURE} = \text{Money Income}$$

→ Budget constraint

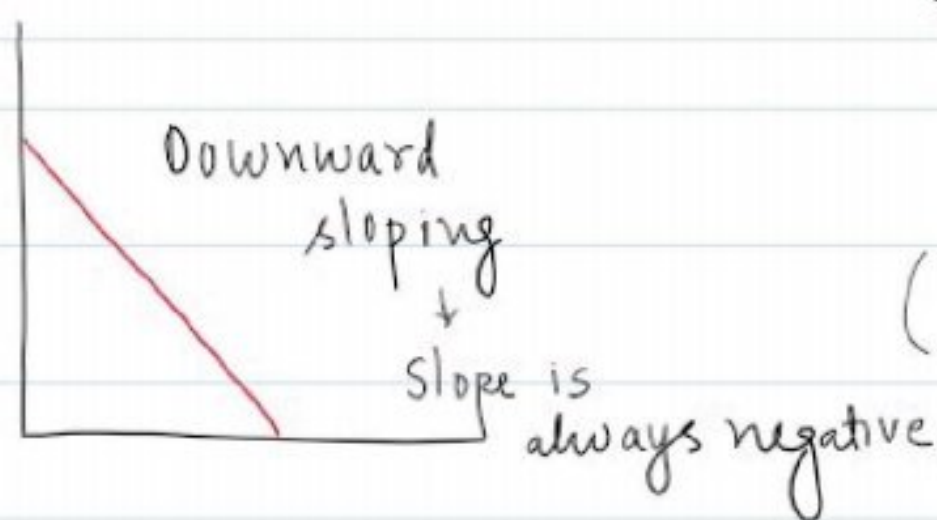
$$P_x \cdot Q_x (+) P_y \cdot Q_y \leq M$$

$$\text{OR } P_x \cdot Q_x (+) P_y \cdot Q_y \neq M$$

(Total expenditure cannot exceed Money Income)

→ Slope of Budget line

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



(Ratio of Prices of two goods)

Market Rate of Exchange (MRE)

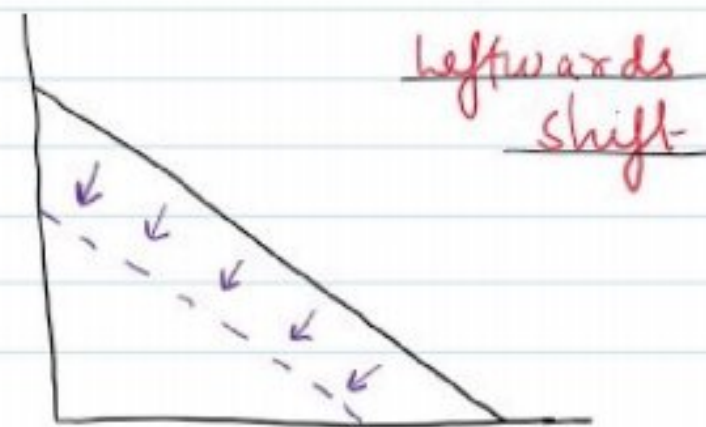
→ Shift in Budget line



It means that consumption of both goods can be increased

Reasons

- ① Increase in income
- ② Decrease in prices of goods.



It means that consumption of both goods decreased

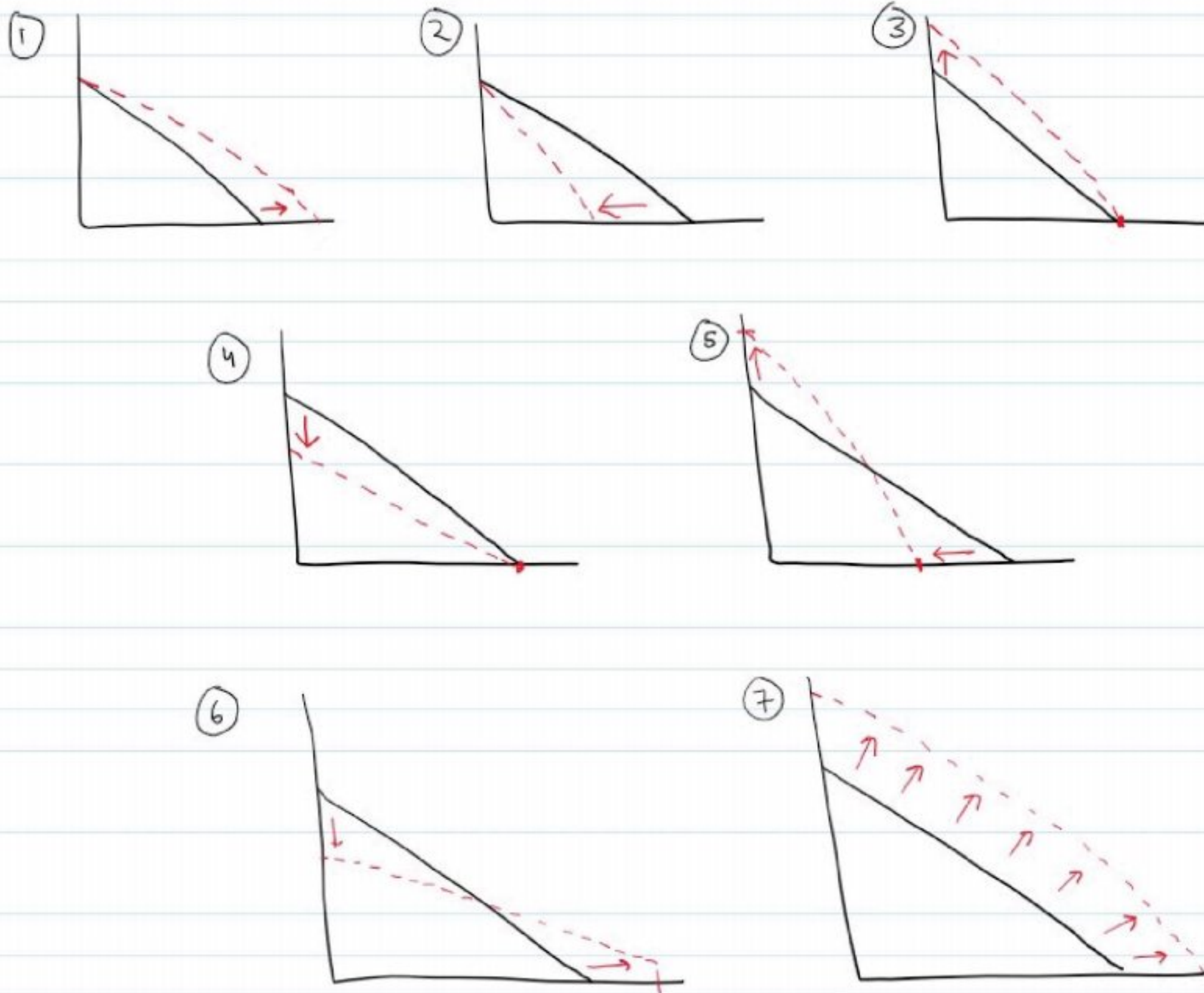
Reasons

- ① Decrease in income
- ② Increase in prices of goods.

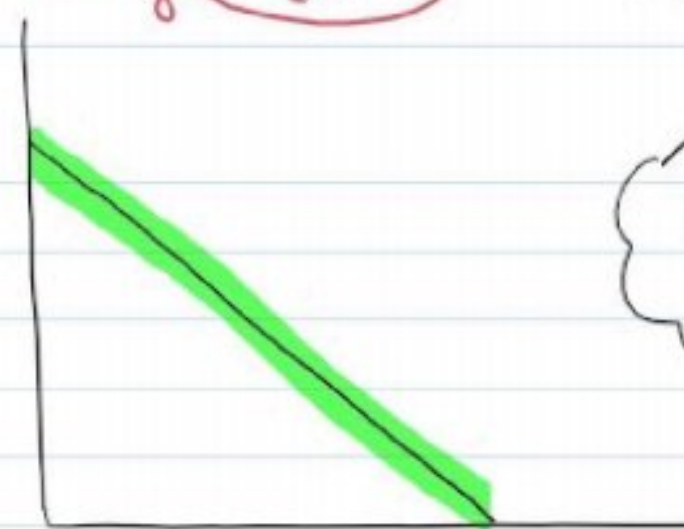
Q → Show the effect of following on budget line :-

- (1) Price of Good X falls
- (2) " " " " Rise
- (3) " " " " Y falls
- (4) " " " " " "

- (2) " " " X Rise
 (3) " " " Y falls
 (4) " " " Y rise
 (5) " " " X ^{महंगा} rise & Good Y ^{सस्ता} falls
 (6) " " " " ^{सस्ता} falls & Good Y ^{महंगा} rise
 (7) Price of both goods fall & income increases.



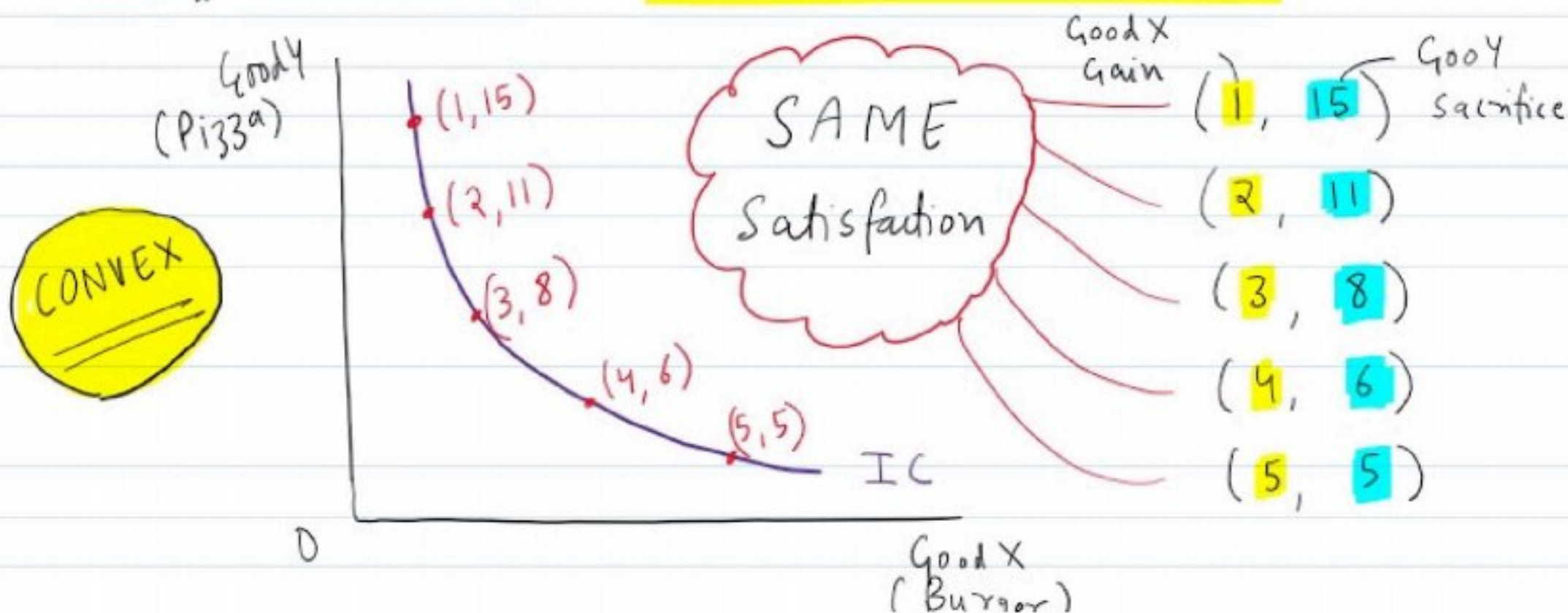
- (8) Price of both goods as well as income decreases.
 Sol:-

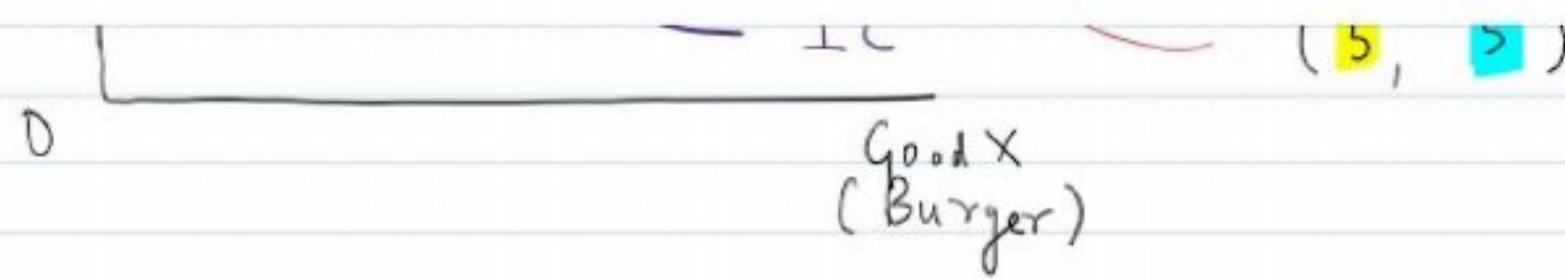


No effect.

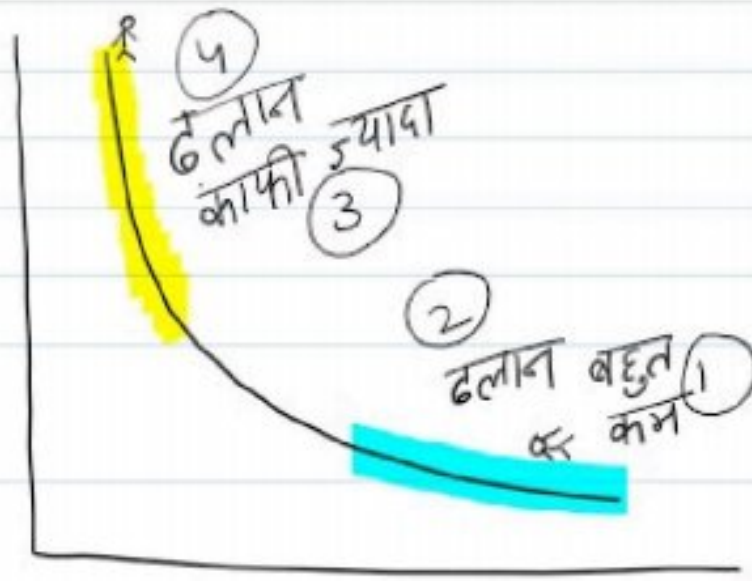
V. good ☆

(3) Indifference Curve ISO - UTILITY CURVE - IC





→ Slope of IC = Marginal Rate of Substitution
(MRS_{xy})



$$\Rightarrow MRS_{xy} = \frac{\Delta \text{Goods Y}}{\Delta \text{Goods X}}$$

$$= \frac{\Delta \text{Goods Sacrificed}}{\Delta \text{Goods Gained}}$$

or $MRS_{xy} = \frac{MU_x}{MU_y}$

→ Why IC is CONVEX ??

Because of "DIMINISHING" MRS

Good X	Good Y	"MRS"
1	15	-
2	11	$4 \div 1 = 4$
3	8	$3 \div 1 = 3$
4	6	$2 \div 1 = 2$
5	5	$1 \div 1 = 1$

दोलान कम

Q1- IC is concave because of INCREASING MRS

Q2- IC is straight line because of CONSTANT MRS

→ Properties of Indifference Curve

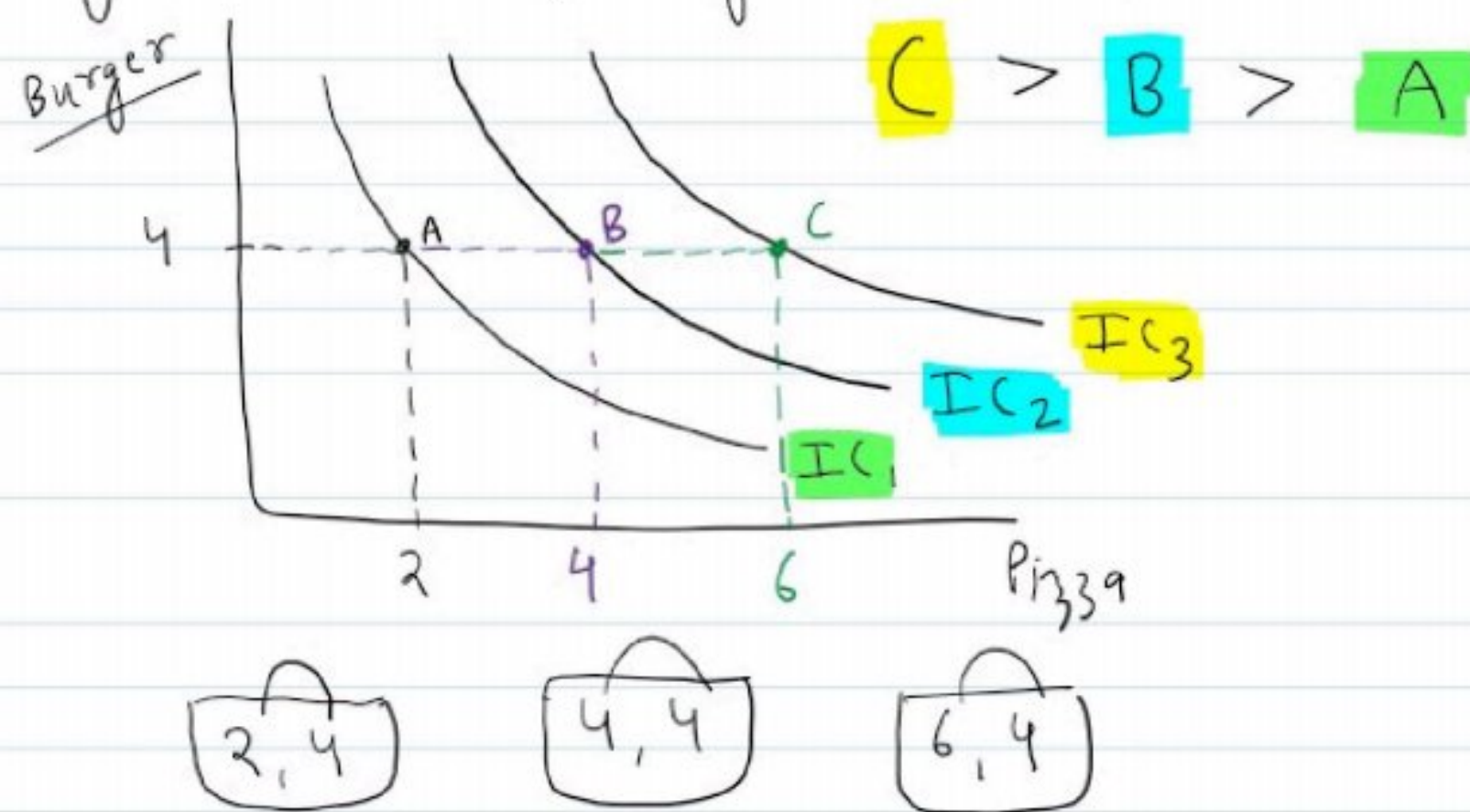
(1) IC is downward sloping and convex to the origin

because to gain one unit of Good X, we have to sacrifice some units of Good Y.

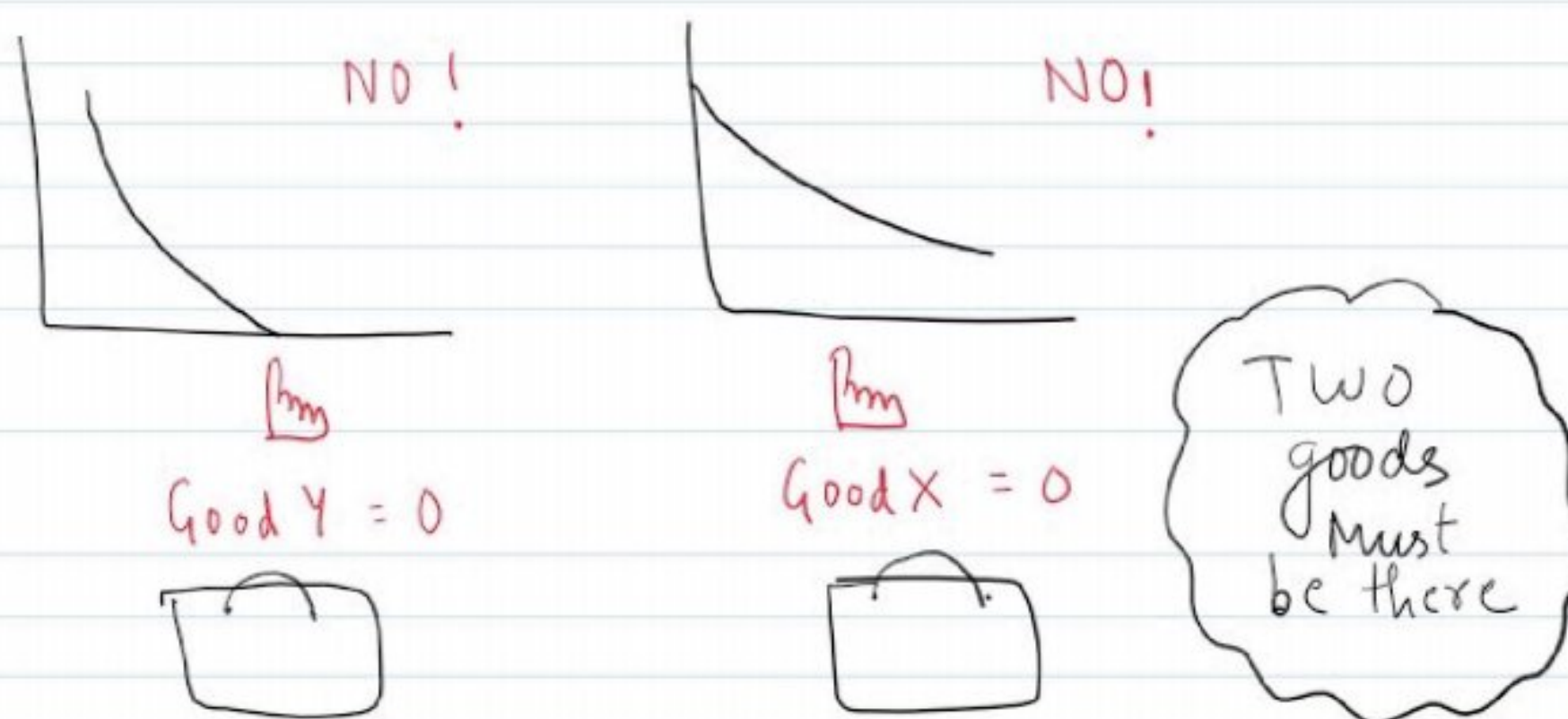
because of Diminishing MRS

(2) Two Indifference curves never intersect each other

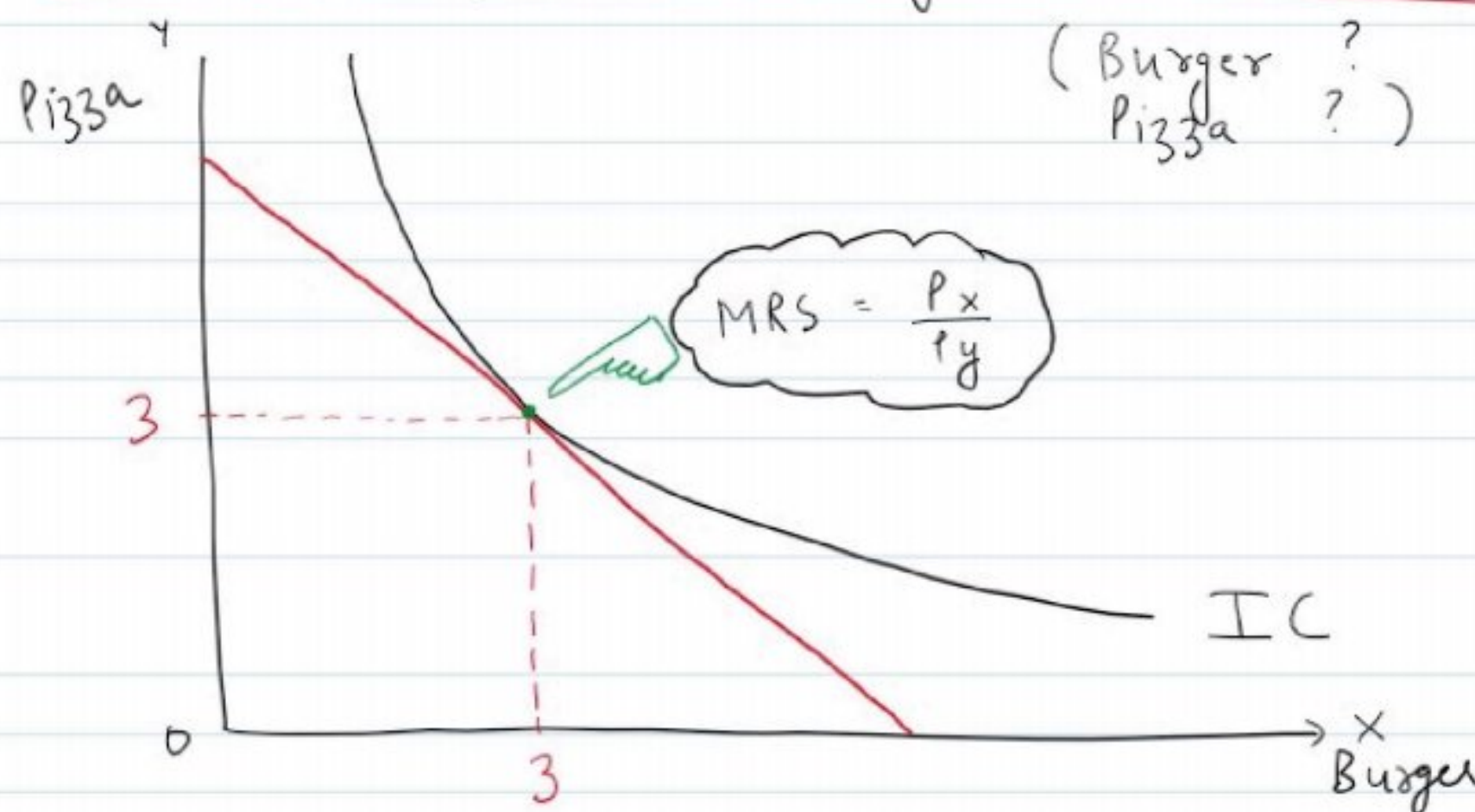
- (2) Two Indifference curves **never intersect** each other
- (3) Higher the IC, higher the satisfaction.



- (4) IC do not touch either of the axis



→ Consumer's Equilibrium by Hicks & Allen.



⊗ Condition 1

Slope of IC = Slope of Budget line

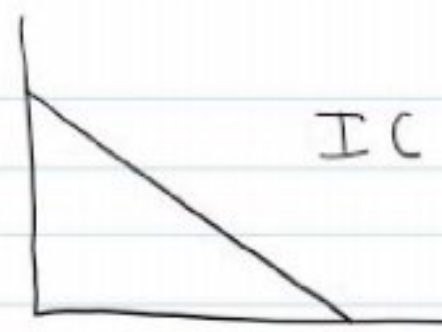
$$MRS = \frac{P_x}{P_y}$$

$$\underline{MU_x} = P_x$$

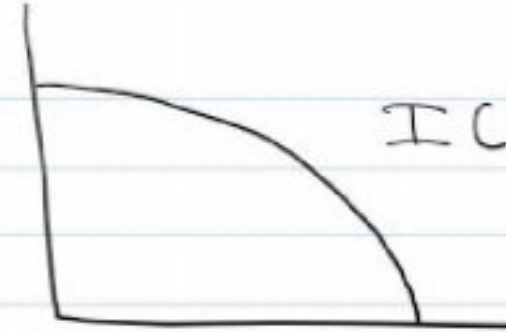
$$\frac{MU_x}{MU_y} = \frac{P_x}{P_y}$$

When Budget line is TANGENT to IC

Condition 2 : MRS should be diminishing i.e.
"IC should be convex"



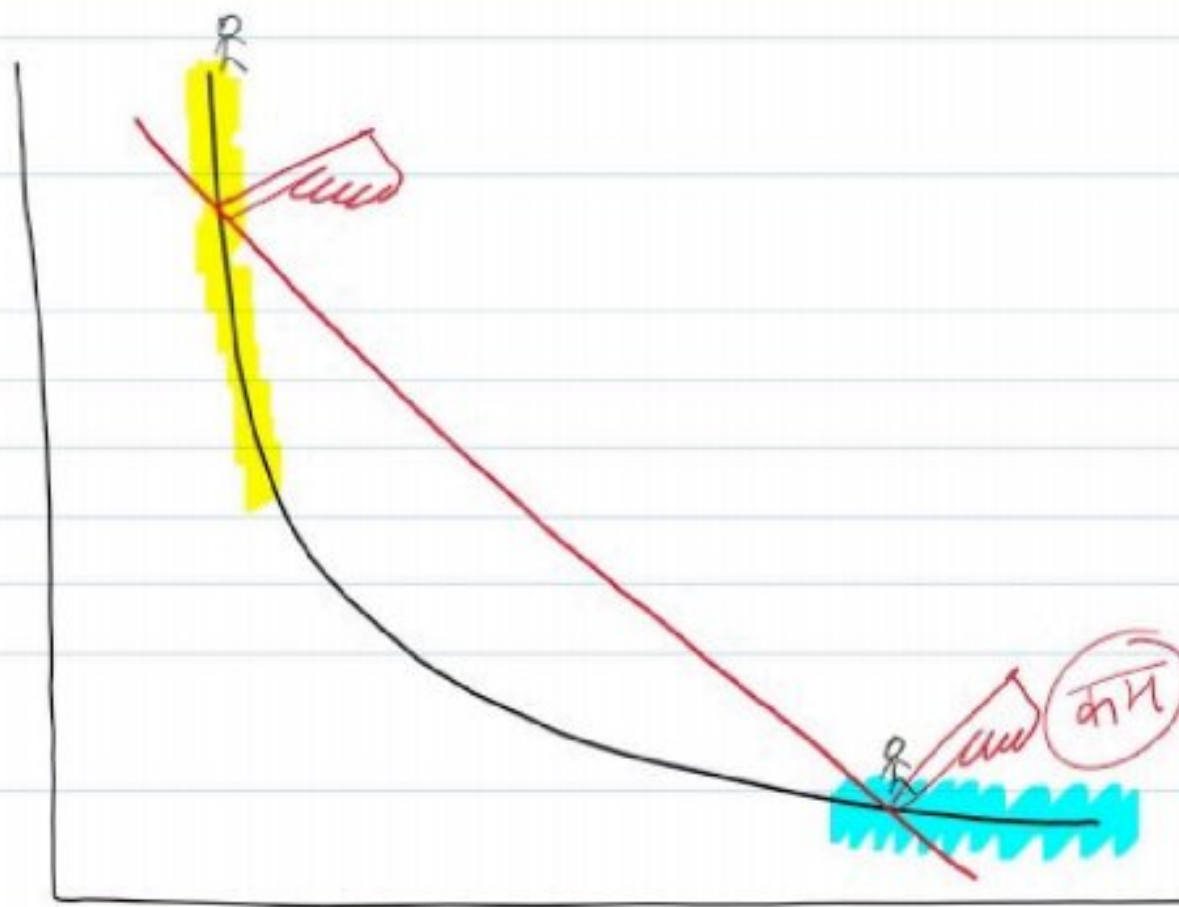
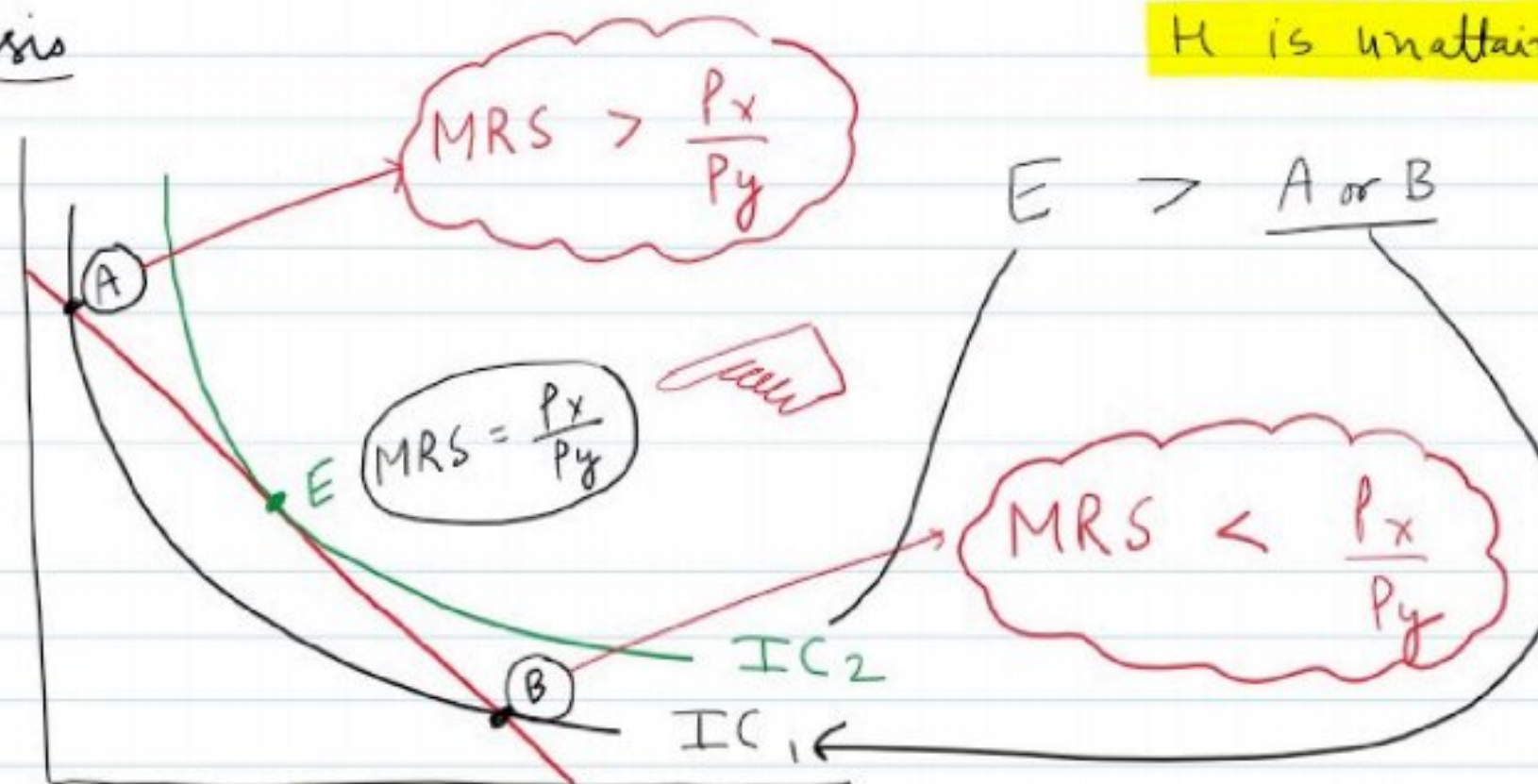
NO !!



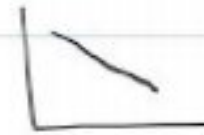
NO !!

* Analysis

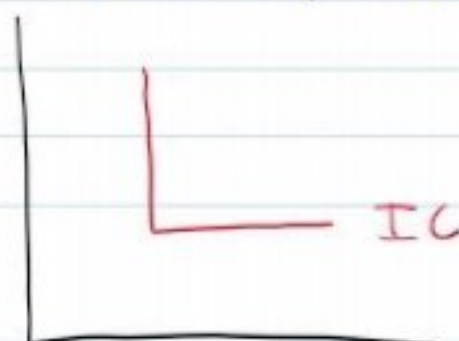
H is unattainable

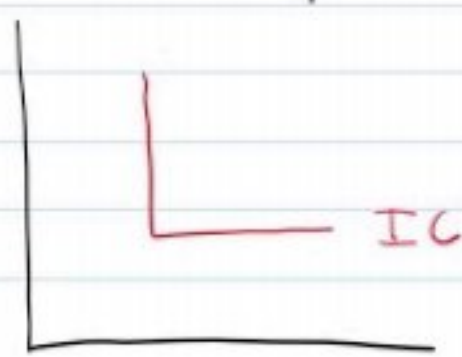


Q1- If two goods are perfect substitutes then IC is straight line



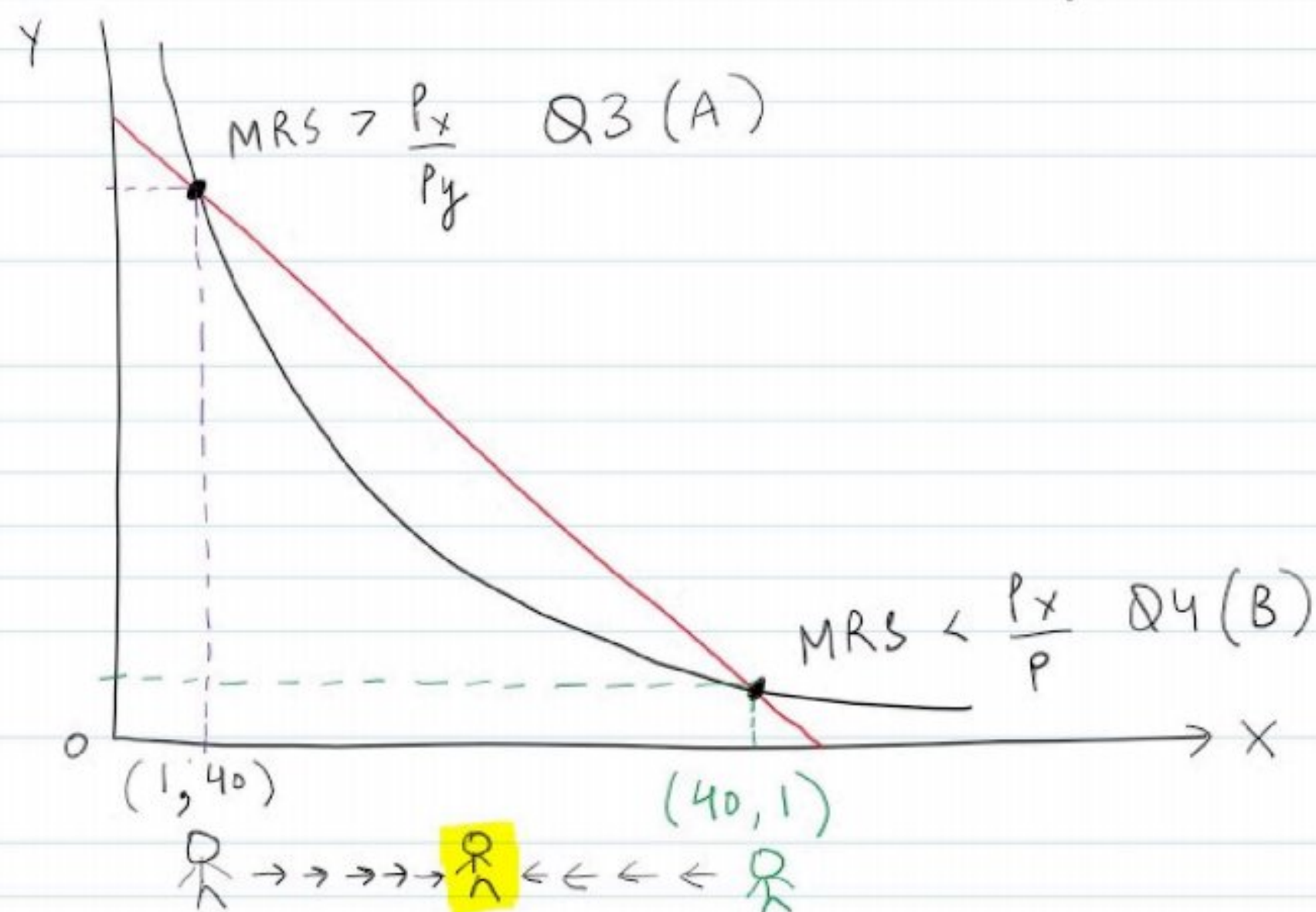
Q2- If two goods are perfect complementary goods then IC is L-shaped / Right angled





Q3 - If $MRS > \frac{P_x}{P_y}$ then consumer will **INCREASE** the consumption of Good X.

Q4 - If $MRS < \frac{P_x}{P_y}$ then consumer will **DECREASE** the consumption of Good X.



ECONOMICS

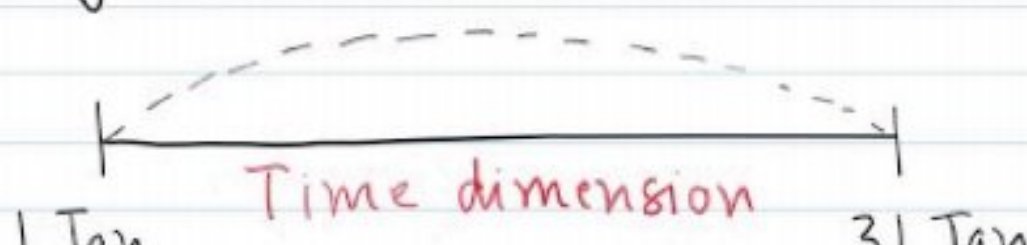
CH 2 Unit 3 **SUPPLY** { **from producer's** }

① Supply :- Amount of goods or services that a **producer** is **willing** and **able** to offer to the market at **various prices** during a given period of time

producer	₹ 10	1 phone
व्यापक	₹ 1000	10 phone
(+) उत्पादक		

• Supply is a **FLOW** concept

~~3:17pm~~
~~is a point~~



3:17pm
At this point

Time dimension
1 Jan 31 Jan

② FACTORS affecting Supply (Determinants of supply)

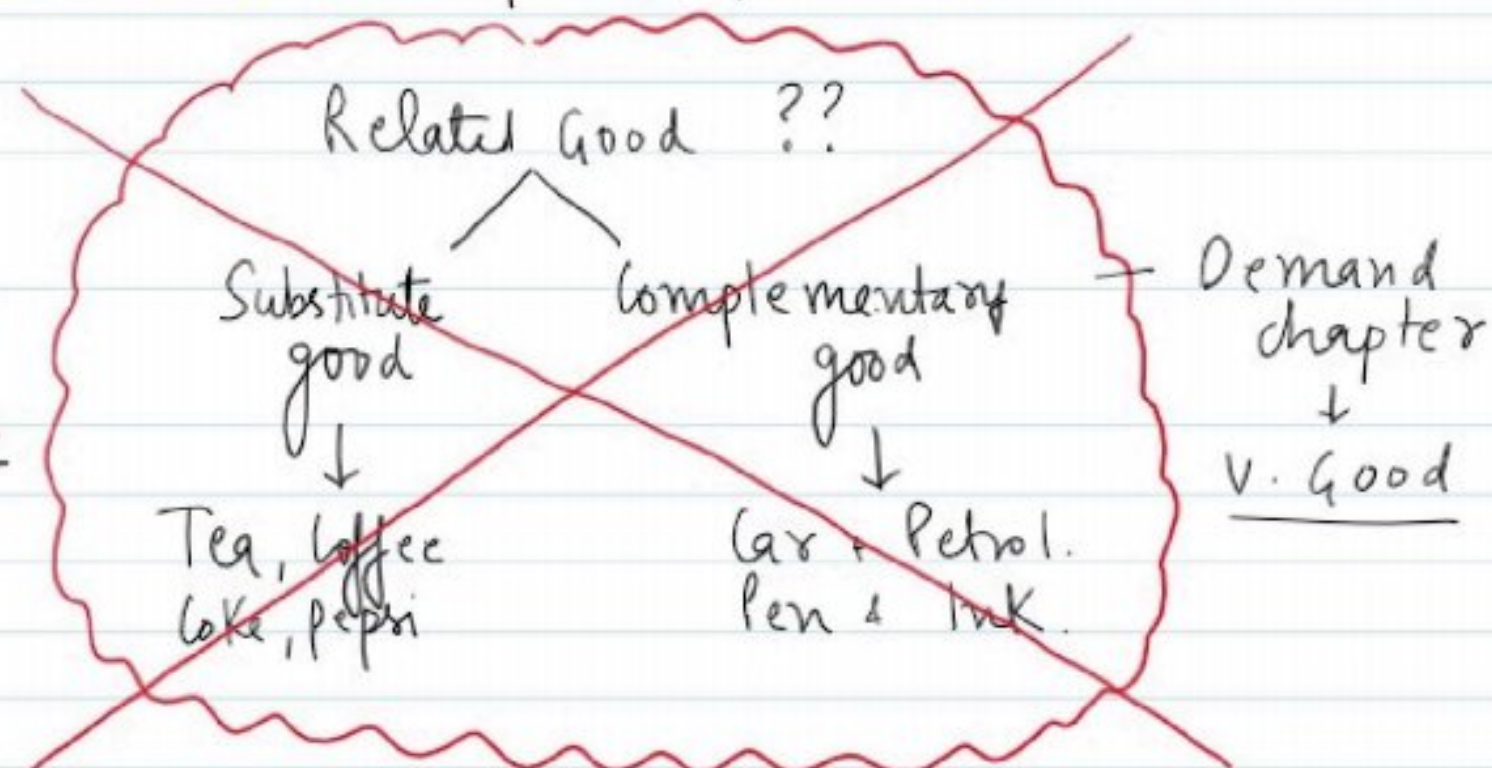
(a) Price of the commodity (P_x)

$P_x (\uparrow) \quad S_x (\uparrow)$ or Vice versa

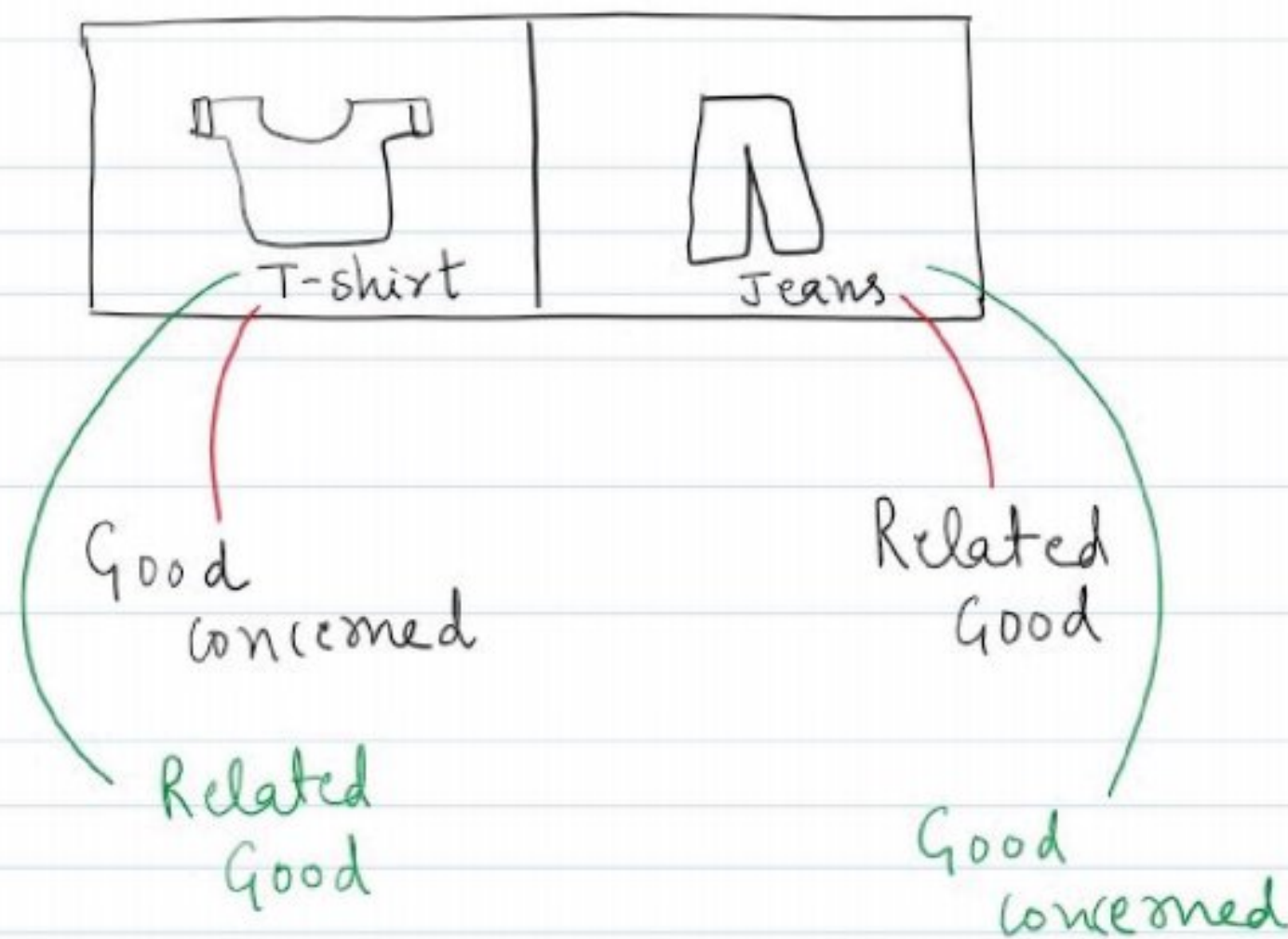
DIRECT relation

(ii) Price of Related (competitive) Good (P_R)

BLUNDER



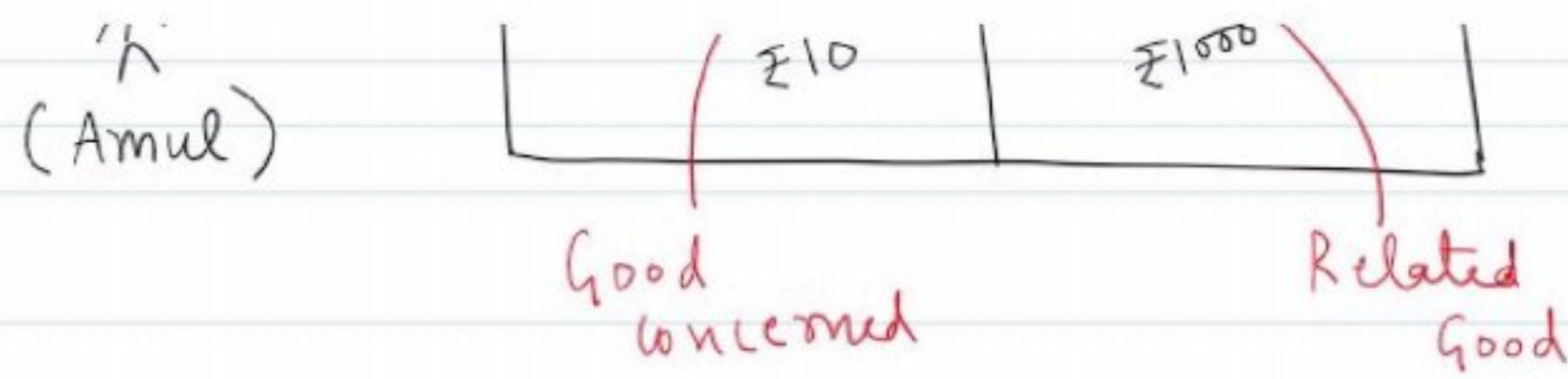
producer
⋈
(Two goods produce)



eg:-

producer.
⋈
(Amul)

Milk. ₹10	Butter ₹1000
--------------	-----------------



How Price of Butter (P_R) will affect supply of Milk (S_x) ??

→ Price of Butter ($\uparrow$) Supply of Milk ($\downarrow$)

Inverse relation

(iii) ^{Cost} COST of "Factors of Production" (F)
 Inputs

h Labour (Inputs) £100 → □

h (Labour) £150 → □ Supply ??

COST ($\uparrow$) Supply ($\downarrow$)

Inverse Relation

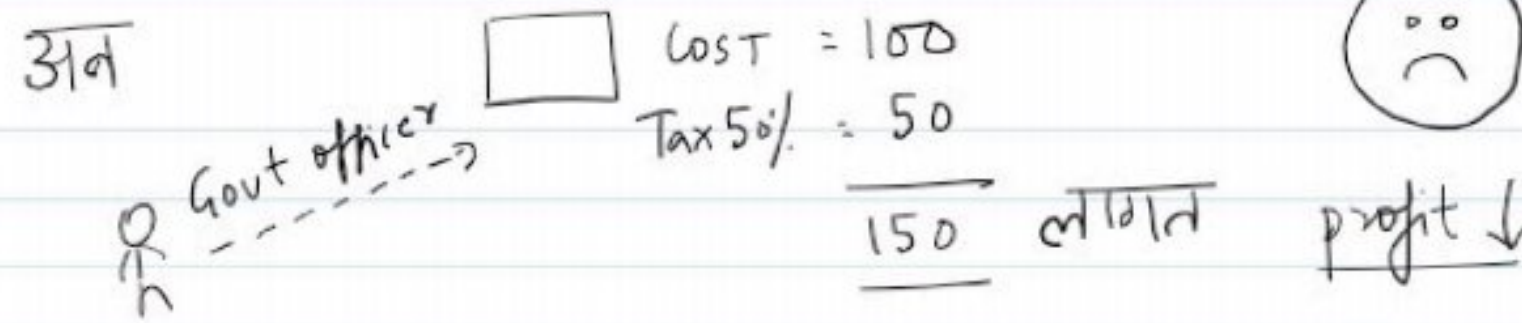
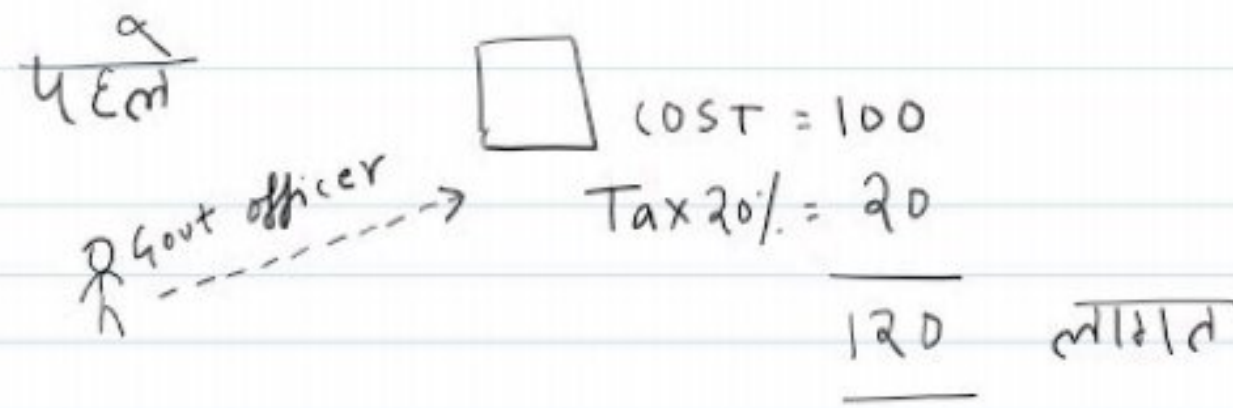
(iv) Technology (T)

→ Advanced Technology : COST ($\downarrow$) Supply ($\uparrow$)

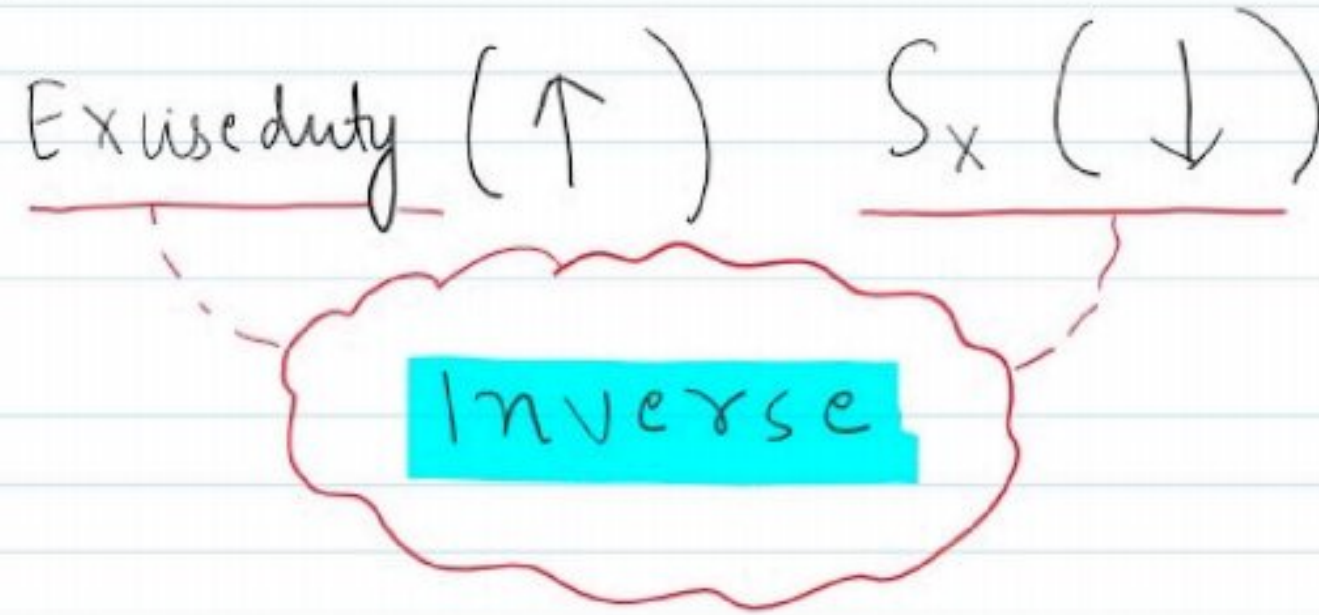
→ Obsolete technology : COST ($\uparrow$) Supply ($\downarrow$)

(v) Excise Duty : Tax on Manufacture (production)

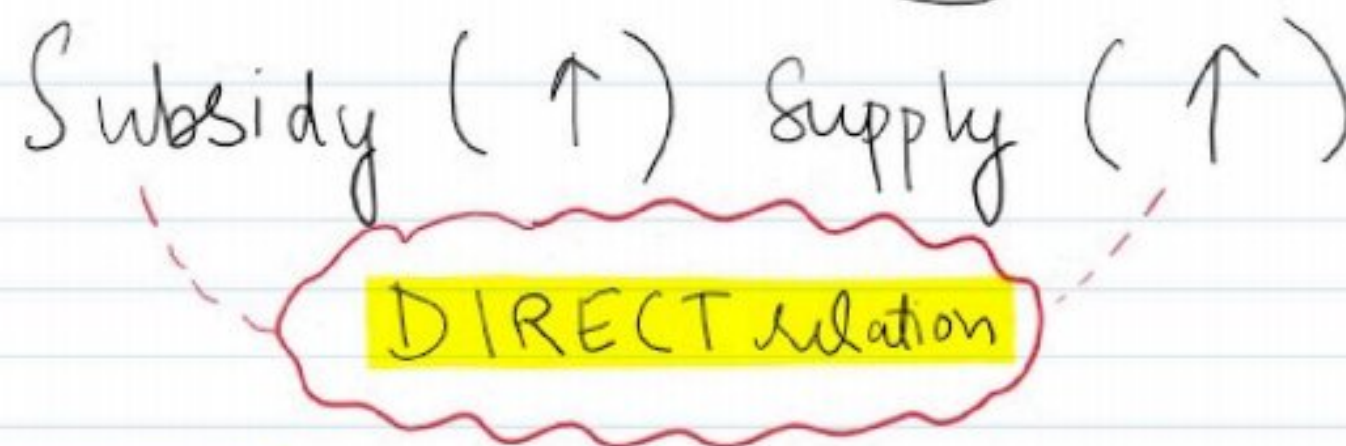
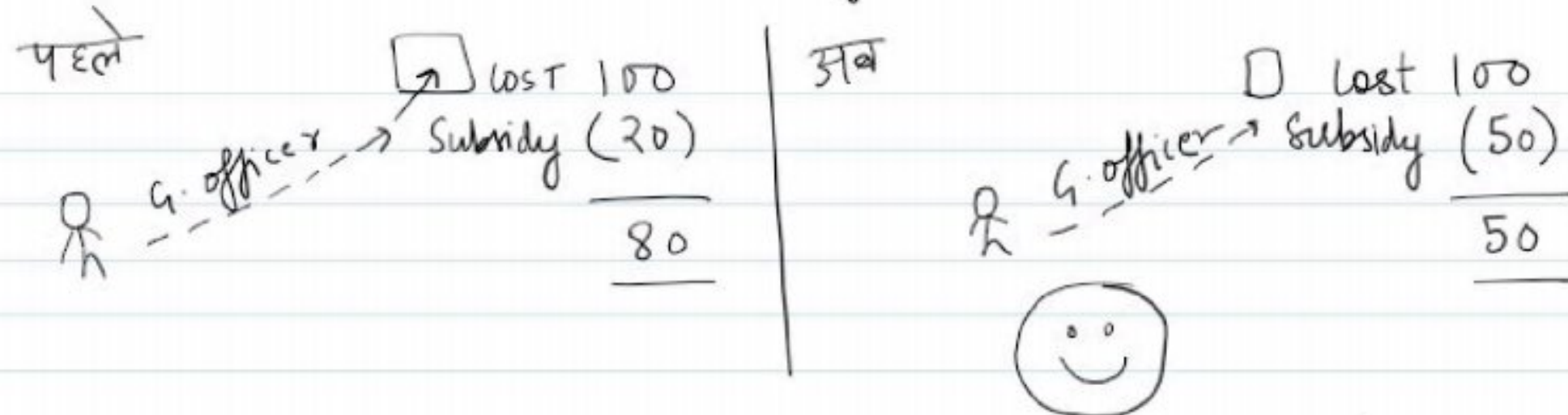
(production)



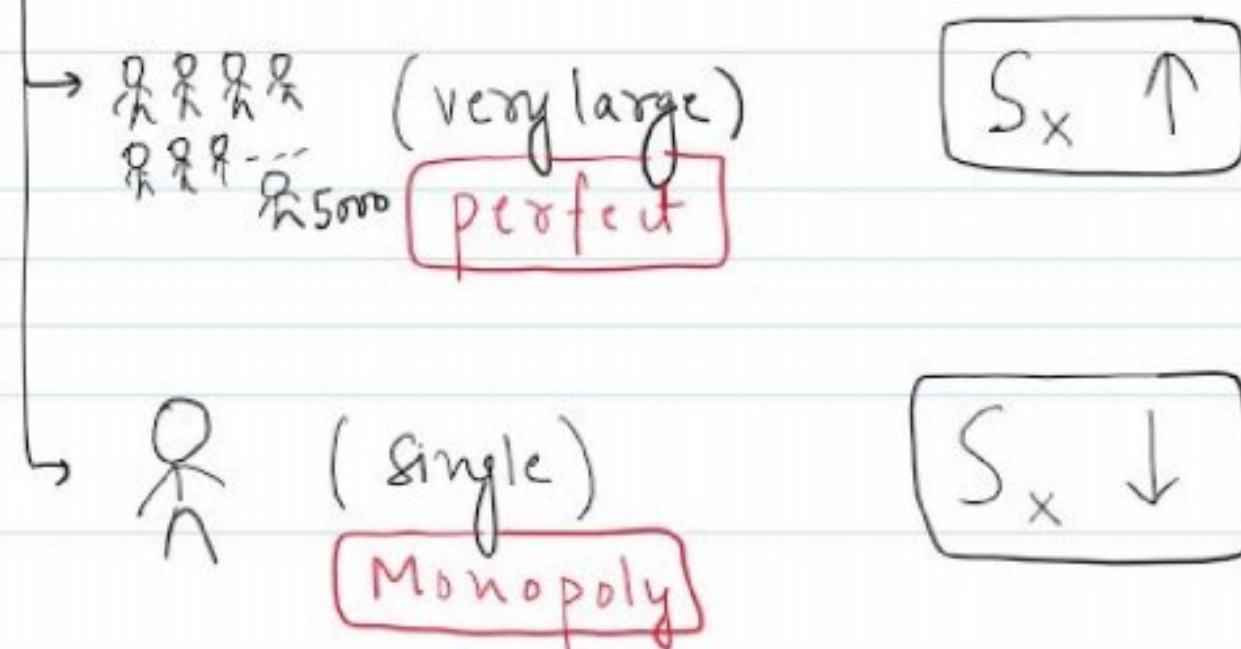
Supply ↓



(vi) **Subsidy** - financial assistance provided by government

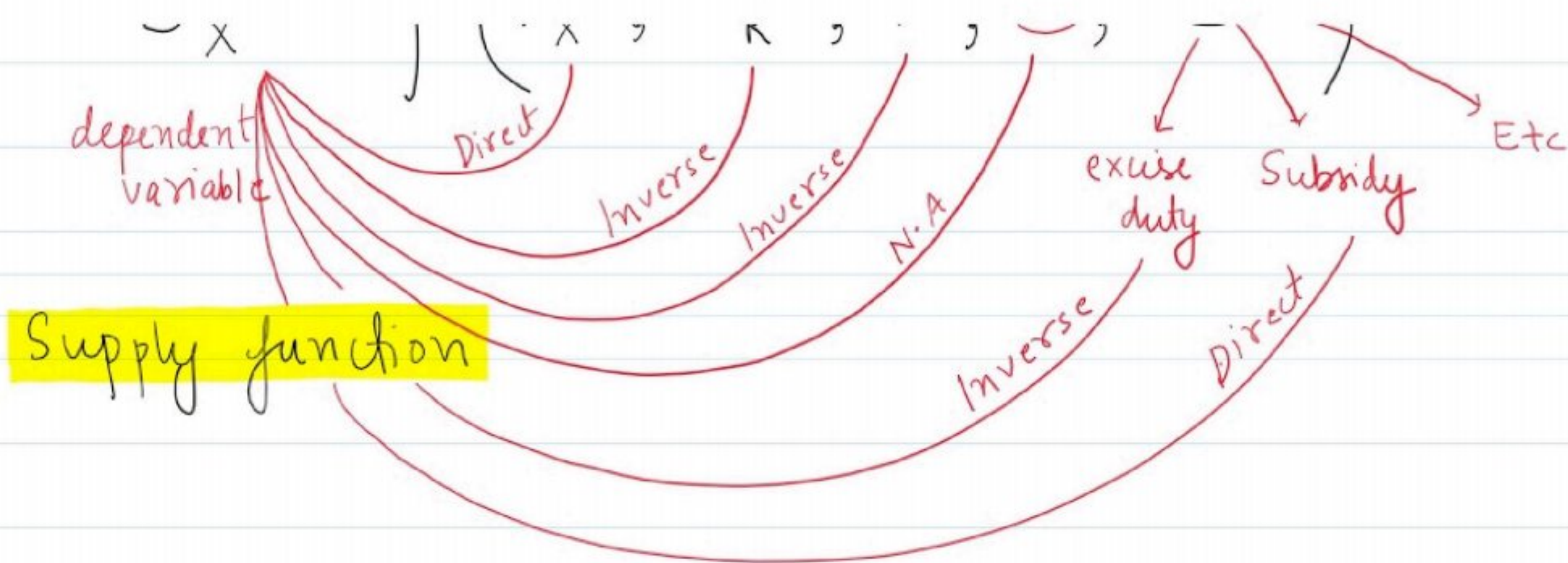


(vii) **Number of firms**



③ $S_x = f(P_x, P_R, F, T, \text{etc})$

dependent direct Etc



Supply function

(4) $S_x = f(P_x, \text{ASSUME } P_R, F, T, O)$

Direct relation

CONSTANT

"being other things constant"

LAW OF SUPPLY

CETERIS PARIBUS

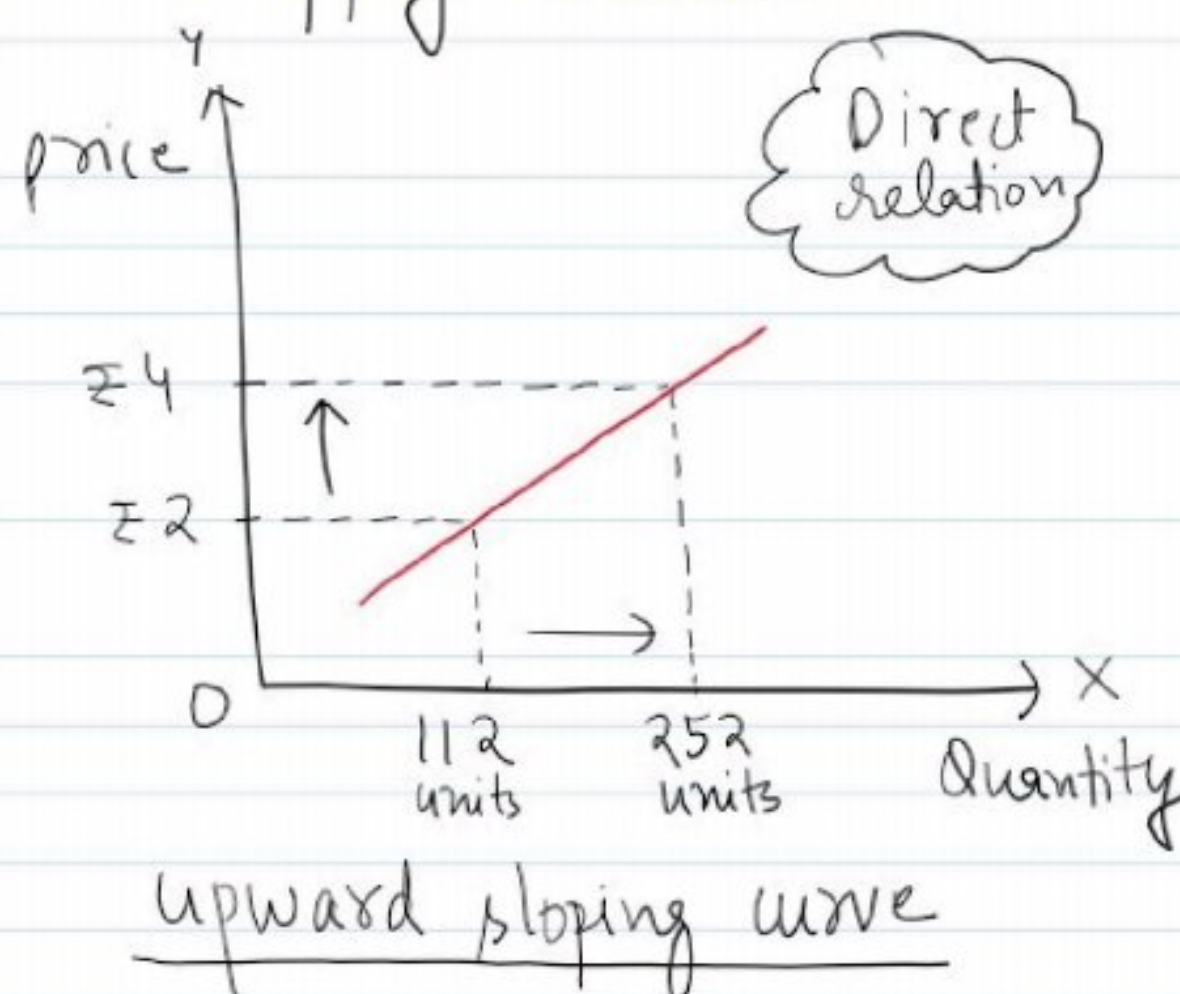
* Law of Supply is a QUALITATIVE statement.

X Quantitative - कितना ? $P_x \uparrow S_x \uparrow$
 $P \neq 2 S_x \uparrow ??$

✓ Qualitative - Relation (रिश्ता)

(5) Supply Schedule and Supply Curve

Price	Quantity
£1	100 units
£2	112 units
£3	250 units
£4	252 units
£5	950 units



(6) Change in Quantity Supplied

Change in Supply

⑥

Change in Quantity Supplied

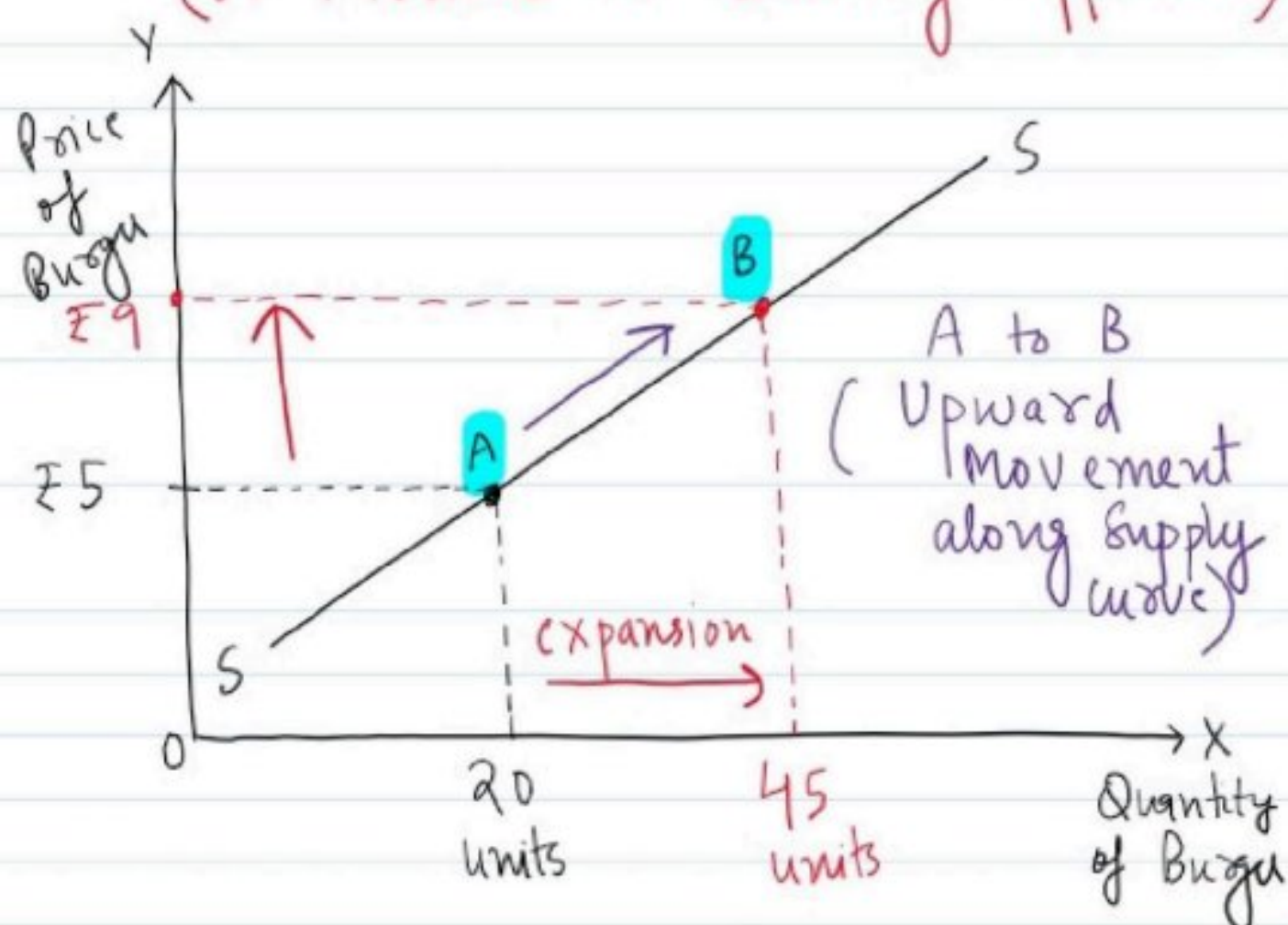
$$S_x = f(P_x, P_R, F, T, O)$$

It is of two types :-

- Expansion in Supply
- Contraction in Supply

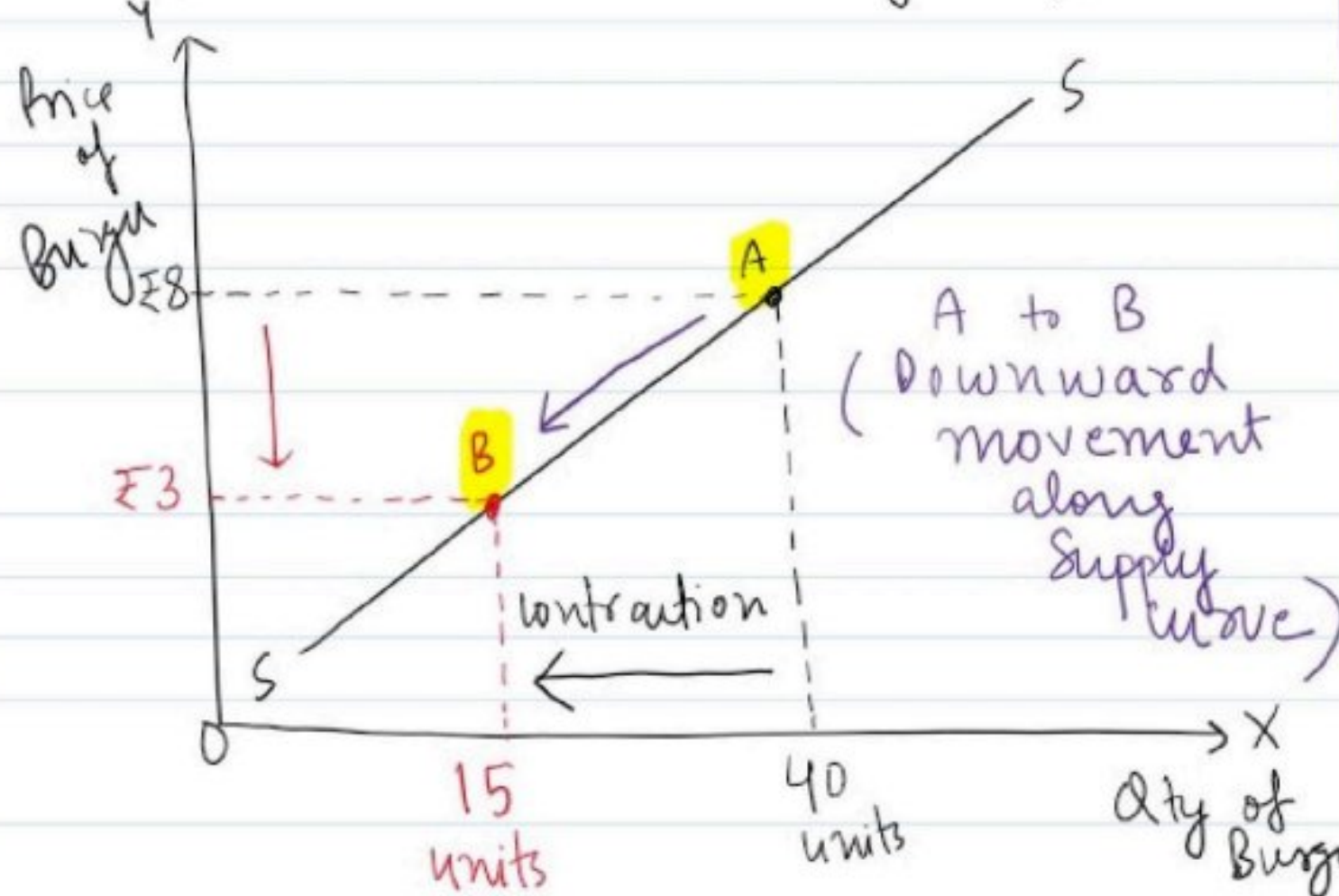
a) Expansion in Supply

(or Increase in Quantity Supplied)



b) Contraction in Supply

(Decrease in Quantity Supplied)



- Increase in P_R
- " " " F
- " " " Excise duty
- obsolete technology

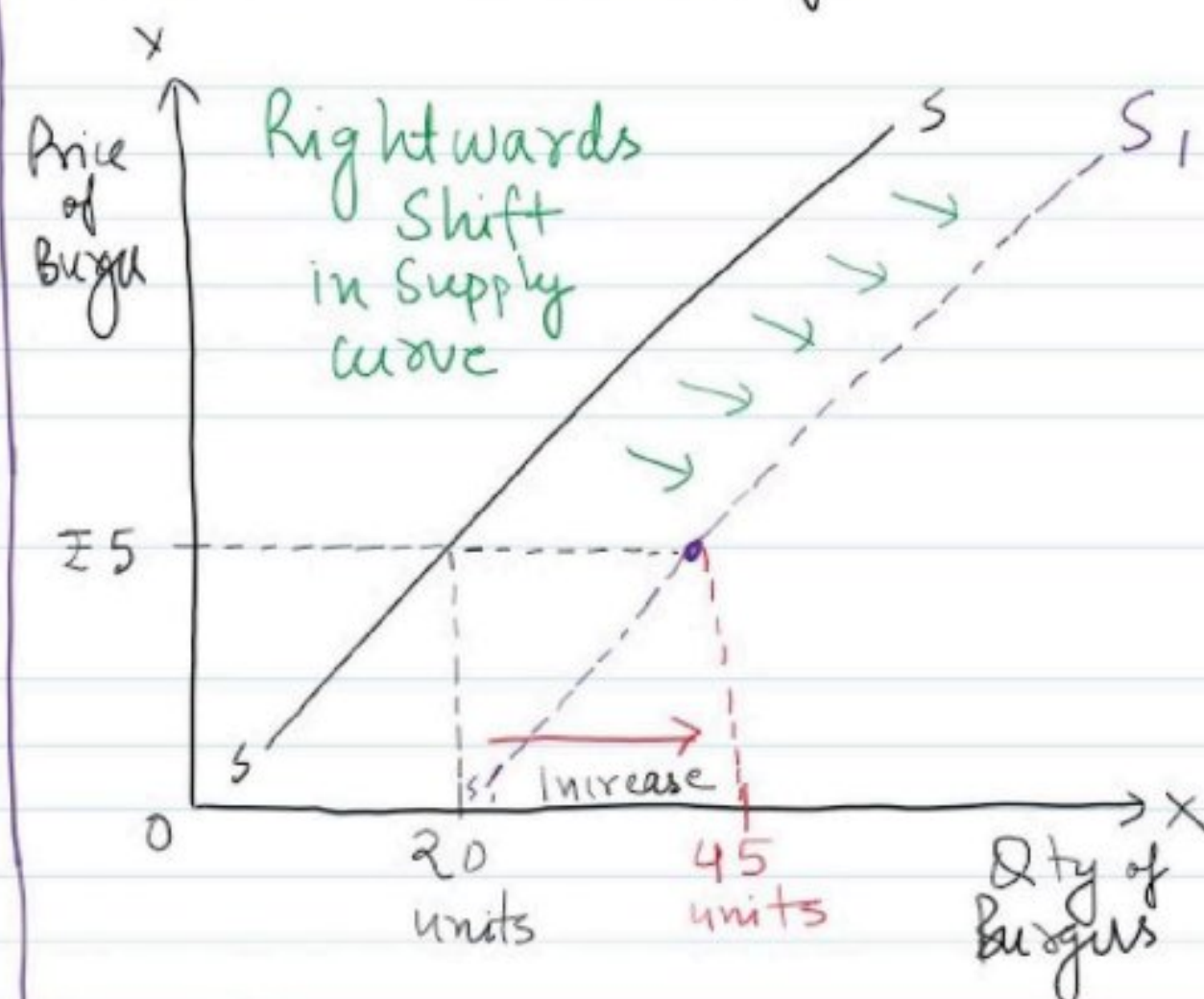
Change in Supply

$$P_R, F, T, O$$

It is of two types :-

- Increase in Supply
- Decrease in Supply

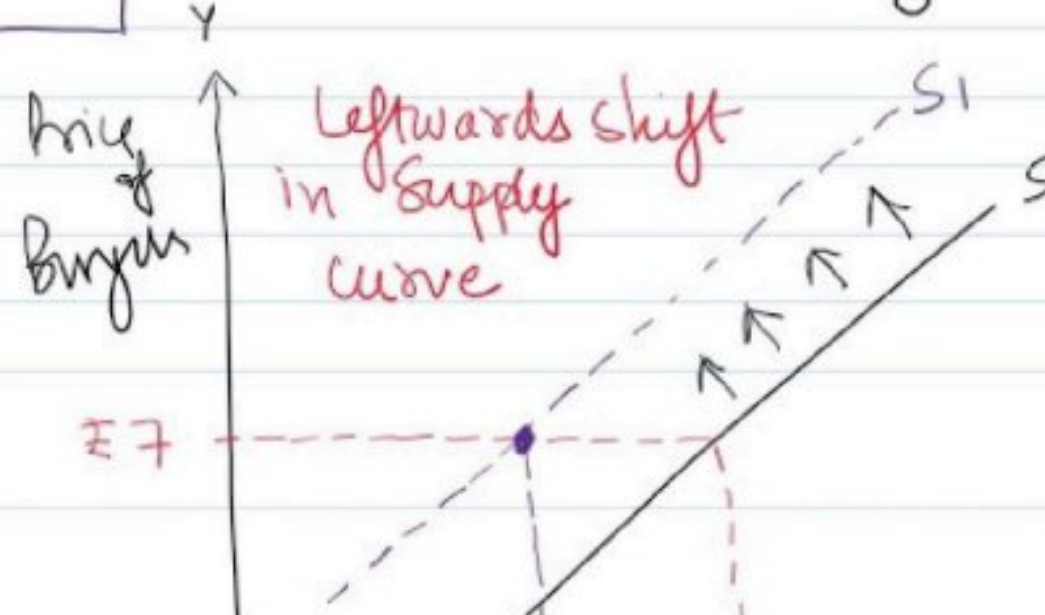
a) Increase in Supply



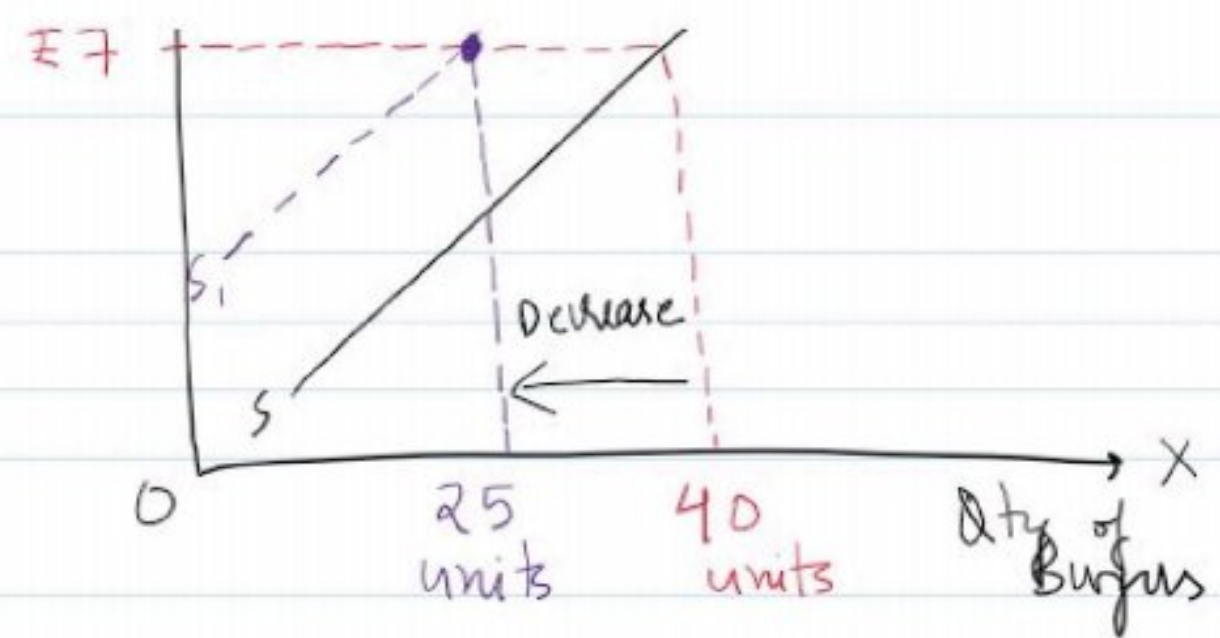
Reasons :-

- Decrease in P_R
- Decrease in F
- Decrease in Excise duty
- Advancement in Technology
- Increase in Subsidy
- Increase in Number of firms etc

(b) Decrease in Supply



- (3) " " Excess capacity
- (4) obsolete technology
- (5) Decrease in Subsidy
- (6) " " in No. of firms etc



⑦ Price elasticity of Supply (E_s)

$$E_s = \frac{\% \text{ change in Quantity}}{\% \text{ change in Price}}$$

$$\% \text{ change in Quantity} = \frac{Q_1 - Q_0}{Q_0} \times 100$$

Q_1 = New Quantity
 Q_0 = old Quantity

$$\% \text{ change in Price} = \frac{P_1 - P_0}{P_0} \times 100$$

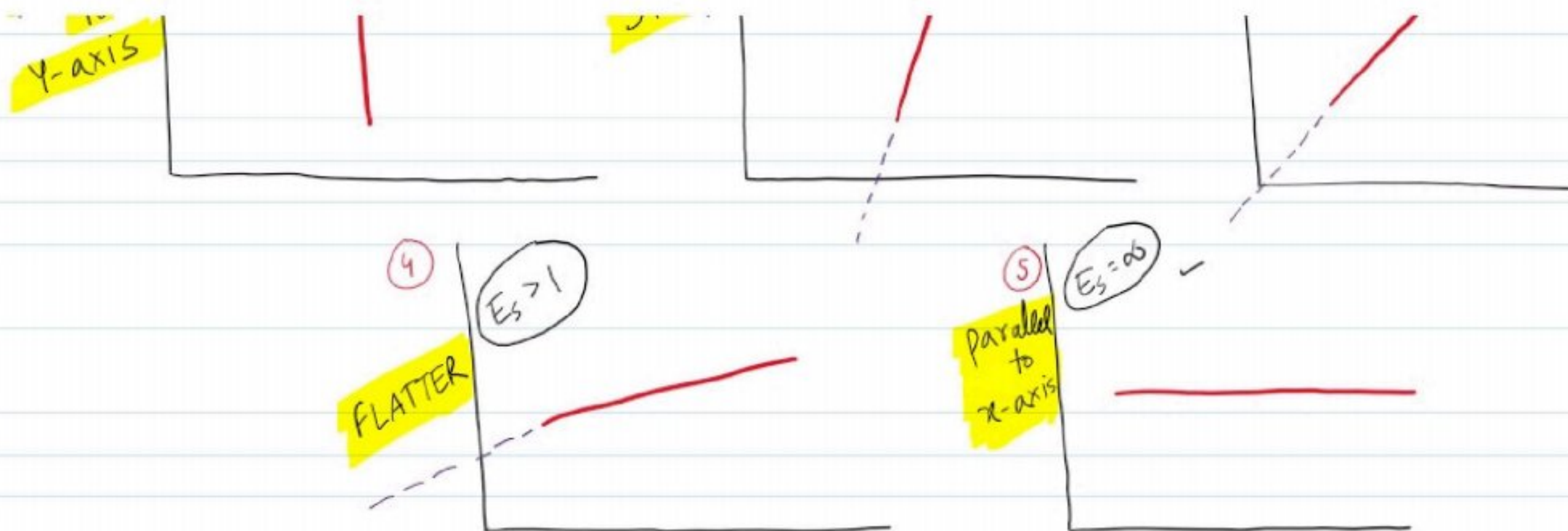
P_1 = New Price
 P_0 = old Price.

(i) $E_s = 0$	Perfectly Inelastic	$\% \Delta \text{ in } Q = 0$
(ii) $E_s < 1$	Less than elastic (or Inelastic)	$\% \Delta \text{ in } Q < \% \Delta \text{ in } P$
(iii) $E_s = 1$	Unitary elastic	$\% \Delta \text{ in } Q = \% \Delta \text{ in } P$
(iv) $E_s > 1$	More than elastic (or Elastic)	$\% \Delta \text{ in } Q > \% \Delta \text{ in } P$
(v) $E_s = \infty$	Perfectly Elastic	$\% \Delta \text{ in } P = 0$

① $E_s = 0$
 Parallel to Y-axis

② $E_s < 1$
 Steeper

③ $E_s = 1$



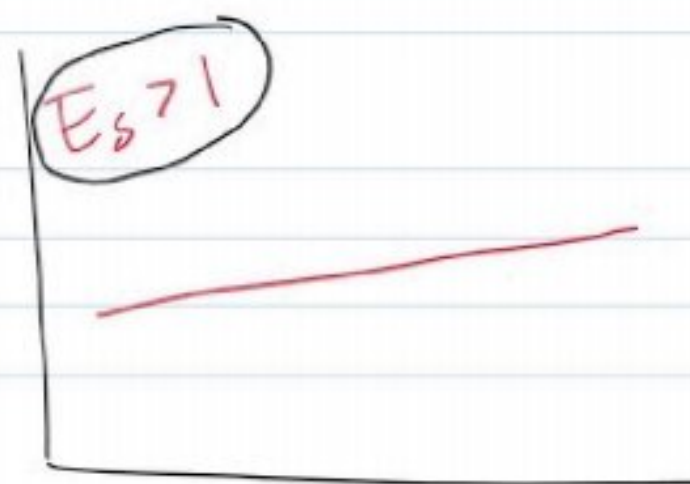
Q :- Price of a good rises from ₹ 7.50 to ₹ 8.25 and its quantity supplied rises from 475 units to 617.5 units. find E_s

Sol:-

$$\begin{aligned} \% \text{ change in Quantity} &= \frac{Q_1 - Q_0}{Q_0} \times 100 \\ &= \frac{617.5 - 475}{475} \times 100 \\ &= 30\% \end{aligned}$$

$$\begin{aligned} \% \text{ change in Price} &= \frac{P_1 - P_0}{P_0} \times 100 \\ &= \frac{8.25 - 7.50}{7.50} \times 100 \\ &= 10\% \end{aligned}$$

$$\therefore E_s = \frac{\% \text{ Change in Quantity}}{\% \text{ Change in Price}} = \frac{30\%}{10\%} = 3$$



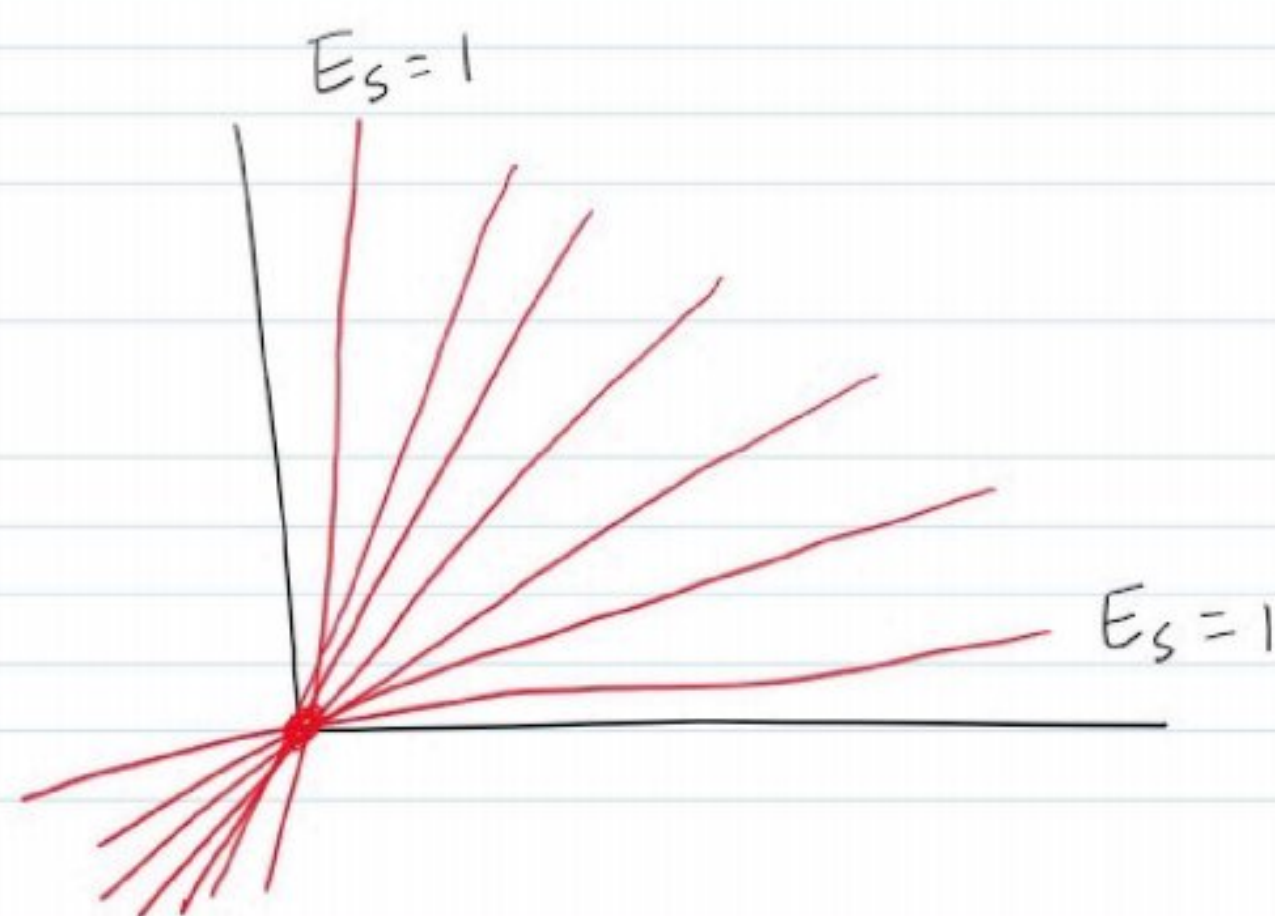
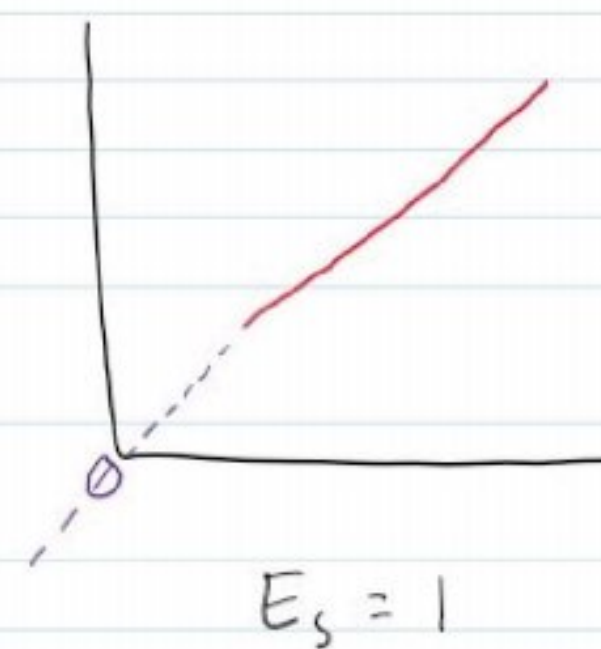
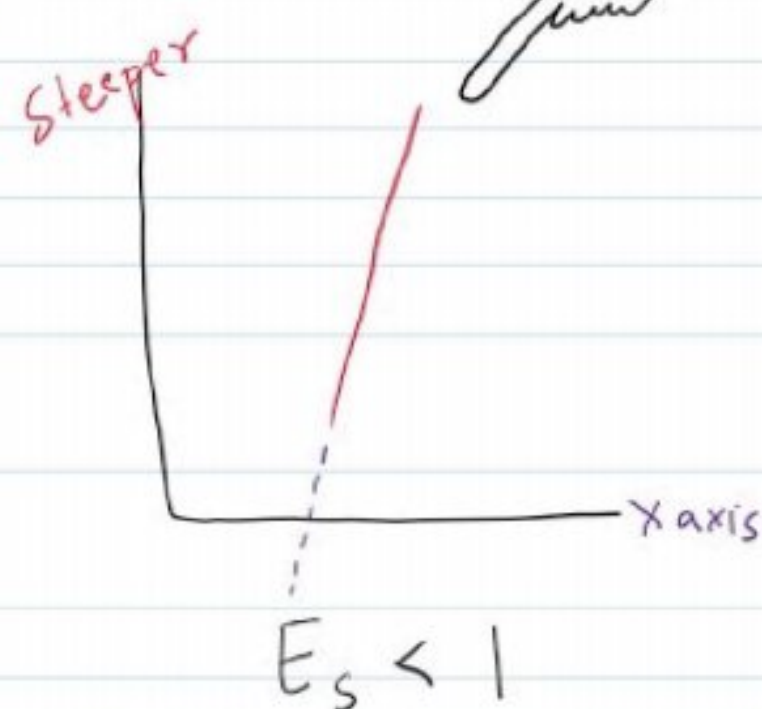
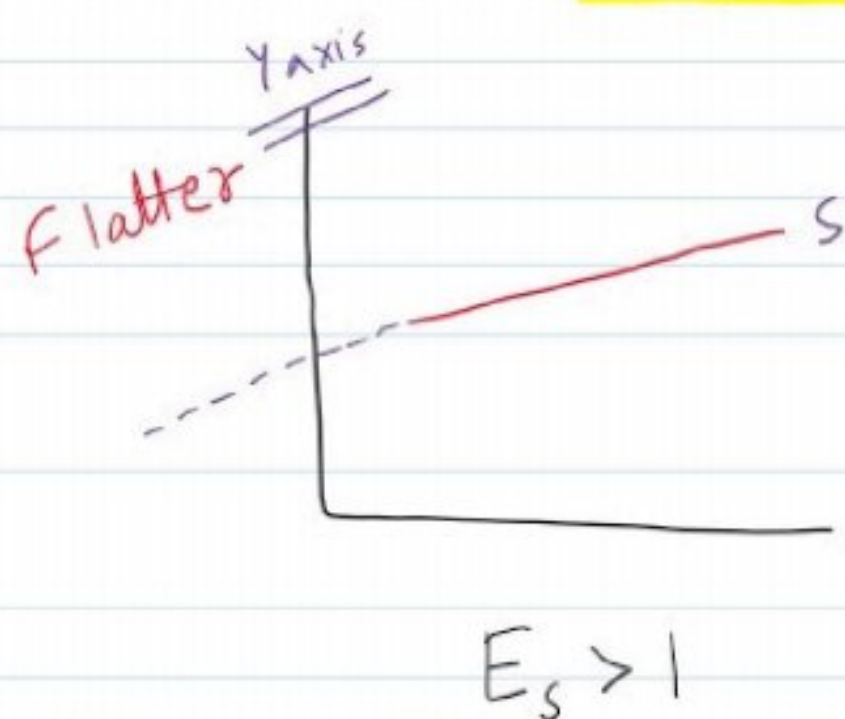
Q2- E_s of supply curve passing through origin & making an angle of 45° is $E_s = 1$

Q3- E_s of supply curve passing through origin & making an angle of 30° is $E_s = 1$

Q4- E_s of supply curve cutting Y-axis on extension

Q4- E_s of supply curve cutting Y-axis on extension is $E_s > 1$

Q5- E_s of Supply curve cutting X-axis on extension is $E_s < 1$



Q6- Is it possible that elasticity on same supply curve is not constant (i.e. varies) ??
 अर्थात् $E_s > 1$ अर्थात् $E_s < 1$

Sol:- **YES** (in case of **Non-Linear Supply Curve**)
 ↓
 Curvilinear





* Methods of calculating E_s *

① Point elasticity *by default.*

$$E_s = \frac{\Delta Q}{\Delta P} \times \frac{P_0}{Q_0}$$

$$= \frac{Q_1 - Q_0}{P_1 - P_0} \times \frac{P_0}{Q_0}$$

② Arc elasticity

$$E_s = \frac{Q_1 - Q_0}{Q_1 + Q_0} \times \frac{P_1 + P_0}{P_1 - P_0}$$

* Factors affecting elasticity of Supply *

Flexible : Change in Quantity very easy (very large)

Elastic

$$E_s > 1$$

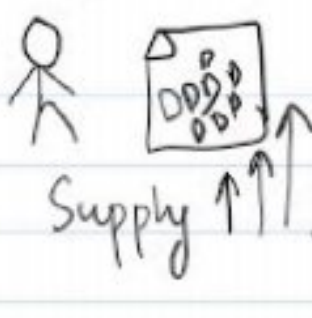
Not flexible :- Change in Quantity very less

Inelastic

$$E_s < 1$$

(i) Time Period

producer.



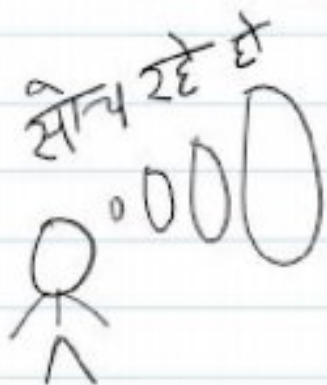
→ (5 yr.) Long time period

$$E_s > 1$$

→ (5 sec) Short time period

$$E_s < 1$$

(ii) Expected cost of Production



production ↑↑↑↑

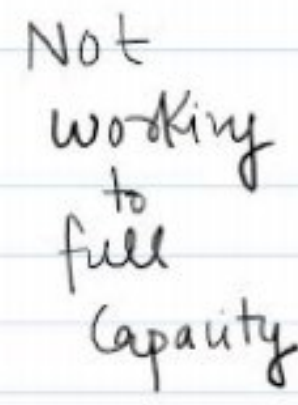
cost ↑↑↑↑

→ Supply is inelastic

(iii) Supply is more elastic if firms are not working to full capacity

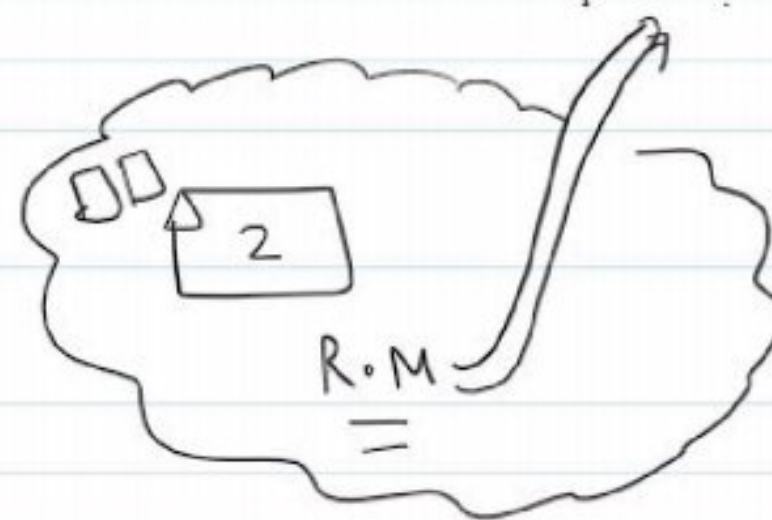
Less elastic

Less elastic
more elastic



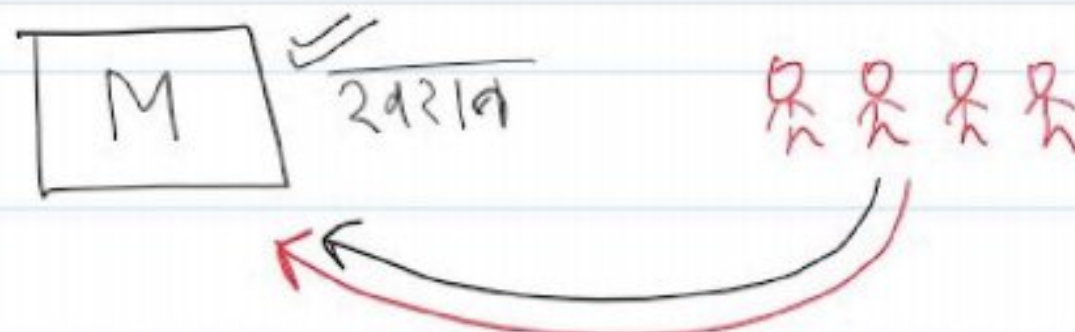
easily available $(E_s > 1)$

Himalaya



Factor की उद्गता - अदनी

Machine



ii) Hard :- $E_s < 1$

easy - $E_s > 1$

$$E_s < 1$$

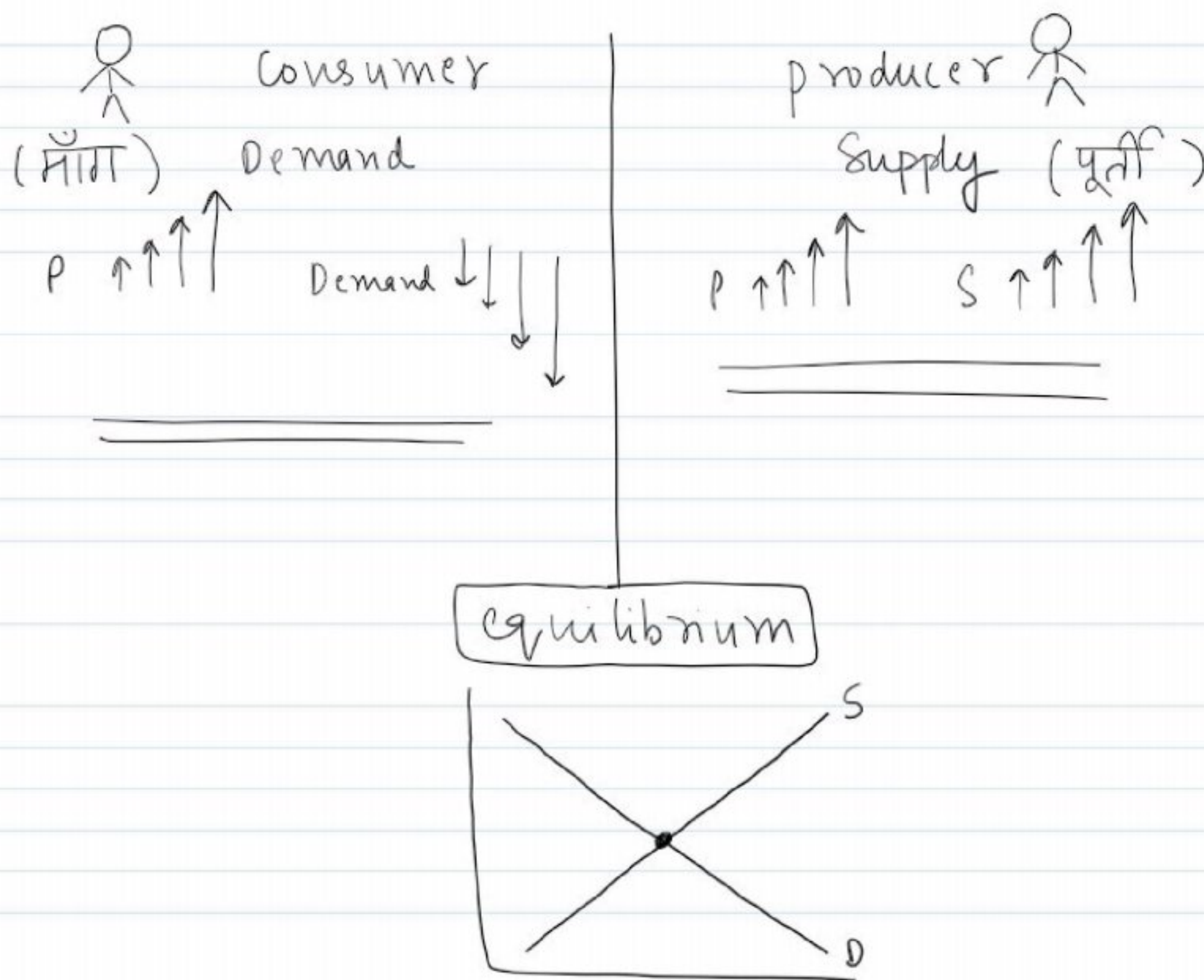
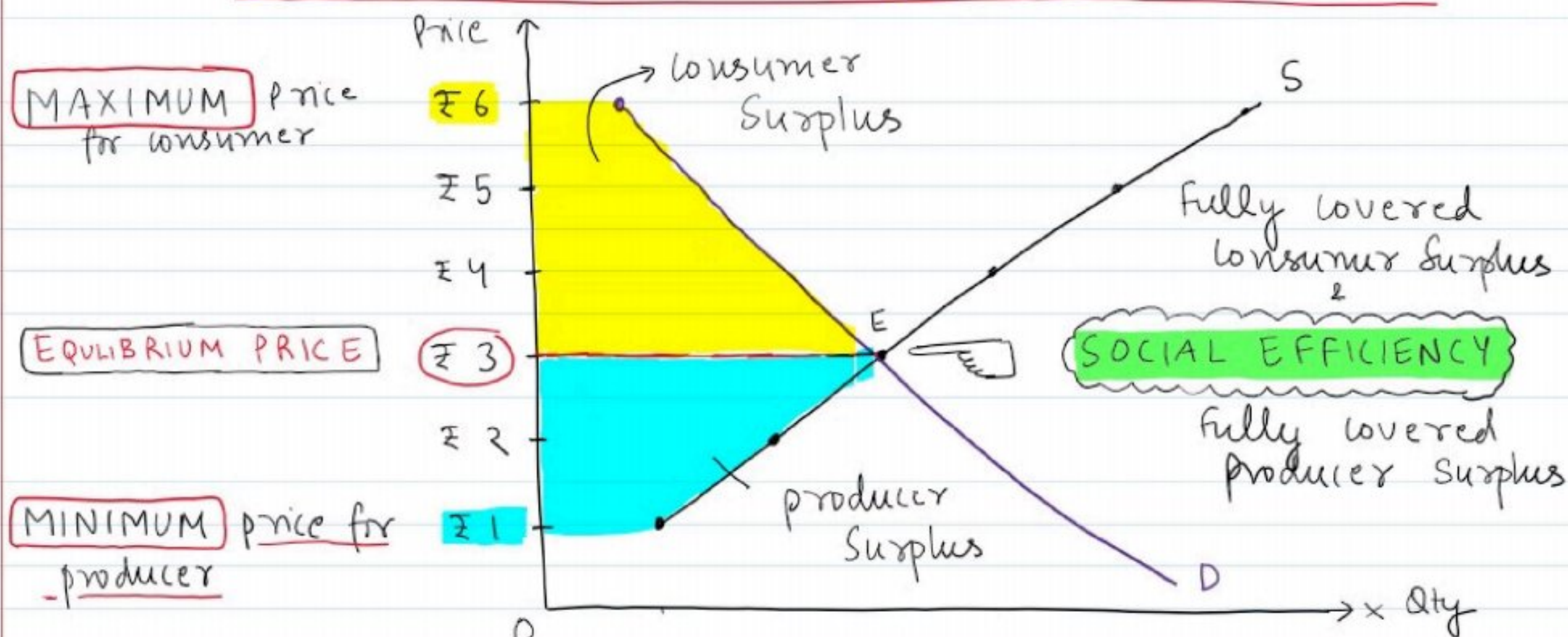
$\therefore \text{---} \cap \rightarrow \text{---} | K_a$

(or) Future expectation

producer
Tomato
£160/Kg
£300/Kg

Supply inelastic

* EQUILIBRIUM & SOCIAL EFFICIENCY *



Q1 =

$$Q = (-)100 + 10P$$

find E_s when $P = 15$

Sol:-

find E_s when $P = 15$

Quantity
 $P_0 = ₹ 15$
 $Q_0 = 50$

price.
 $P_1 = ₹ 16 / ₹ 17$
 $Q_1 = 60 / 70$ Any Value

$$E_s = \frac{Q_1 - Q_0}{P_1 - P_0} \times \frac{P_0}{Q_0}$$

$$= \frac{60 - 50}{16 - 15} \times \frac{15}{50}$$

$$= \frac{10}{1} \times \frac{15}{50} = 3$$

Q2- When price is ₹ 15, quantity is 400 units
 With fall in price by 20%, quantity falls by 120 units. find E_s (i) Point method

$$E_s = \frac{Q_1 - Q_0}{P_1 - P_0} \times \frac{P_0}{Q_0}$$

$$= \frac{280 - 400}{12 - 15} \times \frac{15}{400}$$

$$= \frac{-120}{-3} \times \frac{15}{400}$$

$$= 1.5$$

(ii) Arc method.

$$E_s = \frac{Q_1 - Q_0}{Q_1 + Q_0} \times \frac{P_1 + P_0}{P_1 - P_0}$$

$$= \frac{280 - 400}{280 + 400} \times \frac{12 + 15}{12 - 15}$$

$$= \frac{-120}{680} \times \frac{27}{-3}$$

$$= 1.58$$

Q3-

$$Q = (-) 12 - 5P$$

find E_s when $P = ₹ 9$

Sol:-

$$P_0 = 9$$

$$Q_0 = (-) 57$$

$$P_1 = 11$$

$$Q_1 = (-) 67$$
 Any Value

Sol.

$$r_0 = 1$$

$$Q_0 = (-) 57$$

$$r_1 = 11$$

$$Q_1 = (-) 67$$

$$\frac{Q_1 - Q_0}{P_1 - P_0} \times \frac{P_0}{Q_0} \Rightarrow \frac{(-) 67 - (-) 57}{11 - 9} \times \frac{9}{(-) 57}$$

$$= \frac{(-) 10}{2} \times \frac{9}{(-) 57}$$

$$= 0.789$$

Q4 - E_s of Good X is half of E_s of Good Y.
 10% fall in price of Good Y results in
 fall in supply from 400 units to 280 units.
 Calculate % change in Quantity of Good X
 when its price falls from £20 to £18.

Sol

Good X

E_s

$$E_s = 1.5$$

$$P_0 = 20$$

$$P_1 = 18$$

$$\% \text{ Change in Price} = \frac{P_1 - P_0}{P_0} \times 100$$

$$= \frac{18 - 20}{20} \times 100$$

$$= (-) 10\%$$

$$E_s = \frac{\% \text{ C in } Q}{\% \text{ C in } P}$$

$$1.5 = \frac{\% \text{ C in } Q}{(-) 10\%}$$

Good Y

E_s

$$\% \text{ change in Price} = (-) 10\%$$

$$Q_0 = 400$$

$$Q_1 = 280$$

$$\% \text{ change in Qty} = \frac{Q_1 - Q_0}{Q_0} \times 100$$

$$= \frac{280 - 400}{400} \times 100$$

$$= (-) 30\%$$

$$E_s = \frac{\% \text{ C in } Q}{\% \text{ C in } P} = \frac{(-) 30\%}{(-) 10\%} = 3$$

(-) 10%

$$\therefore \% \text{ (in } Q) = (-) 15\% \quad \checkmark$$

Q5- Price of a goods changes from ₹ 4 to ₹ 4.80
As a result quantity rises by 12 units.
Find Q_0 and Q_1 when $E_s = 1.5$

Sol:-

$$\begin{array}{ll} P_0 = 4 & Q_0 = x \\ P_1 = 4.80 & Q_1 = x + 12 \end{array}$$

$$E_s = \frac{Q_1 - Q_0}{P_1 - P_0} \times \frac{P_0}{Q_0}$$

$$1.5 = \frac{(x+12) - x}{4.80 - 4} \times \frac{4}{x}$$

H.W
Ch 2.
1-120

$$1.5 = \frac{12}{0.8} \times \frac{4}{x}$$

$$x = \frac{12 \times 4}{0.8 \times 1.5} = 40 \quad (Q_0)$$

$$\therefore Q_1 = 40 + 12 = 52$$

Economics

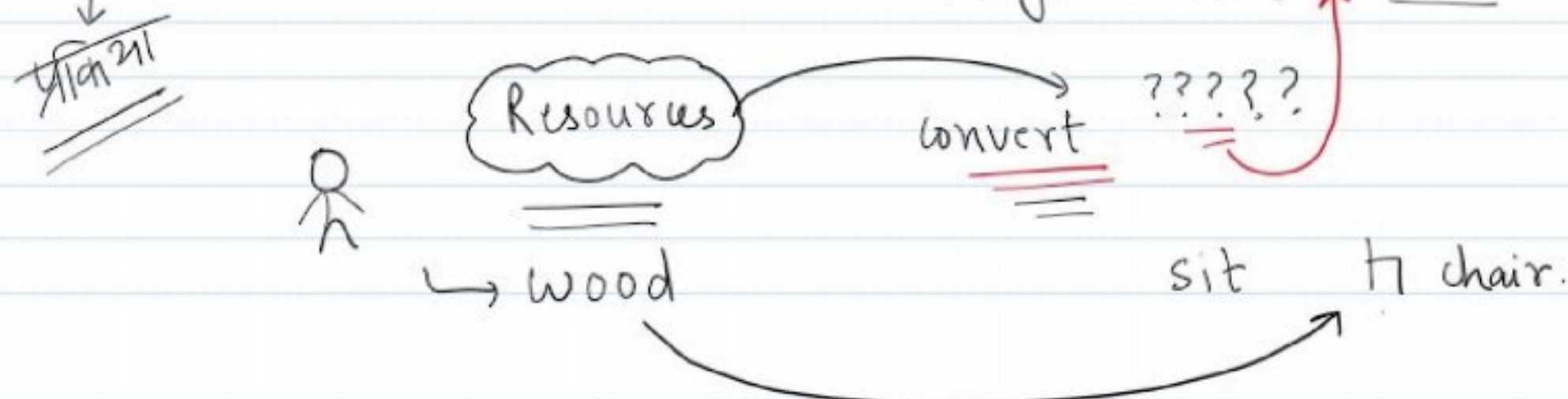
CH-3
(Unit-1)

Theory of Production

① Production

→ wider sense in Economics

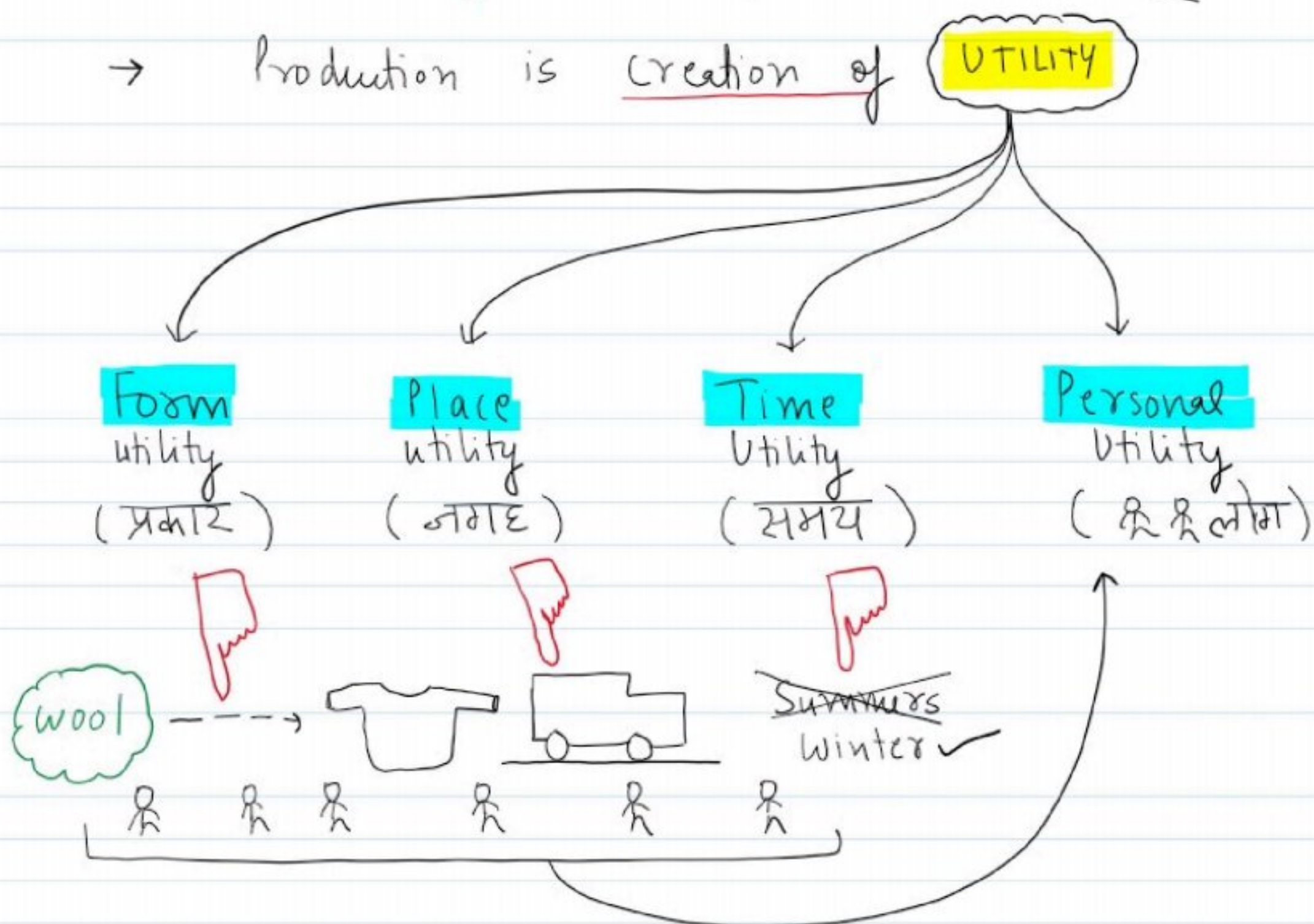
→ It is a process by which man utilizes (converts) the resources of nature so as to make them satisfy human wants



wood → sit on chair.

→ Making of chair (+) Services of Doctor.
BOTH ARE PRODUCTION

→ Production can be defined as **CREATION/ ADDITION TO UTILITY** (i.e. Production is nothing but creation of utilities in the form of **GOODS** and **SERVICES**)
~~(Video game :- creation of utility :-)~~



②
V. Imp.

"FACTORS" OF PRODUCTION

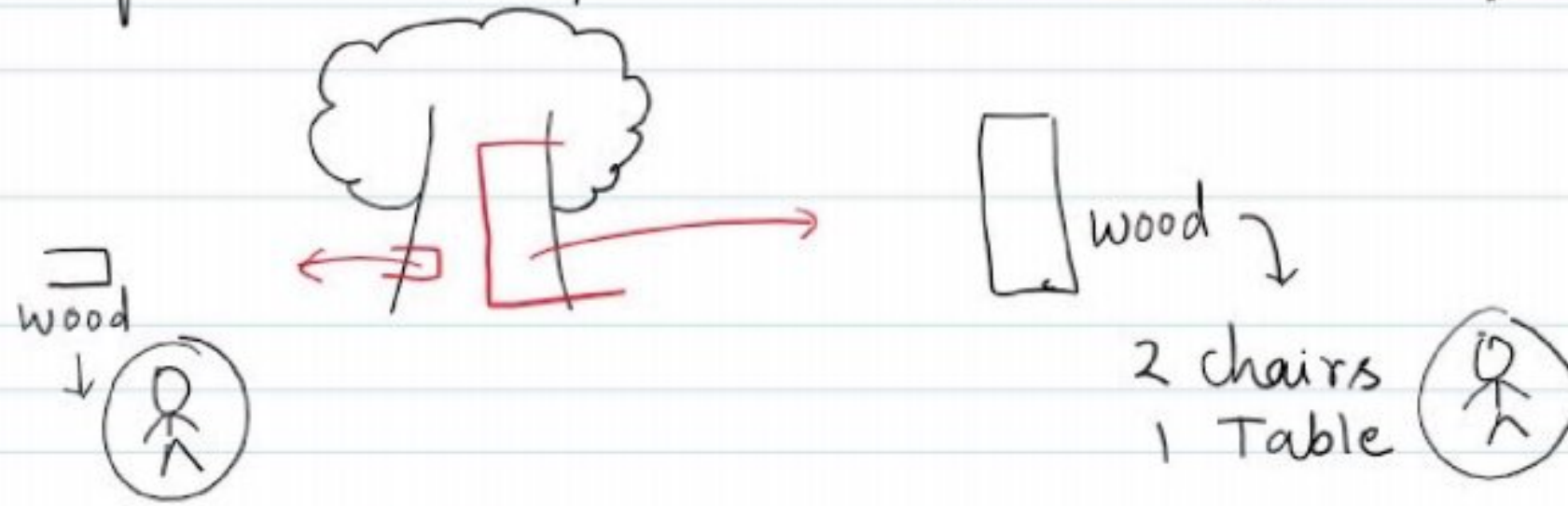
INPUTS required
 ??????????



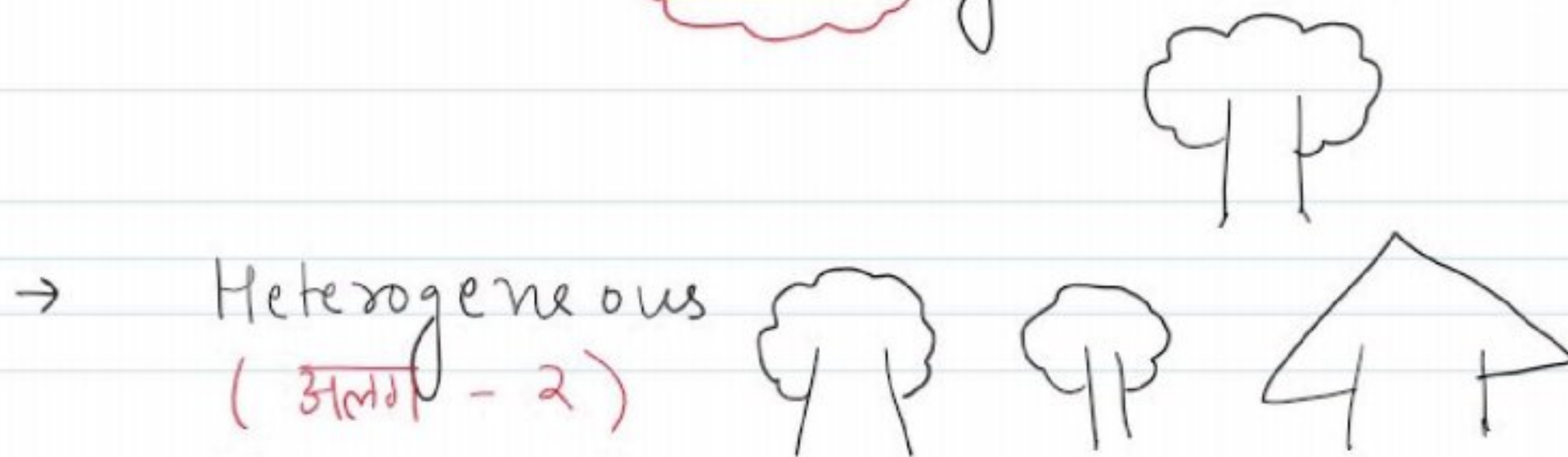
- Land
 - Labour
 - Capital
 - Entrepreneur
- } primary / original factor
- **Produced** factor

A. LAND

- Wider Sense in Economics
- All FREE GIFTS of **NATURE** (Soil, Water, Air, Mountains, Rivers, etc etc)
- It cannot be created (nor destroyed)
- Its usefulness depends on **HUMAN EFFORTS**

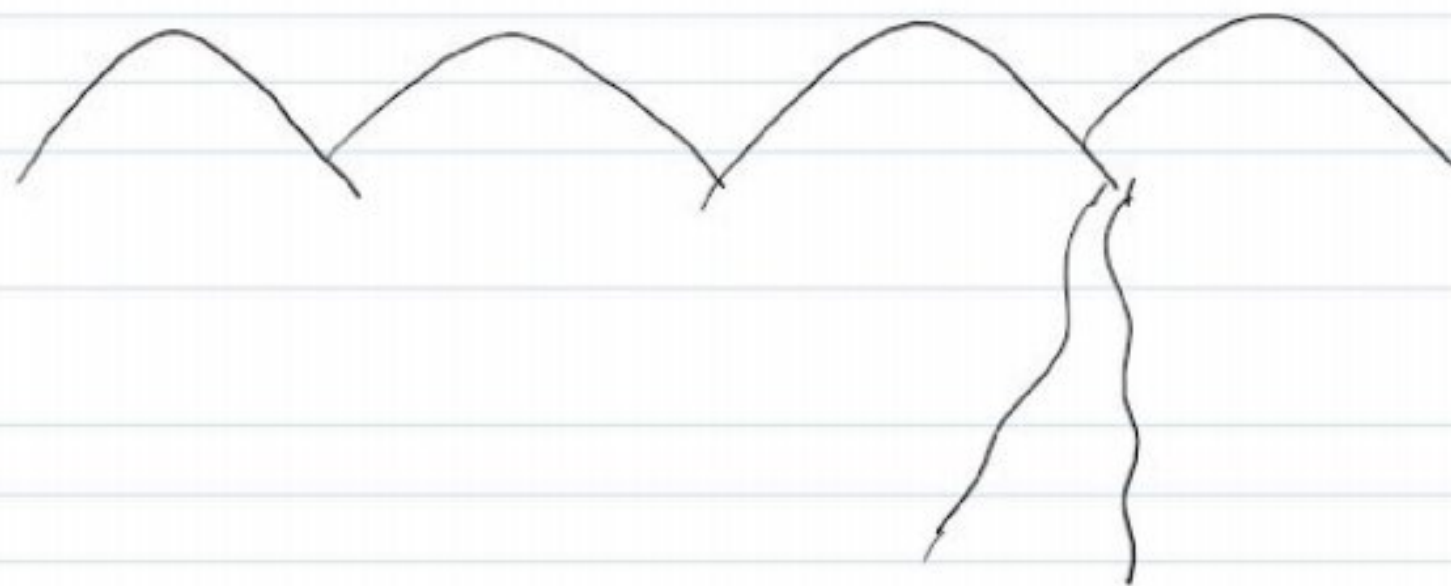


- It is a **Passive** factor (Not Active)



- Land cannot be shifted from one place to another.

- Supply of Land is **PERFECTLY INELASTIC** (i.e. **FIXED / CONSTANT**)



B. LABOUR

→ Mental (+) Physical
EXERTION --- efforts
to produce goods & services

→ It is an Active factor

→ It may not be productive

7 → 100 " 0 efforts " → 0
 8 → 100 मजदूर

→ Work done for sake of pleasure or love + affection is NOT LABOUR

Services of Housewife

→ Labour is PERISHABLE (i.e. Labour cannot be stored)

Labour (effort)
 (Labourer) → 10hr daily (X) ~~10hr~~
 → 10hr daily (X) 10hr
 → ~~30hr~~ ✓ 10hr

→ Labour has poor bargaining power

* → Supply of Labour + Wage Rate Relation

मैनेनर का समय

$W_R (\uparrow)$ $S_L (\uparrow)$ Leisure Time ($\downarrow$)

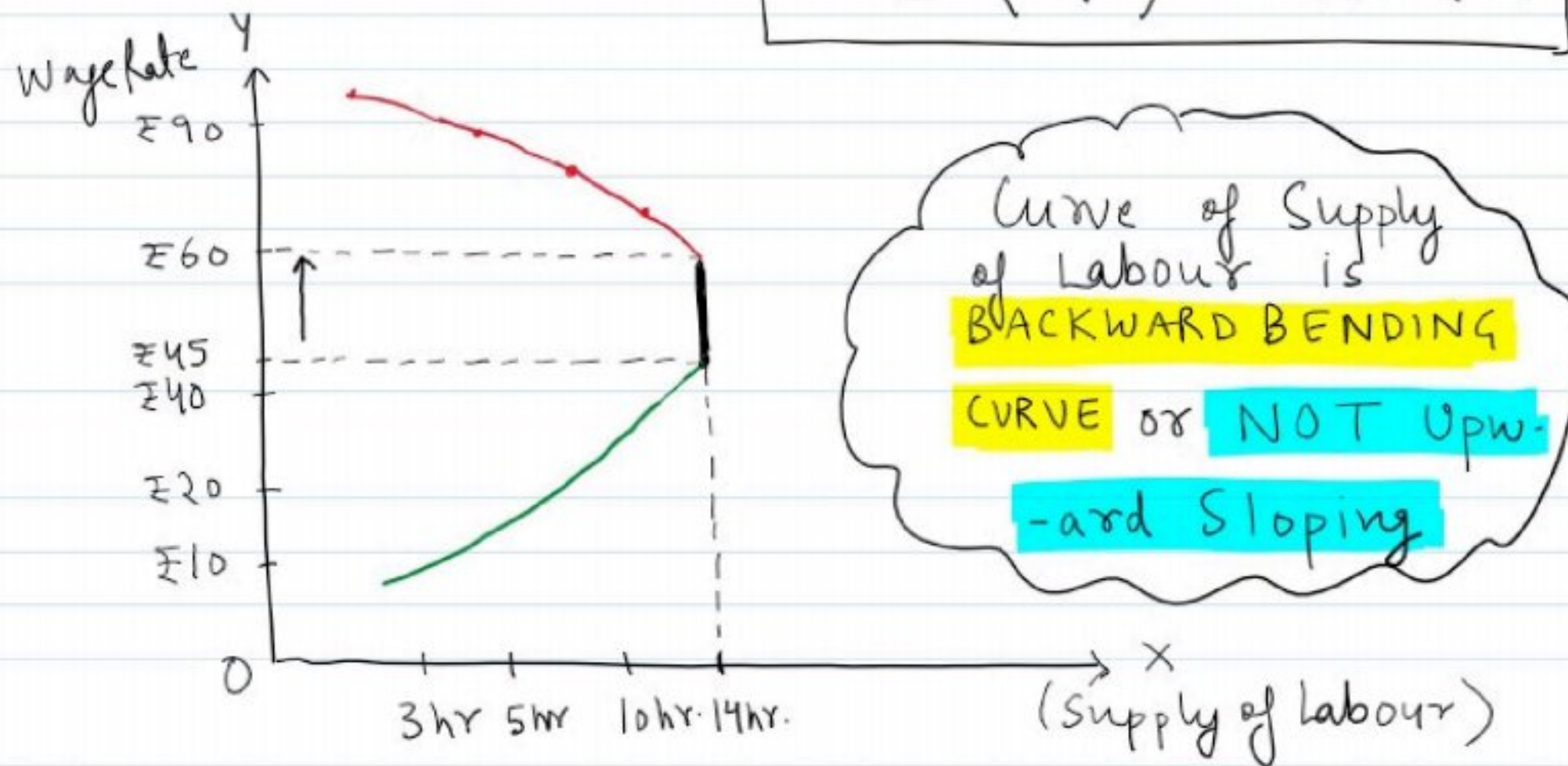
BUT after certain point even if

$W_R (\uparrow)$ S_L does not increase and they prefer Leisure time

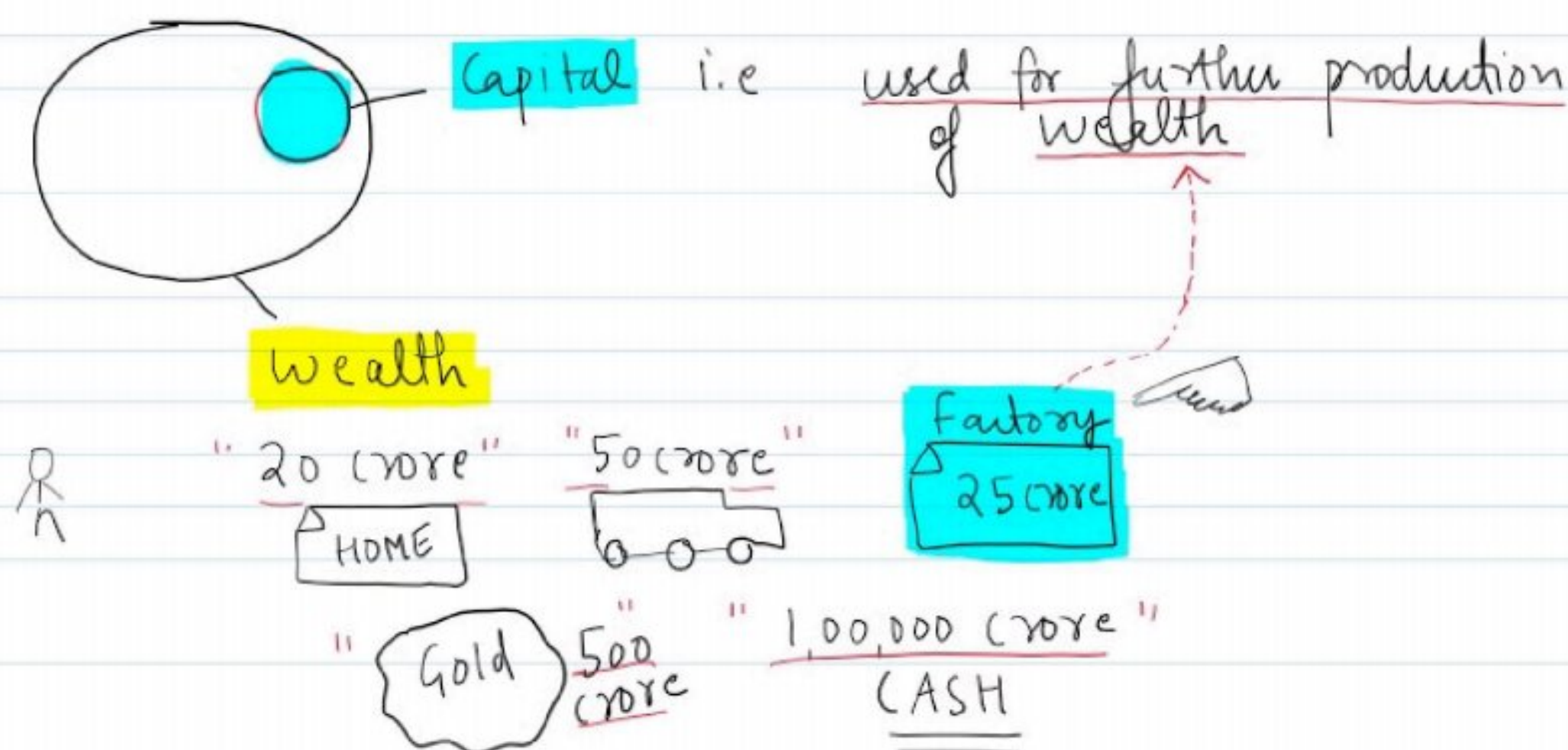
$W_R (L)$

they prefer Leisure time

$S_L (\downarrow)$ Leisure time $(\uparrow)$



C. CAPITAL (Produced Factor)



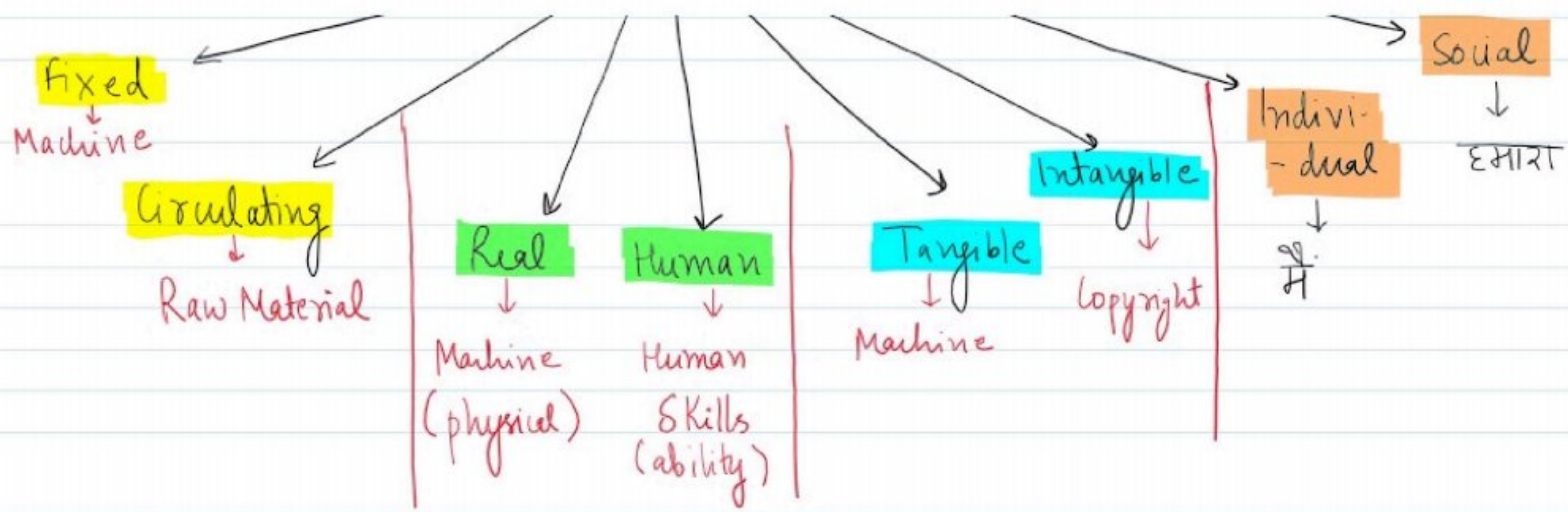
- Capital is a result of SAVINGS
- It is a STOCK concept
- If some resources (wealth) are lying idle; then these are not part of Capital

"production
देती करता"

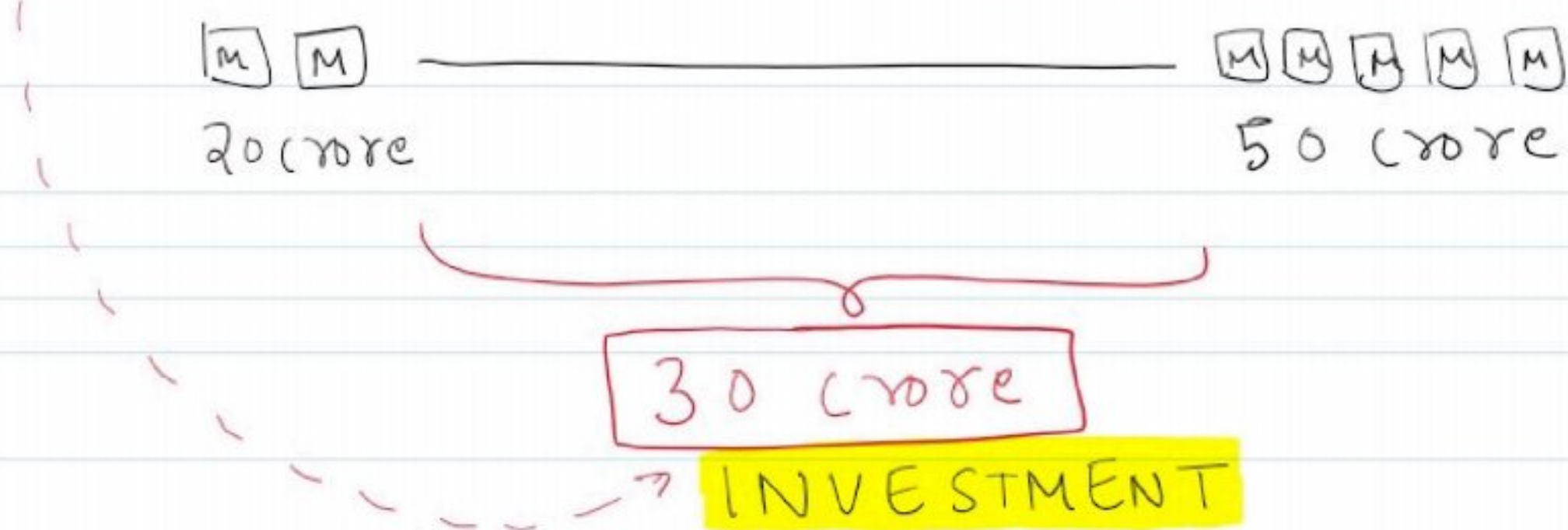
- Capital is PRODUCED means of production

Types of Capital

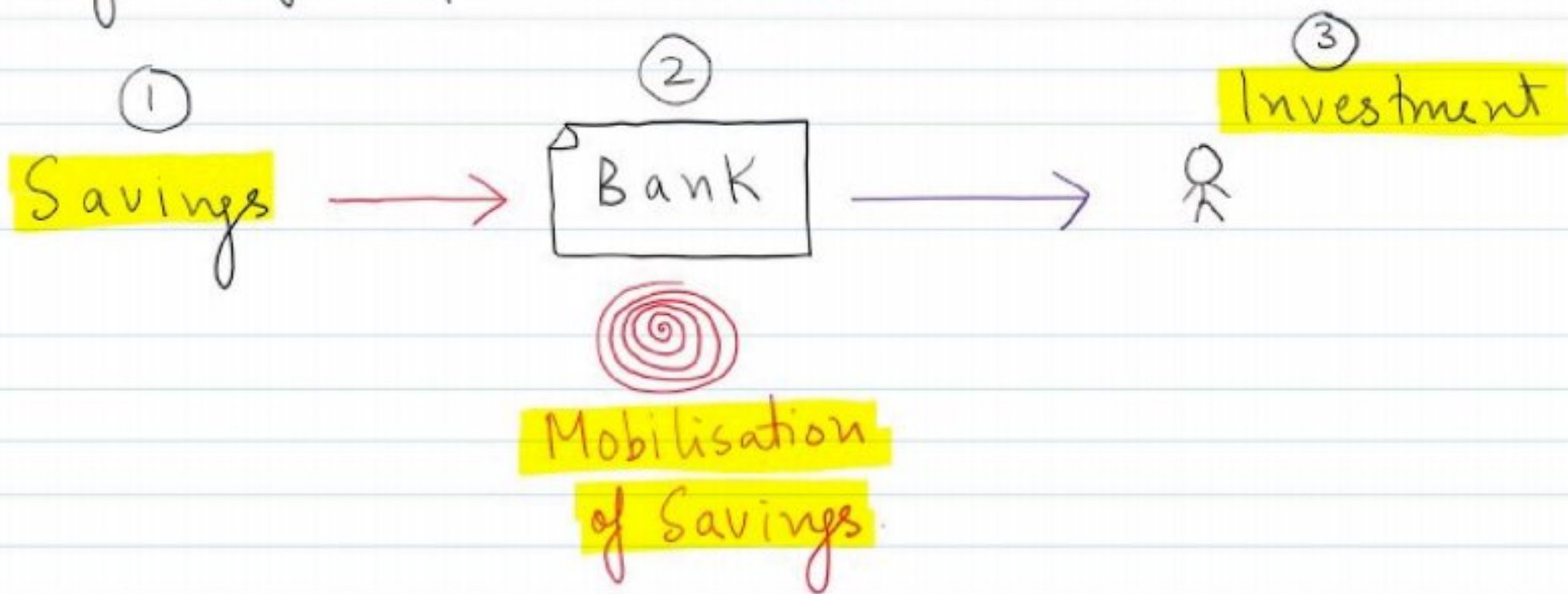




→ **Capital formation** - sustained increase in stock of Real Capital.



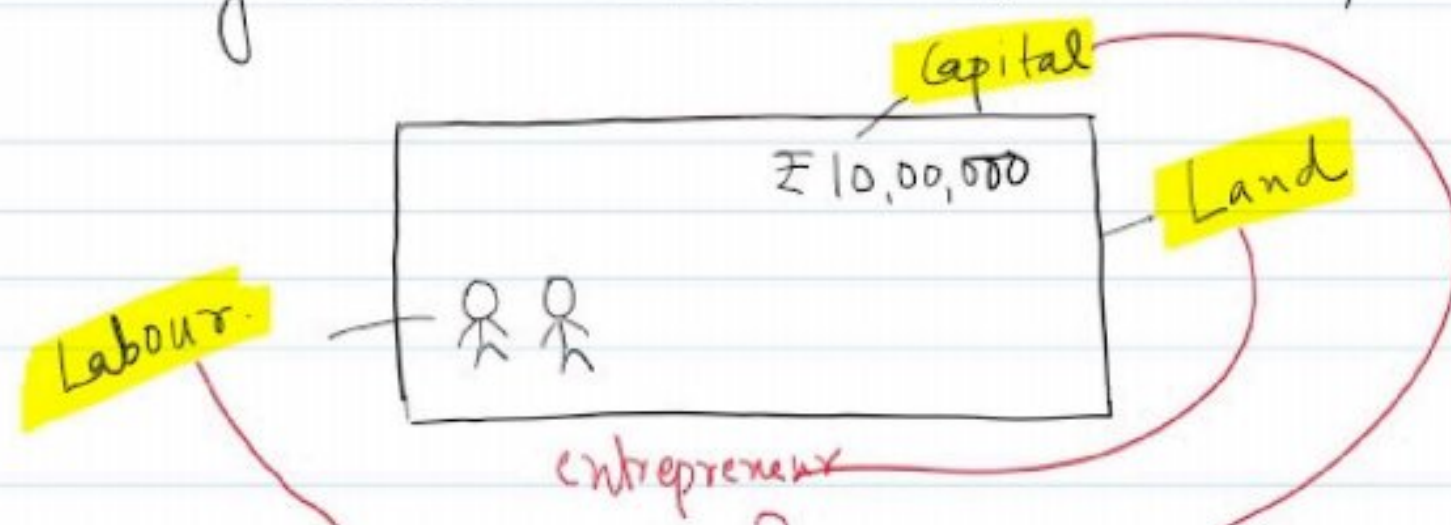
→ Stages of Capital formation

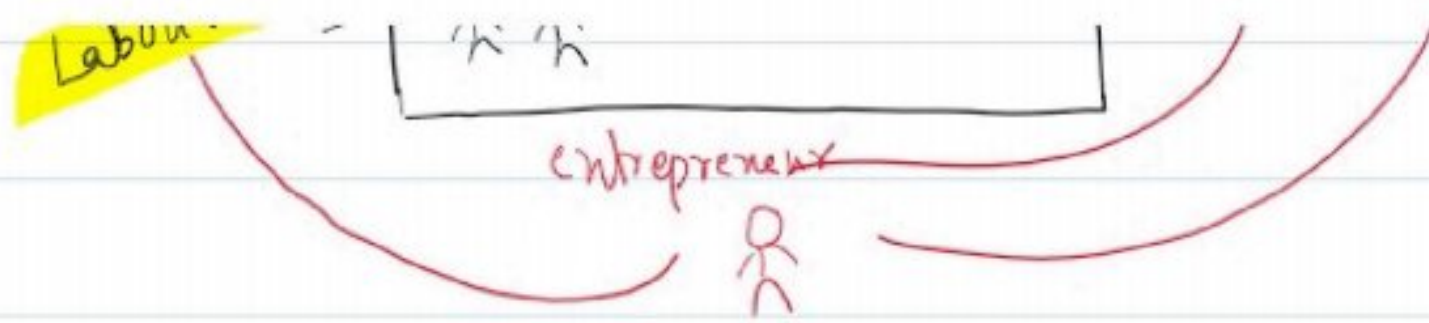


D. ENTREPRENEUR

(Organiser OR Manager OR Risk Taker)

Who mobilises the above three factors (i.e. land, labour, Capital)





→ He **initiate** the business and takes **Risk**
 and bears **uncertainty**
 ↓
 Unforeseen
 ↓
 Foreseen

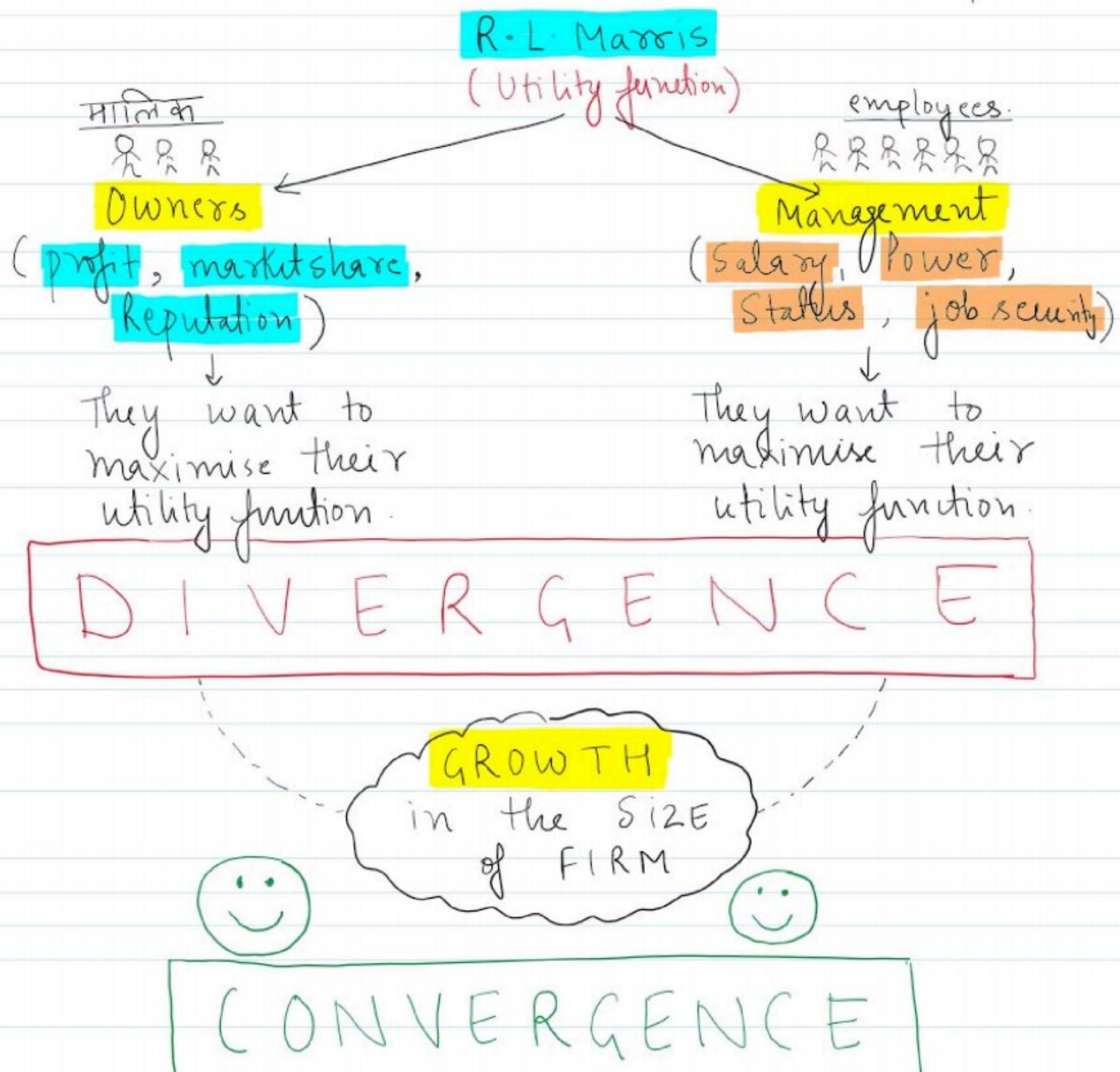
→ **Schumpeter** - **INNOVATION** is the
 main function of entrepreneur.

→ **Frank Knight** - **Profit** is the reward
 of Bearing "Uncertainties"

→ Enterprise Objectives

① **Organic Objective**

• पैसे Survival फिर Growth & Expansion



CONVERGENCE

(2) Economic objective

PROFIT MAXIMISATION

profit π or ϵ ??

Details
in
cost
chapter

Accounting profit :- Total Revenue (-) Explicit cost

Economic profit :- Total Revenue (-) Economic cost

H A Simon	Baumol's theory	AA Berle & GC Means (Williamson's theory)	Cyert + March
Only Reasonable profit.	SALES Maximisation	Managers want to enjoy discretionary powers	profit (+) production goals (+) Inventory goals (+) Sales goals (+) Market share goals.

(iii) Social objectives

- Un adulterated goods.
- Avoid anti social practices

(iv) Human objectives

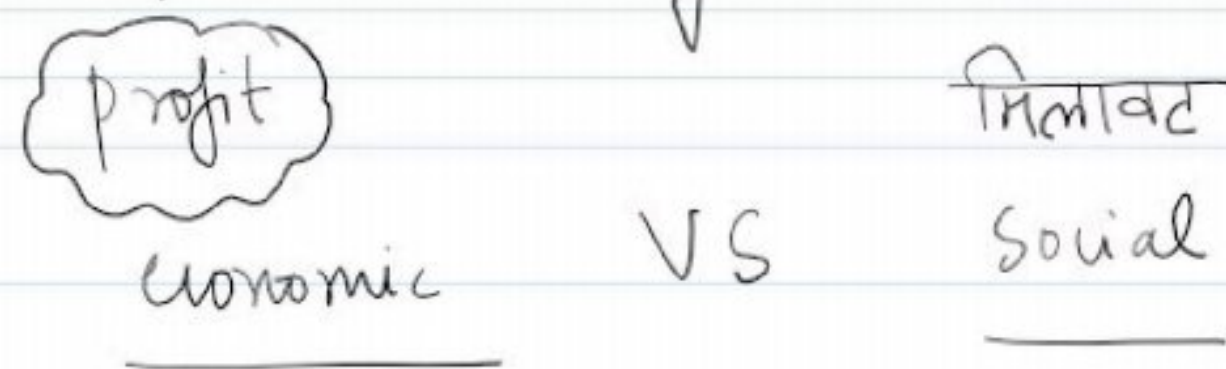
- fair deals to employees
- develop new skills & abilities

(v) National objectives

- Remove inequality
- help the country to become self sufficient

→ help the country to become self sufficient

* Various objectives may **CONFLICT** with each other.

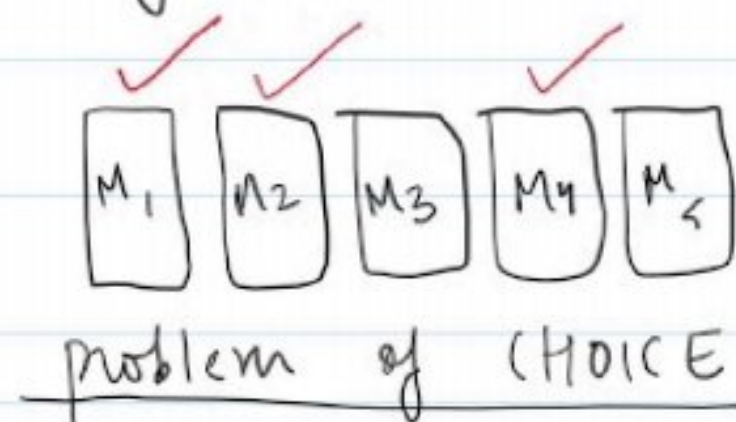


→ Enterprise Constraints (संकीर्ण)

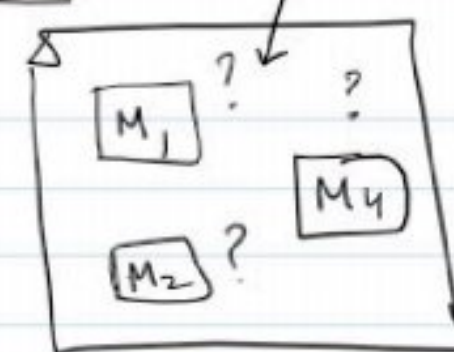
- Lack of **Knowledge + information** (संकीर्ण)
- Restrictions imposed by state in public Interest
- Infrastructural inadequacies
- **Changes** in Business & economic Conditions
- Events - Interest Rates, Inflation etc

→ Enterprise PROBLEMS

- Problems relating to objectives - objectives are multifarious (conflicting)
- Problem relating to location & size of plant
- Problem relating to physical facilities **selecting** & **organising**

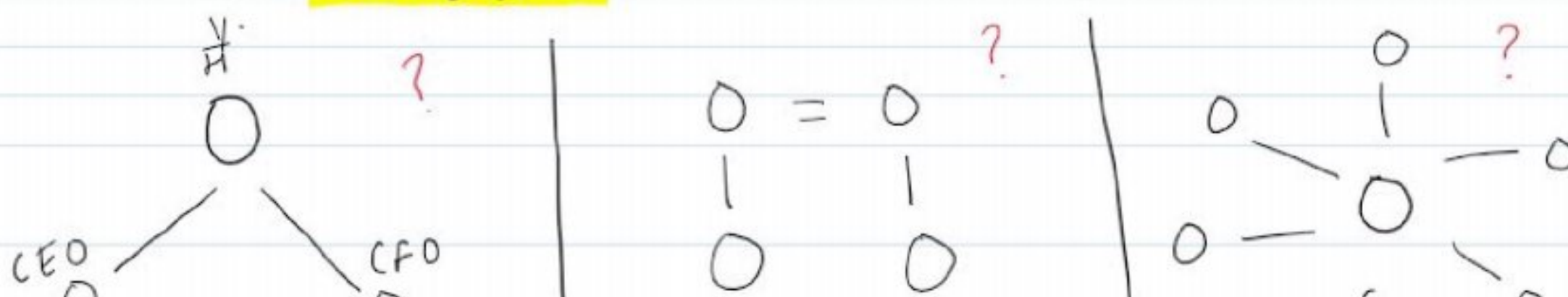


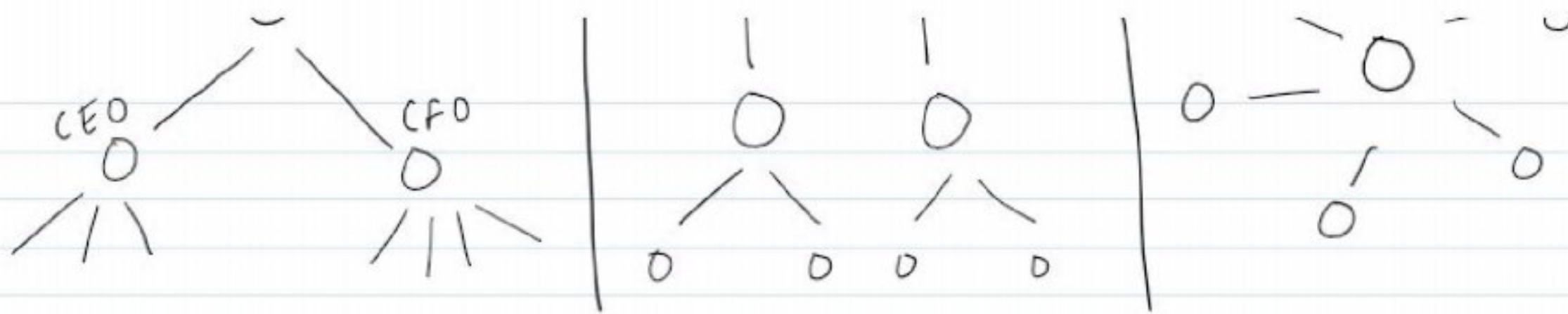
Machine.



- Problem relating to **FINANCE**
- Problem relating to **Organisation**
Structure

अपना पैसा ?
पराया पैसा ?





- Problem relating to **Marketing**

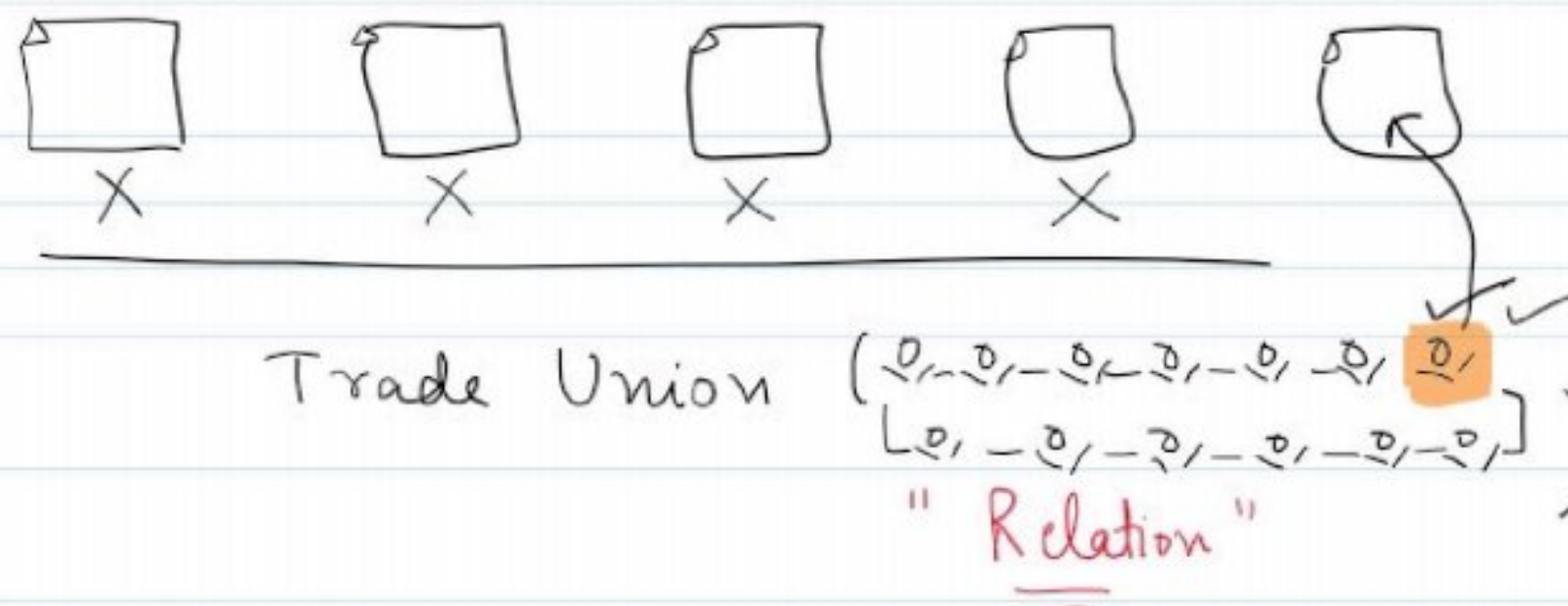
4 P_s

Price, Product,
Place, Promotion

- Problem relating to **legal** formalities

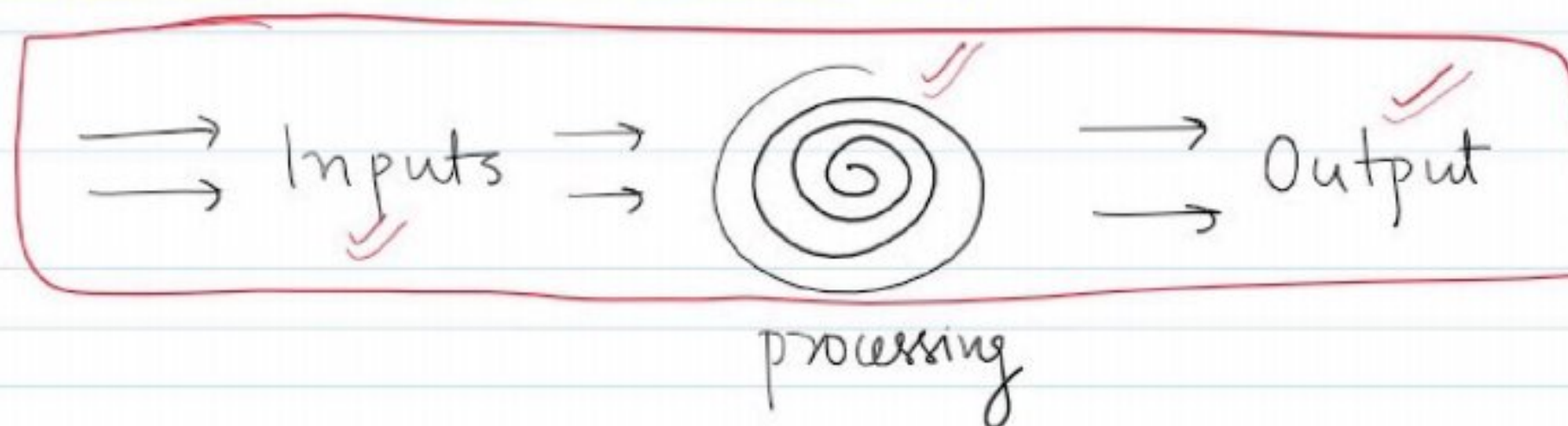
{ CA + CS + Lawyer + MBA }

- Problem relating to **Industry Relations**



x — x — x — x — x — x

③ **PRODUCTION FUNCTION**



$$Q = f(F_1, F_2, F_3, \dots, F_n)$$

Desired
Output

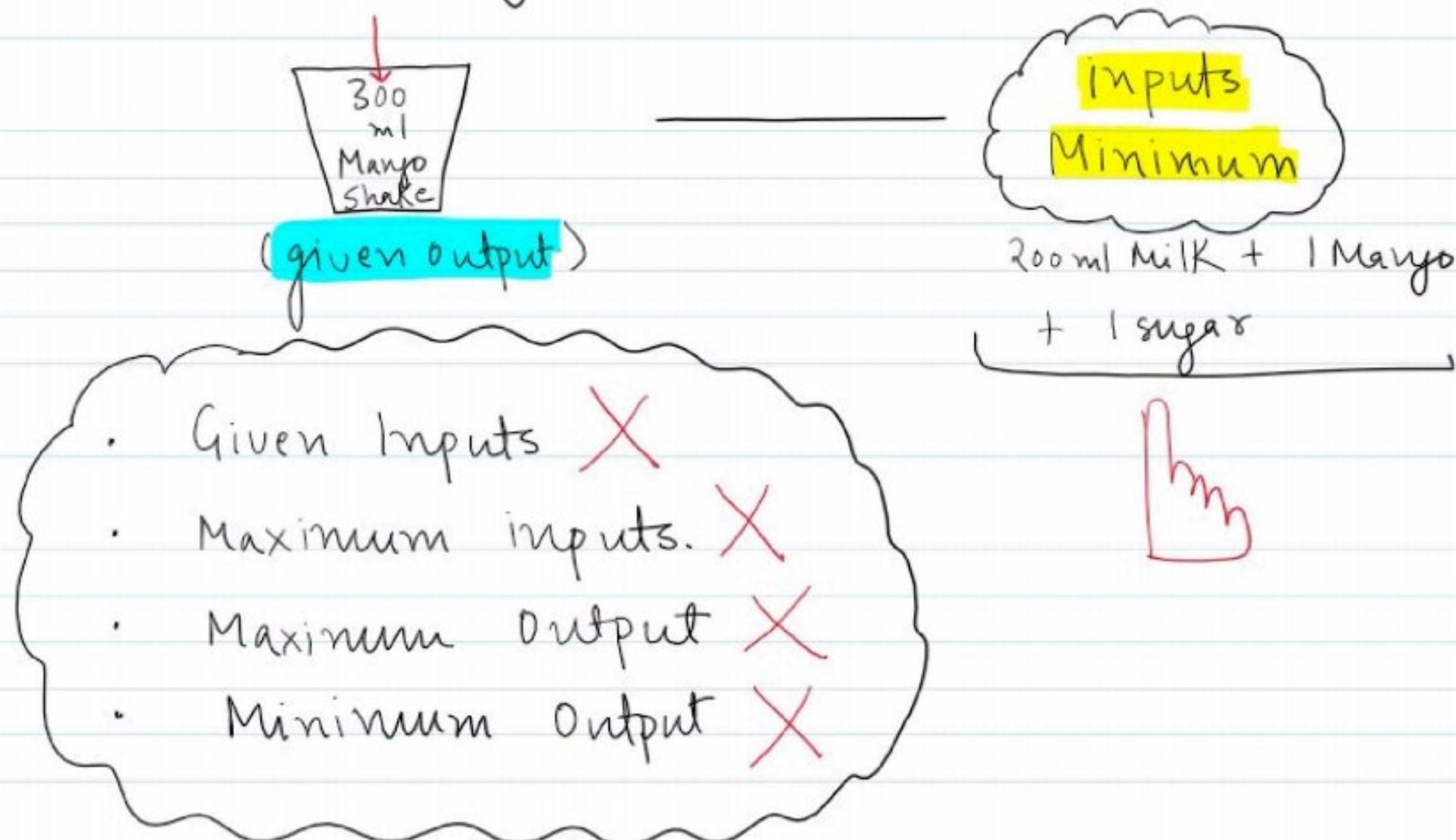
Factor
Inputs.

Mango
shake

$$= f(\text{Milk, Mango, Sugar, Ice, Cream, } \dots)$$

→ **R** Basically it can be defined as **minimum**

→ ^(R) Basically it can be defined as **minimum quantities** of various inputs that are required to yield **given output**

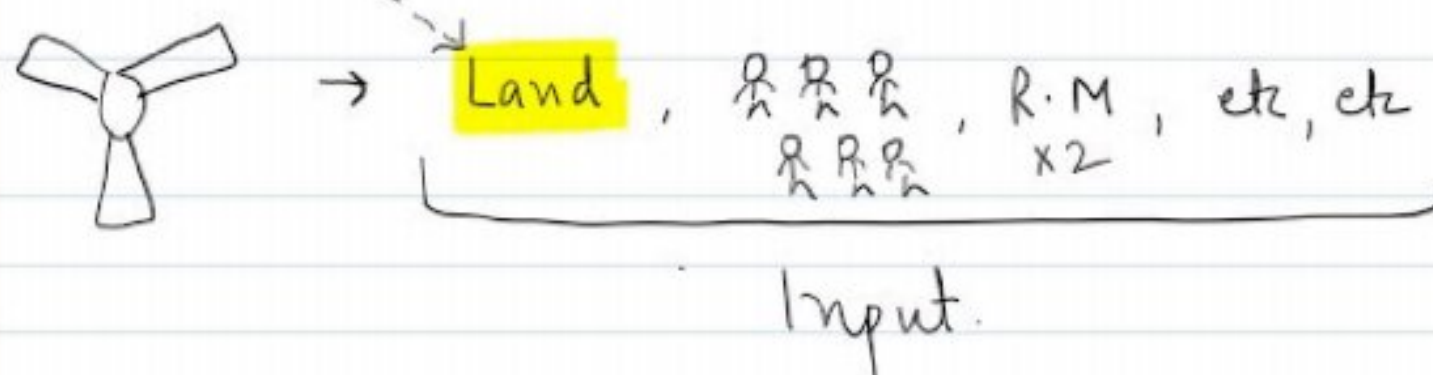


→ Assumptions :-

- The above relationship is for **specific time period** "only"
- **Technology** remains **constant**
- In the production function we **assume** that "given output" is **Maximum**

→ **Short Run** (Short period)

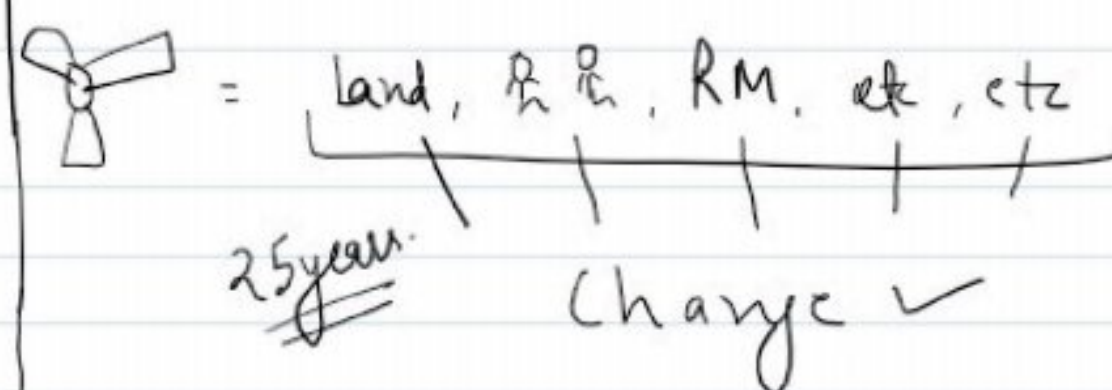
- Atleast 1 input is **FIXED** ^{Factor}
- Other inputs are variable



Returns to **FACTOR**

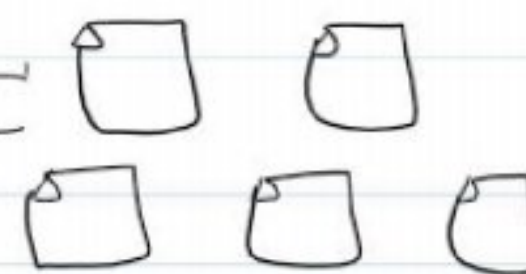
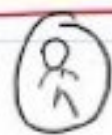
Long Run (Long period)

- All inputs are variable. **(NO FIXED INPUT)**



Returns to **SCALE**

→ Paul H Douglas and C. W. Cobb



Manufacturing Industries

<u>Capital</u> (Machine)	<u>Labour</u>
	
25%	75%
(one fourth)	(three-fourth)

Cobb - Douglas Production Function.

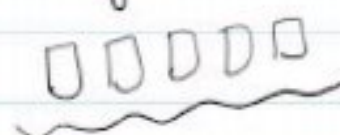
$$Q = K \cdot L^a \cdot C^{(1-a)}$$

Output
Labour
Capital

K, a are positive constants

* Total Product (TP) *

→ Total output produced with the use of given inputs.



→ $TP = AP \times N$

→ $TP = \sum MP$

* Average Product (AP) *

$$AP = \frac{TP}{N}$$

* Marginal Product (MP) *

→ It is the additional product with given

* Marginal Product (MP) *

→ It is the additional product with every additional unit of variable input
(Labour)

$$\rightarrow MP = \frac{\Delta TP}{\Delta N}$$

→ MP is SLOPE of TP

* N = No. of Variable Inputs (मजदूरों की संख्या)

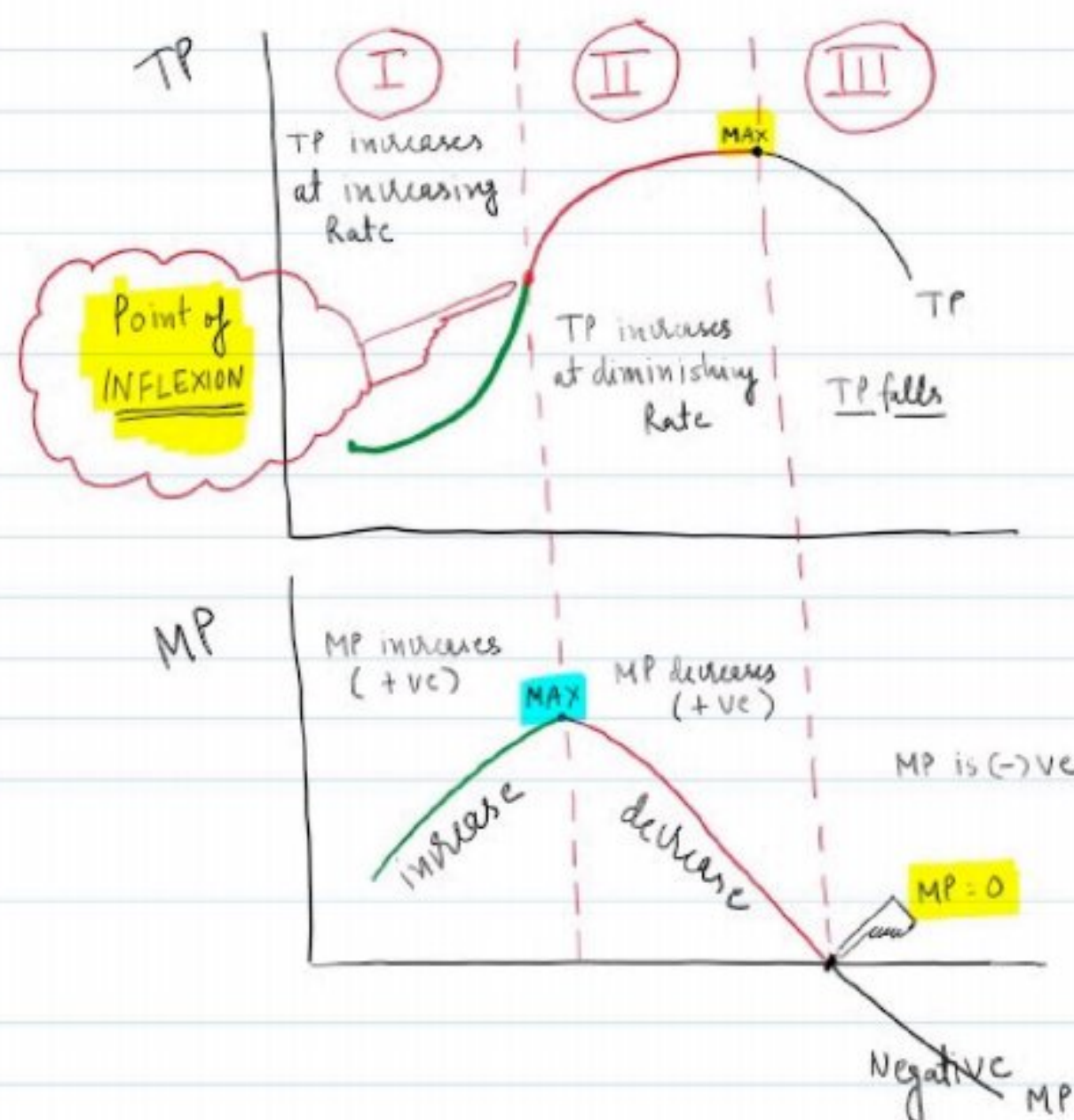
SHORT RUN

Stage I

Stage II

Stage III

Fixed Input (LAND)	Variable Input (Labour)	Total Product (TP)	Average Product (AP)	Marginal Product (MP)
1	0	0	0	0
1	1	4	4	+4
1	2	10	5	+6
1	3	18	6	+8
1	4	24	6	+6
1	5	28	5.6	+4
1	6	30	5	+2
1	7 (Max)	30	4.2	0
1	8 (Dist)	28	3.5	(-) 2
1	9	24	2.6	(-) 4
1	10	20	2	(-) 4



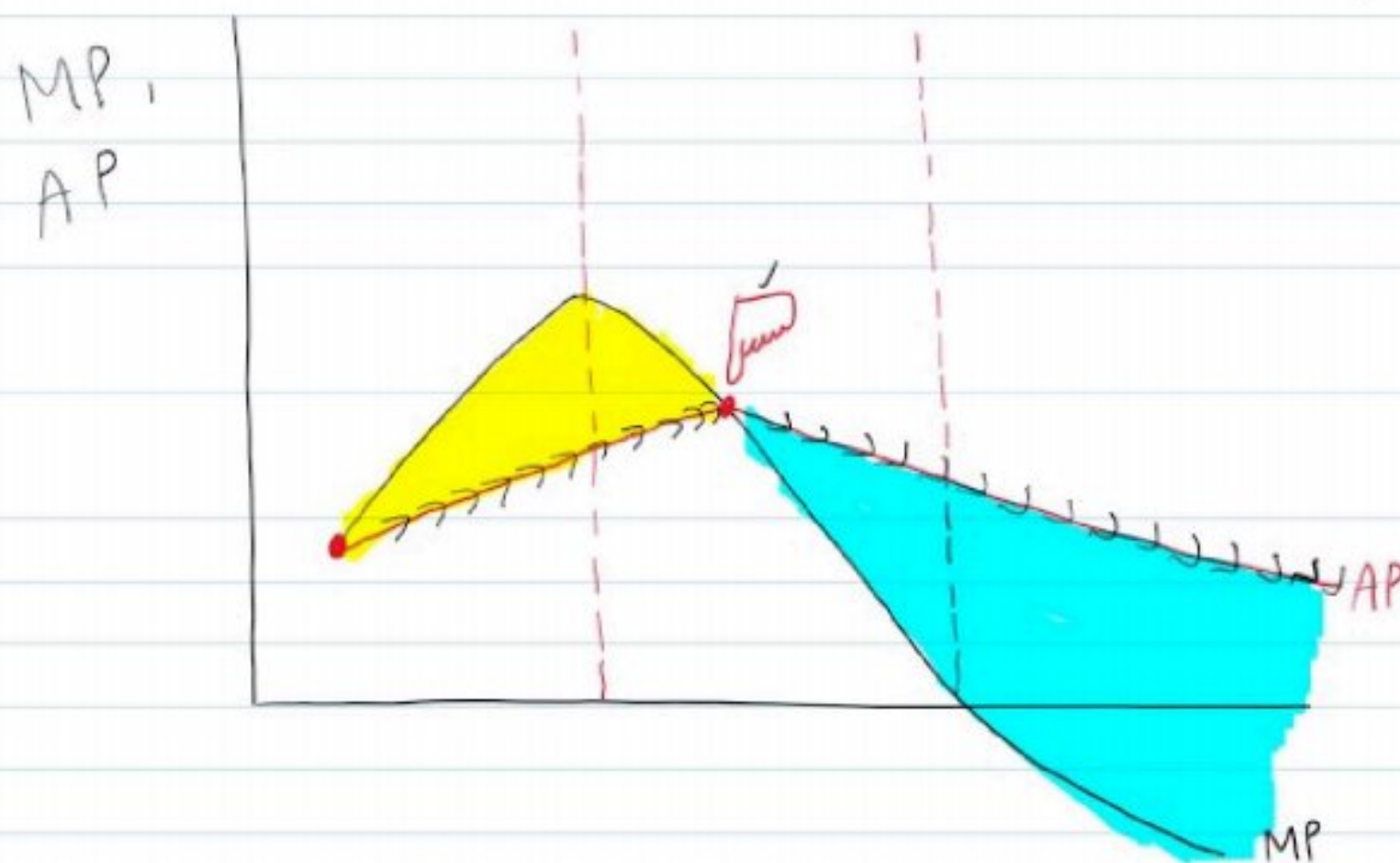
(i) When TP increases at increasing rate then MP is (+)ve and increasing.

(ii) When TP increases at diminishing rate then MP is decreasing (but positive)

MP is decreasing (but positive)

(iii) When TP is Maximum then MP is Zero

(iv) When TP falls then MP is Negative



- (i) When $MP > AP$; AP rises
- (ii) When $MP < AP$; AP falls
- (iii) When $MP = AP$; AP MAXIMUM

Law of Variable Proportion (Short Run)

Stage I :- Increasing Returns to Factor

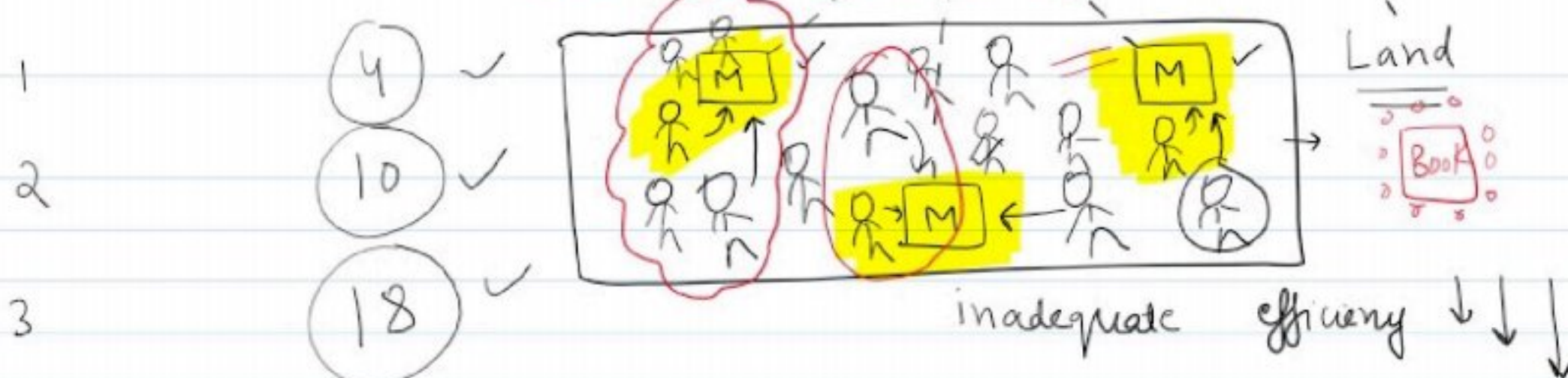
→ TP increases at increasing rate

→ MP increases and reaches maximum

(Point of Inflection)

Reasons for Stage I

- Specialisation
- "Indivisibility" of Factors
- Efficiency of Fixed Factors :-)



Stage II :- Diminishing Returns to Factor

→ TP increases at diminishing rate

→ MP falls and reaches Zero.

→ TP also reaches its Maximum

→ MP falls and reaches Zero.

→ TP also reaches its Maximum.

* → After point of Inflection, fixed factors become inadequate i.e. loss of efficiency

Stage III :- Negative Returns to factor

→ TP falls

→ MP becomes negative

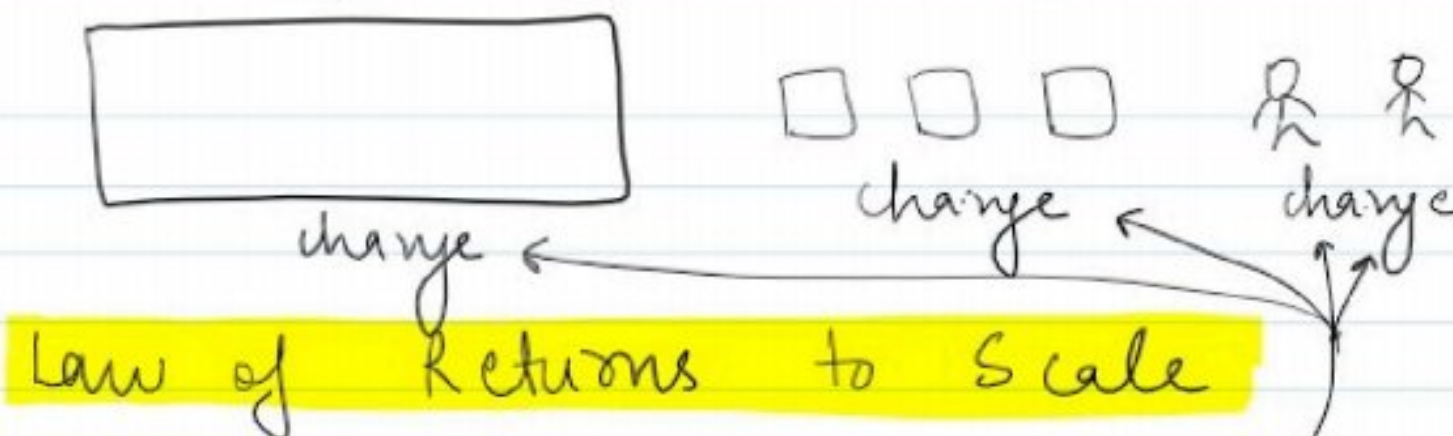
* → Quantity of variable factor (i.e. labour) becomes "too excessive" relative to fixed factor. (Poor coordination)

* Rational Producer will "always produce" in STAGE - 2 (because TP is MAXIMUM)

* Stage 1 & Stage 3 are stages of Economic Absurdity (NonSense)

LONG RUN

(ALL factors are Variable)



→ Change in scale means that, all factors of production are increased/decreased in Same proportion

eg	Inputs	Output
L = Labour	1L + 2K	100 units
K = Capital	2L + 4K	220 units
	4L + 8K	480 units
	8L + 16K	740 units
	16L + 32K	900 units
	32L + 64K	1040 units
	64L + 128K	1100 units

$32L + 64K$	1040 units
$64L + 128K$	1100 units

* In long run there are 3 stages of production

(i) **Stage I** : **Increasing Returns to Scale**

- TP increases at increasing rate
- MP increases

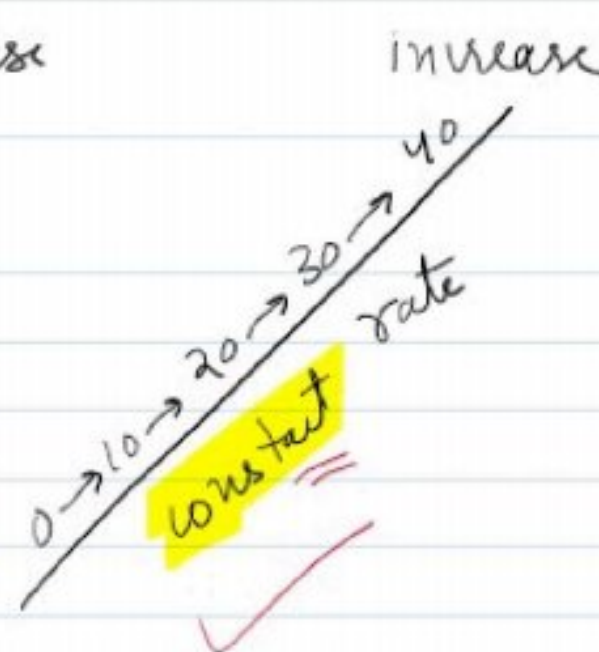
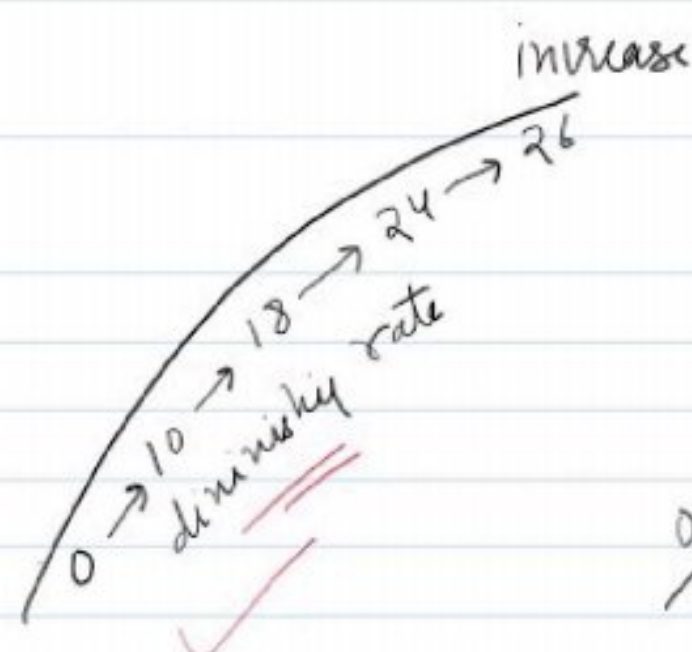
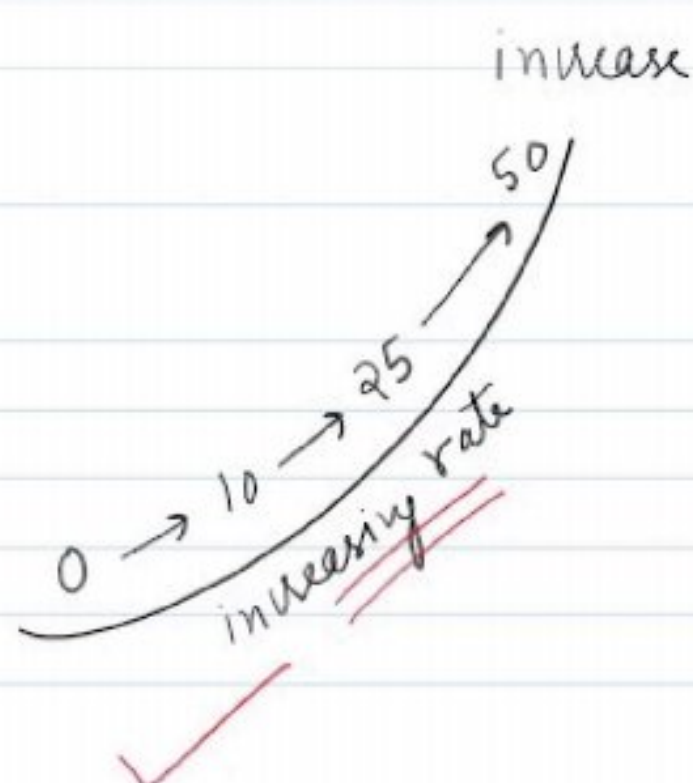
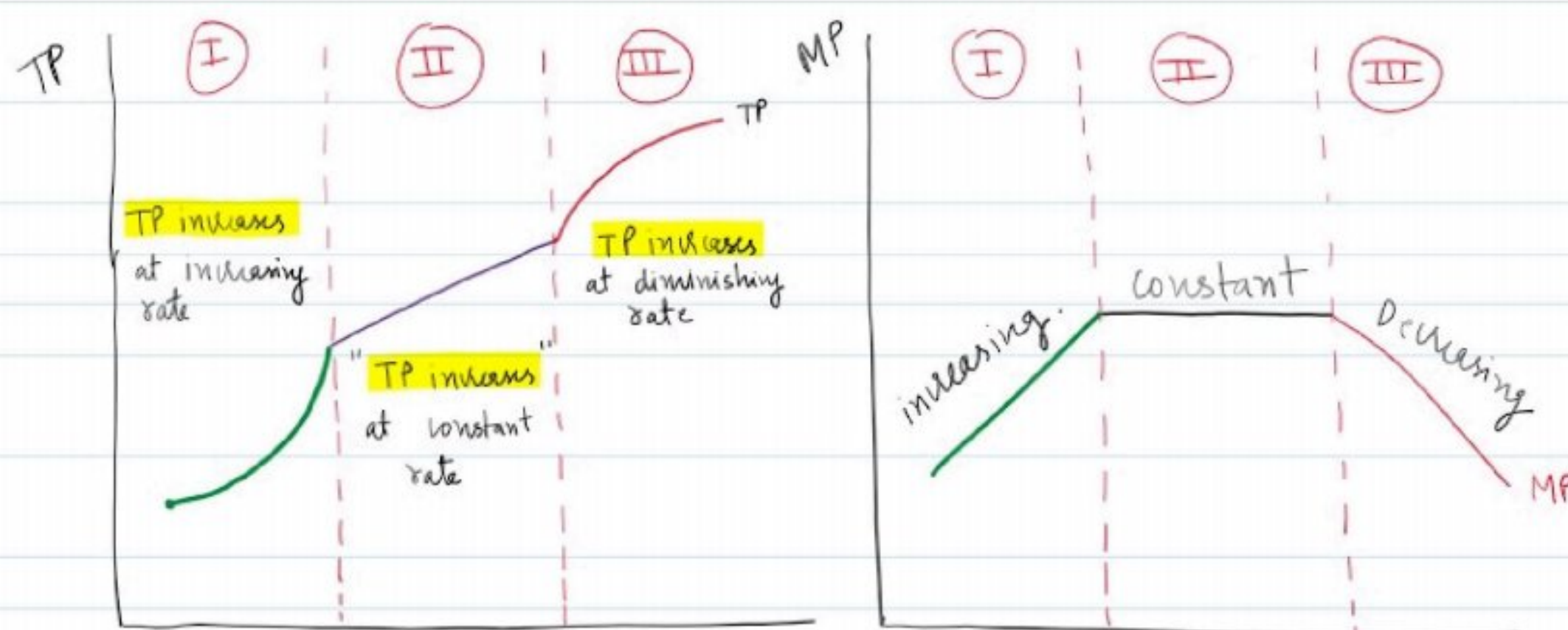
(ii) **Stage II** :- **Constant Returns to Scale**

- TP increases at constant rate
- MP is constant

(iii) **Stage III** :- **Decreasing Returns to Scale**

- TP increases at diminishing rate
- MP decreases.

NO Negative Returns in Long Run



* **Cobb & Douglas**

$$Q = K \cdot L^a \cdot C^b$$

$$Q = K \cdot L^a \cdot C^b$$

Output
Labour
Capital

K, a, b are positive constant

Increasing RTS : $a + b > 1$: % change in Output $>$ % change in all inputs
 (+25%) $>$ (+20%)

Constant RTS : $a + b = 1$: % change in Output $=$ % change in all inputs
 (+25%) $=$ (+25%)

Decreasing RTS : $a + b < 1$: % change in Output $<$ % change in all inputs
 (+25%) $<$ (+35%)

* **Constant Returns to Scale** is also known as

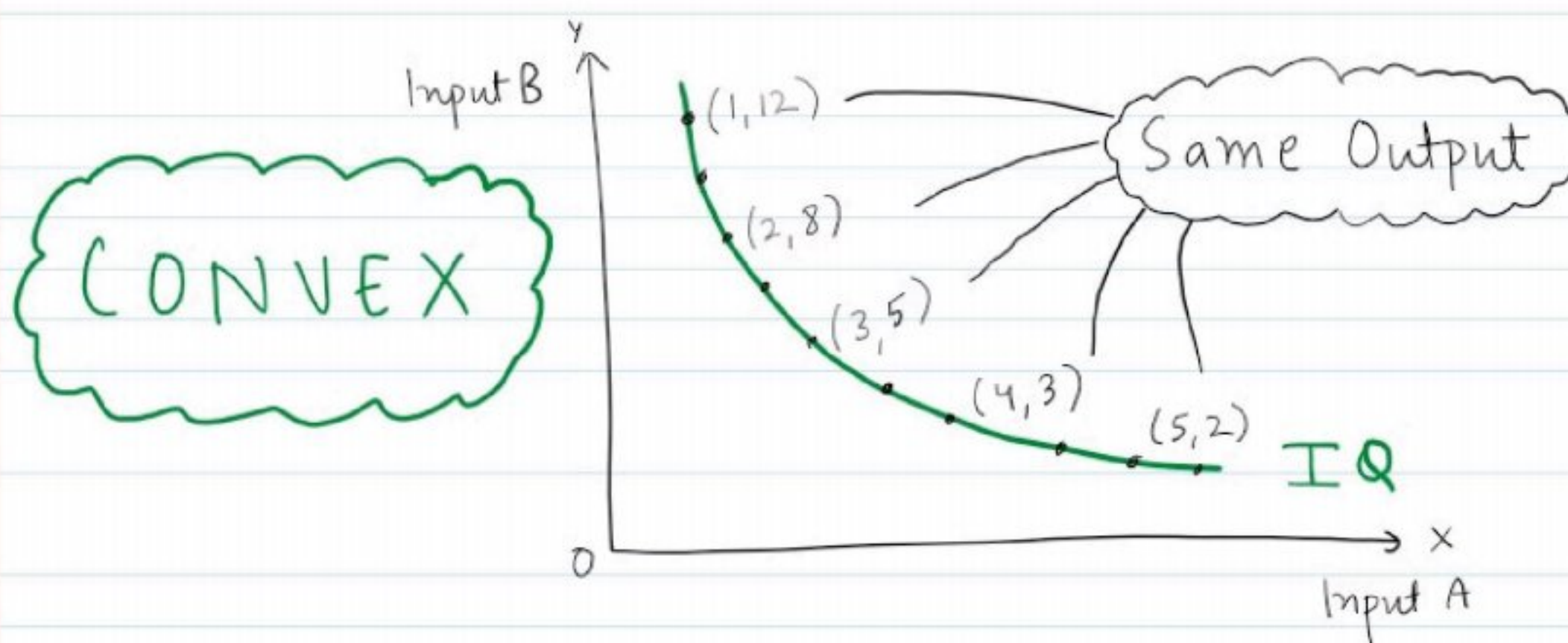
Linear Homogeneous production function

1st line
Rth Jett

* Product Optimisation *

① **Iso Quant curve** or **Equal Product Curve** or
Production Indifference Curve or **Iso Product Curve**

	Labour Input A	machine Input B	Output	Marginal Rate of Technical Substitution	MRTS
(1, 12)	1	12	100 units	-	
(2, 8)	2	8	100 units	4	
(3, 5)	3	5	100 units	3	
(4, 3)	4	3	100 units	2	
(5, 2)	5	2	100 units	1	



* Iso Quant is **convex** because of **Diminishing MRTS**

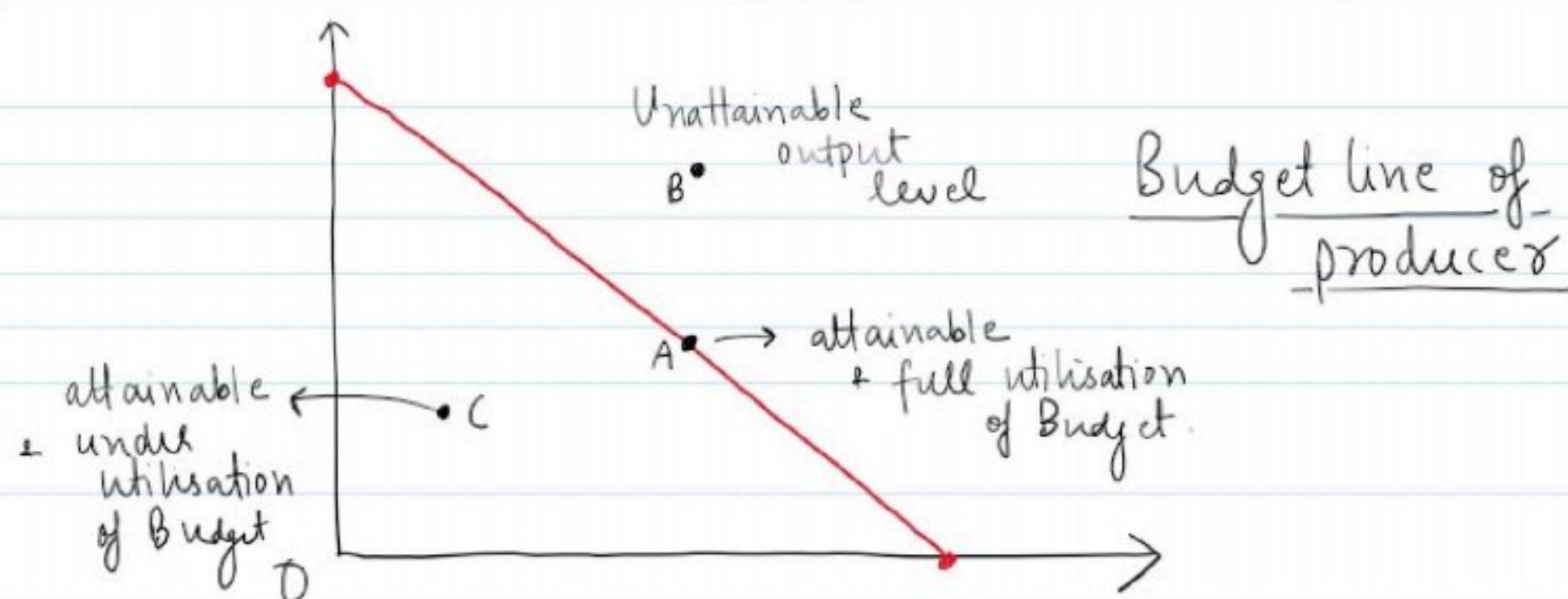
↳ MRTS is the **SLOPE** of Iso-Quant

* Iso Quant is convex because of Diminishing MRTS

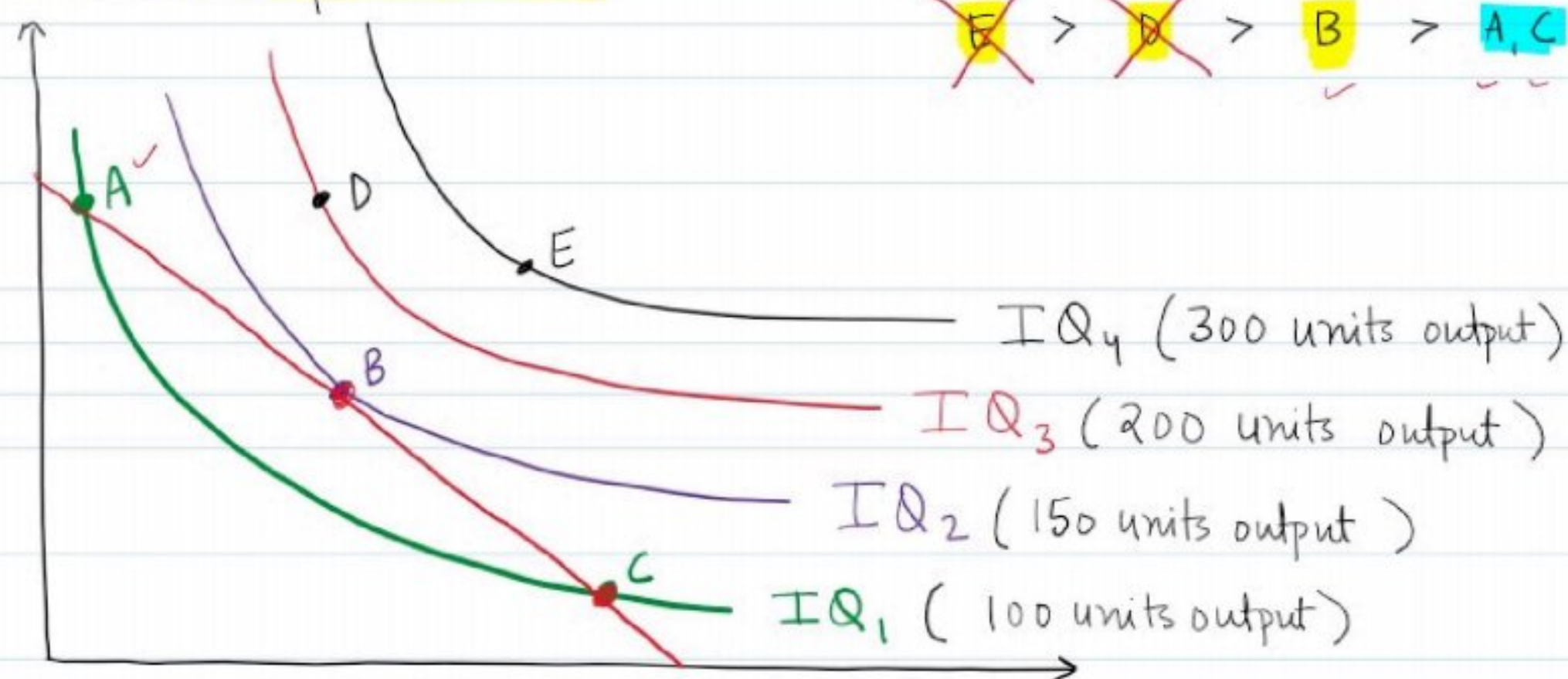
* MRTS is the SLOPE of Iso-Quant

$$\frac{\Delta \text{input sacrificed}}{\Delta \text{input gained}}$$

② Iso-cost OR Equal cost lines



③ Product optimisation



Point B is product optimisation Point. (✓)

x — x — x — x — x — x — x

Economics

CH-3 Unit 2

Theory of Cost

① ^{Imp.} Economic Cost and Accounting Cost

→ Accounting cost is the cost which is accounted for i.e. recorded in the books of account.
 Eg:- all payments made by firm. Eg- Rent paid, Salary paid etc. It is also known as Explicit cost.

→ Economic cost includes :-

a) Accounting cost +

→ Economic cost includes :-

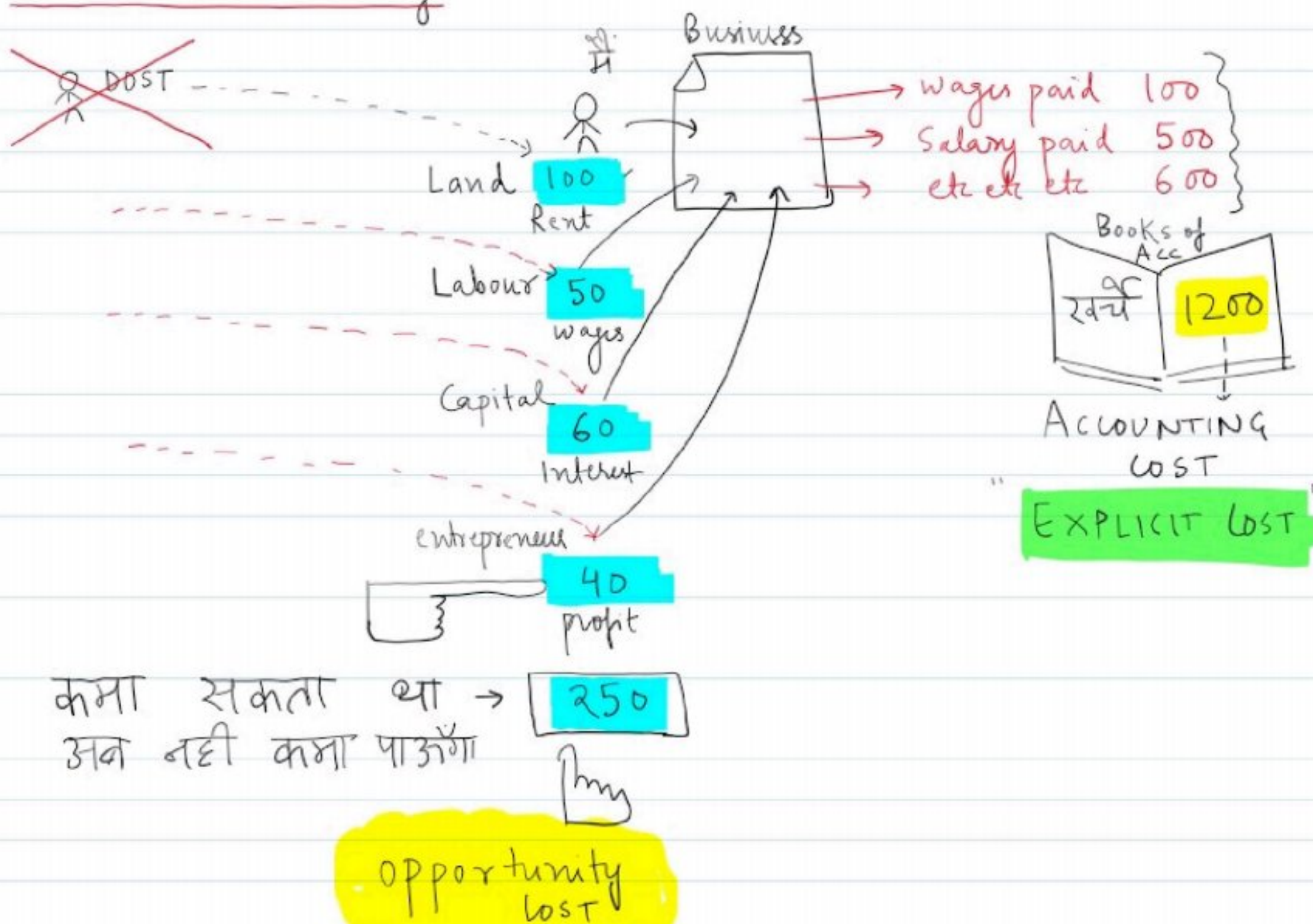
- Accounting cost
- Implicit cost.



→ Implicit cost :- Amount of money the entrepreneur could have been earned if he had invested his money & sold his money services in the next best alternative use. It includes normal profit also.

₹ 250

for own understanding



IMPLICIT COST

Link with
chapter
production

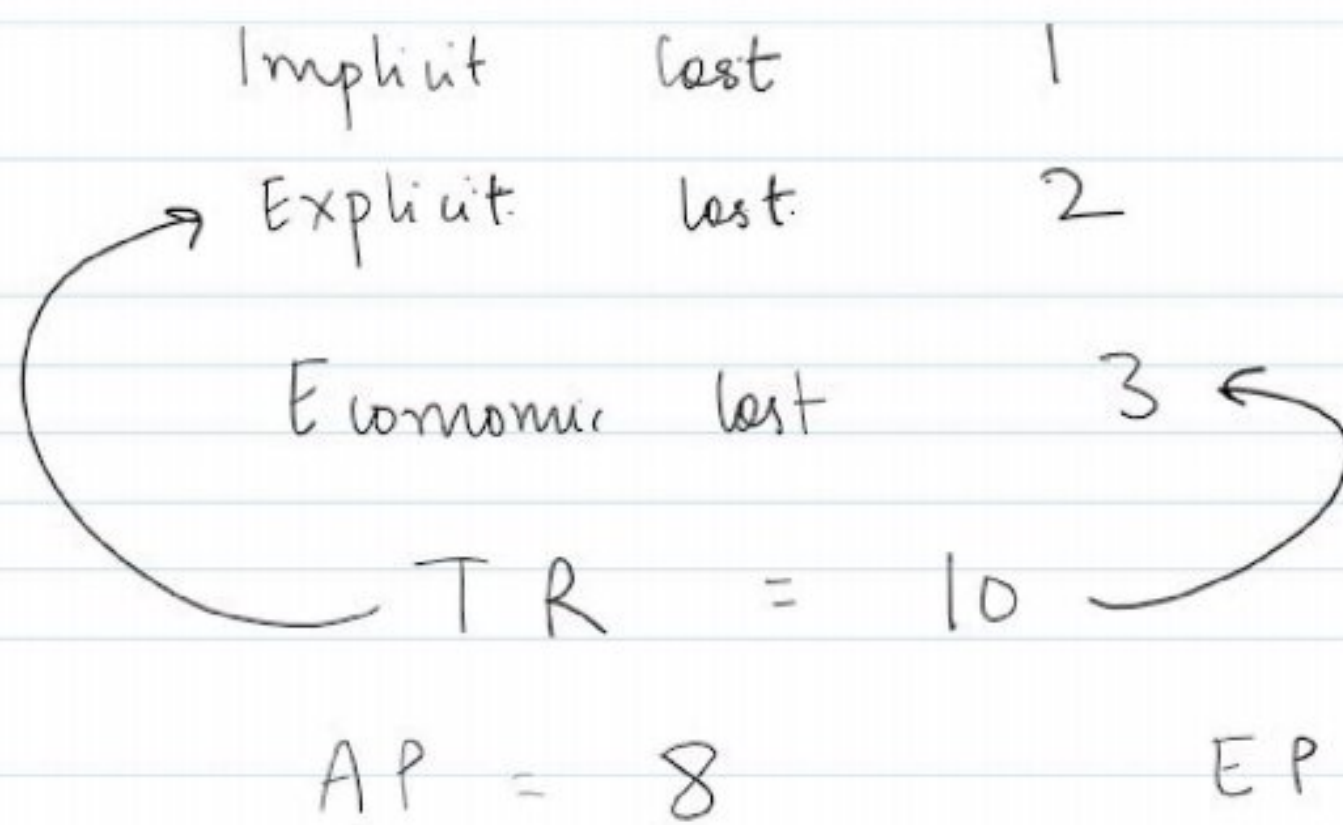
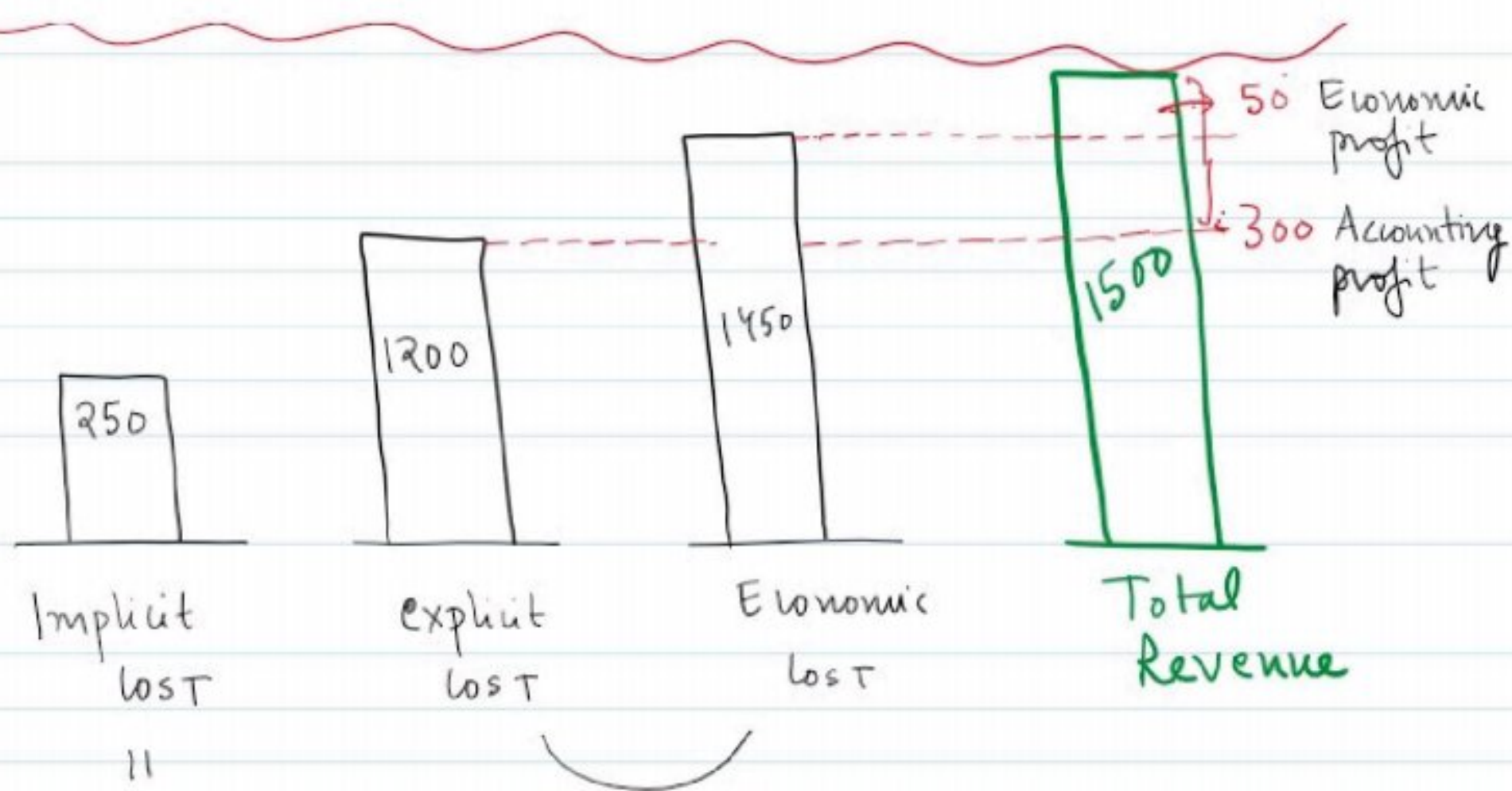
Accounting Profit = Total Revenue (-) Accounting cost

Economic Profit = Total Revenue (-) Economic cost

* Can AP > EP ? YES

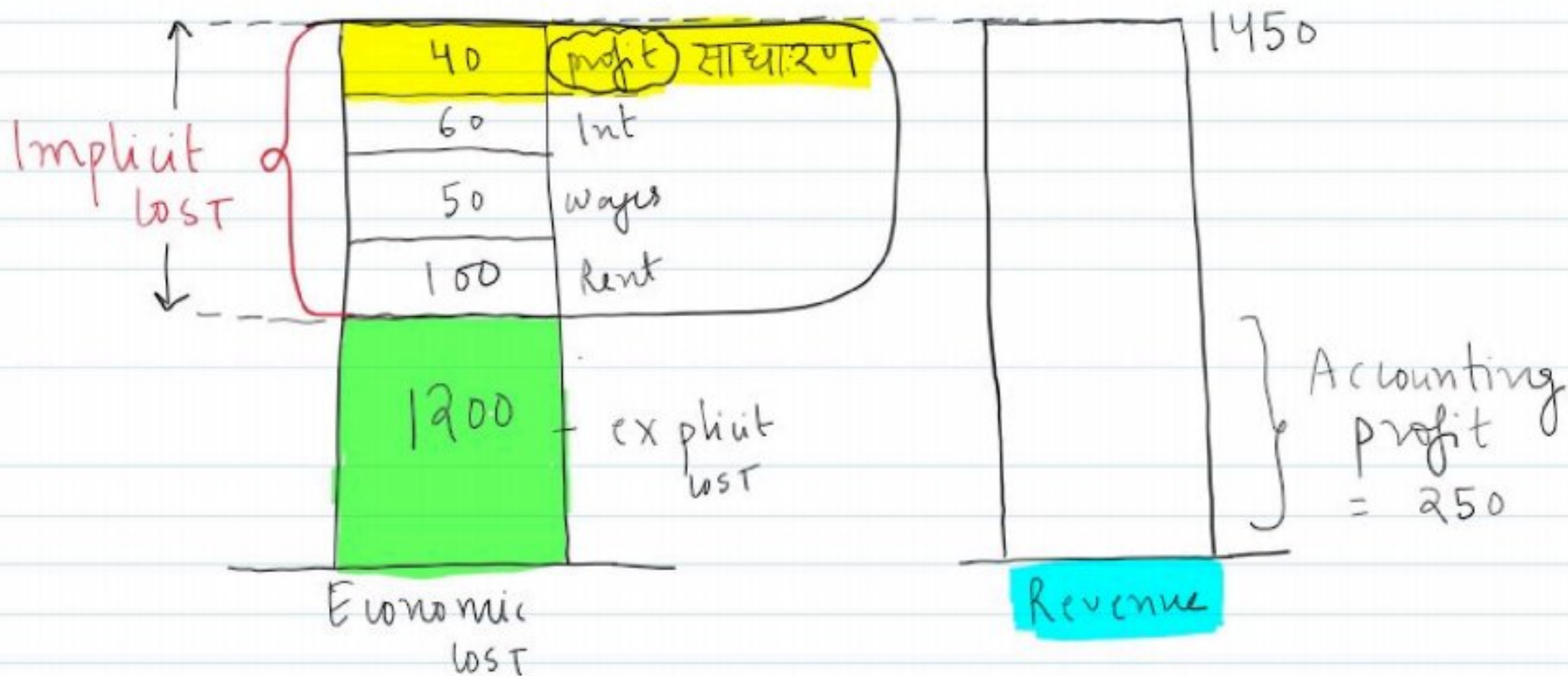
* Can EP > AP ? NO

50 Economic profit



② Normal Profit (No profit No Loss situation)

$$\text{Revenue} = \text{Economic Cost}$$



→ Here Economic Profit = Revenue - Economic cost

$$= 1450 - 1450$$

$$= 0$$

* When Economic Profit is zero then it is point of "Normal profit"

then it is point of "Normal profit"

3. Outlay lost vs Opportunity lost

actual lost
i.e. recorded
in Books
(**Explicit**)

lost of next
best alternative
foregone i.e. not
recorded in books.
(**Implicit**)

4. Direct lost vs Indirect lost

Traceable
which are easily
identified and traceable
to a particular good or
service
eg - Manufacturing lost

Non-Traceable
NOT easily identified
& traceable to a
particular good or
service eg - Advertis-
-ement

RM £50 + R £100 ways + etc 200 → product 350

5,00,00,000 Advertisement →

5. Historical lost vs Replacement lost

10,00,00,00,000
5 years bank.

Replace → 12,00,00,00,000
31st of value

6. Individual lost vs Social lost

Factory
air pollution
water pollution
wages £1000



(7)

Fixed cost

or

Variable cost

Does not change with change in Output

Rent

- SUNK COST
- Inescapable cost
- Uncontrollable cost
- OVERHEADS

vary with change in Output

Raw Material
Wages

- INCREMENTAL COST.

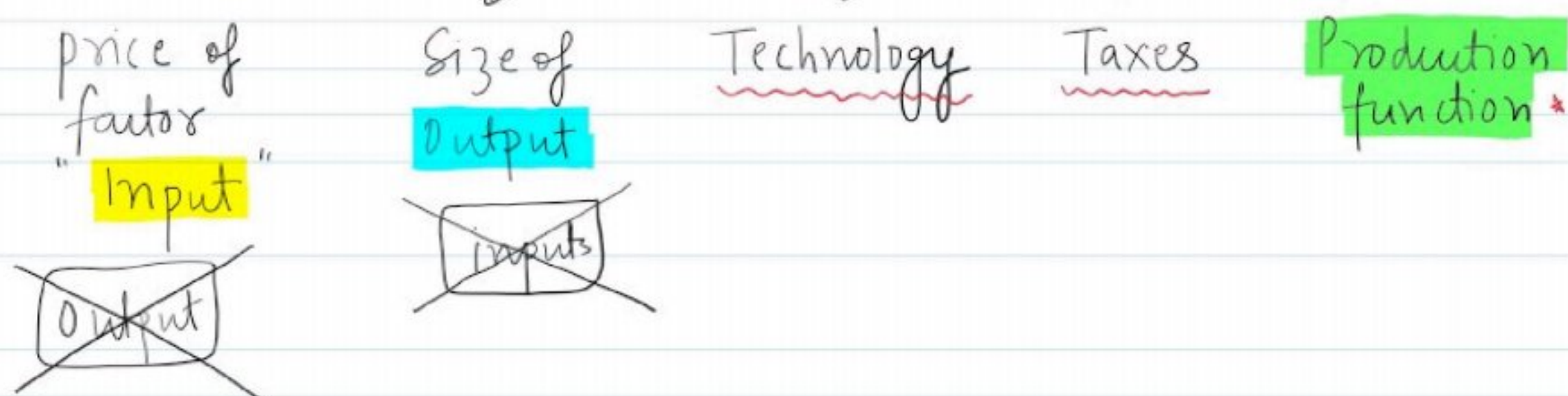
* COST FUNCTION *

→ It is a relation between cost of product and various determinants.

$$C = f(a, b, c, d, \dots, \infty)$$

↓
COST of product

Various factors



→ Types of cost function

Short Run

1

Long Run

Short Run
Cost function

TC, TVC, TFC,
AVC, AFC, AC
MC

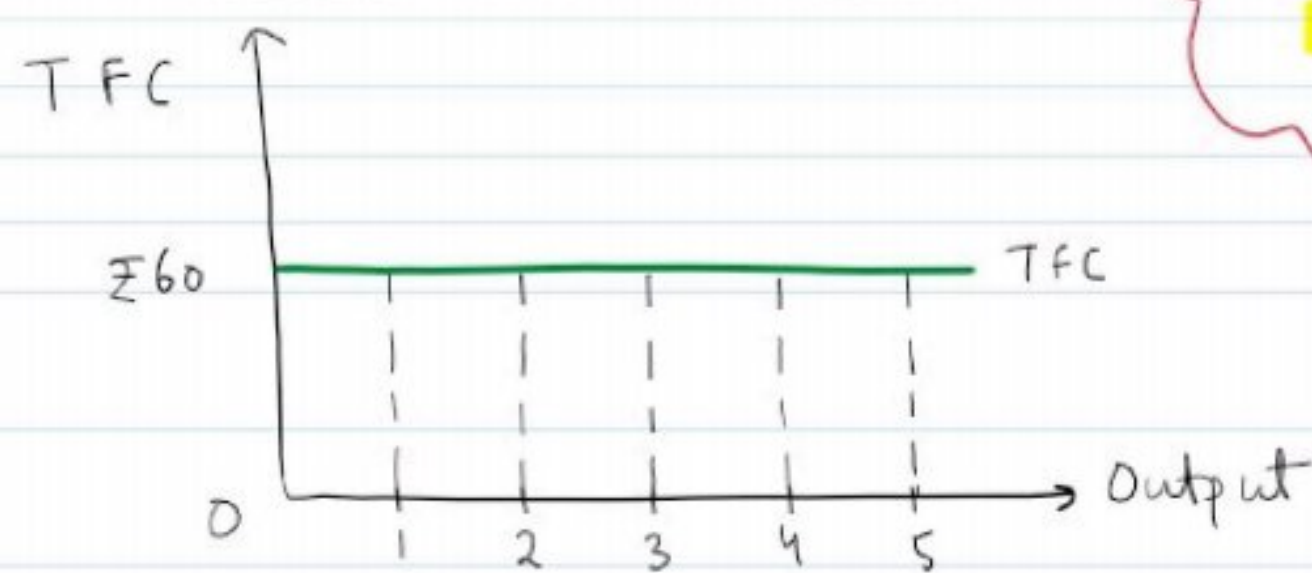
Long Run
Cost function

only LAC

→ Short Run costs

① Total fixed cost (TFC)

Output	TFC
0	60
1	60
2	60
3	60
4	60
5	60



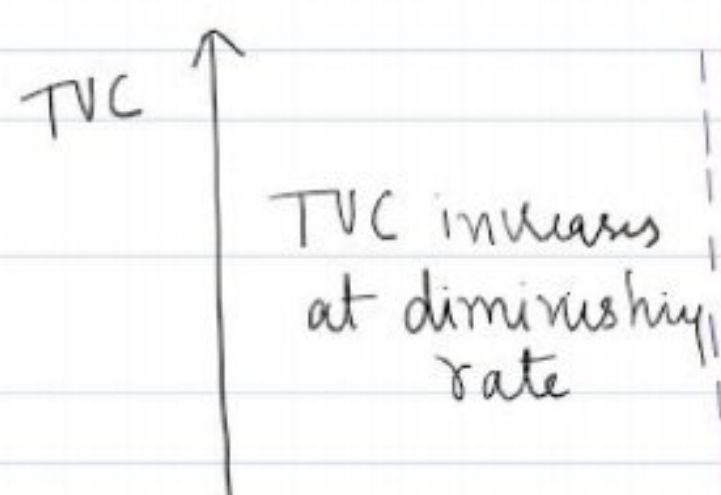
parallel
to x-axis

② Total Variable cost (TVC)

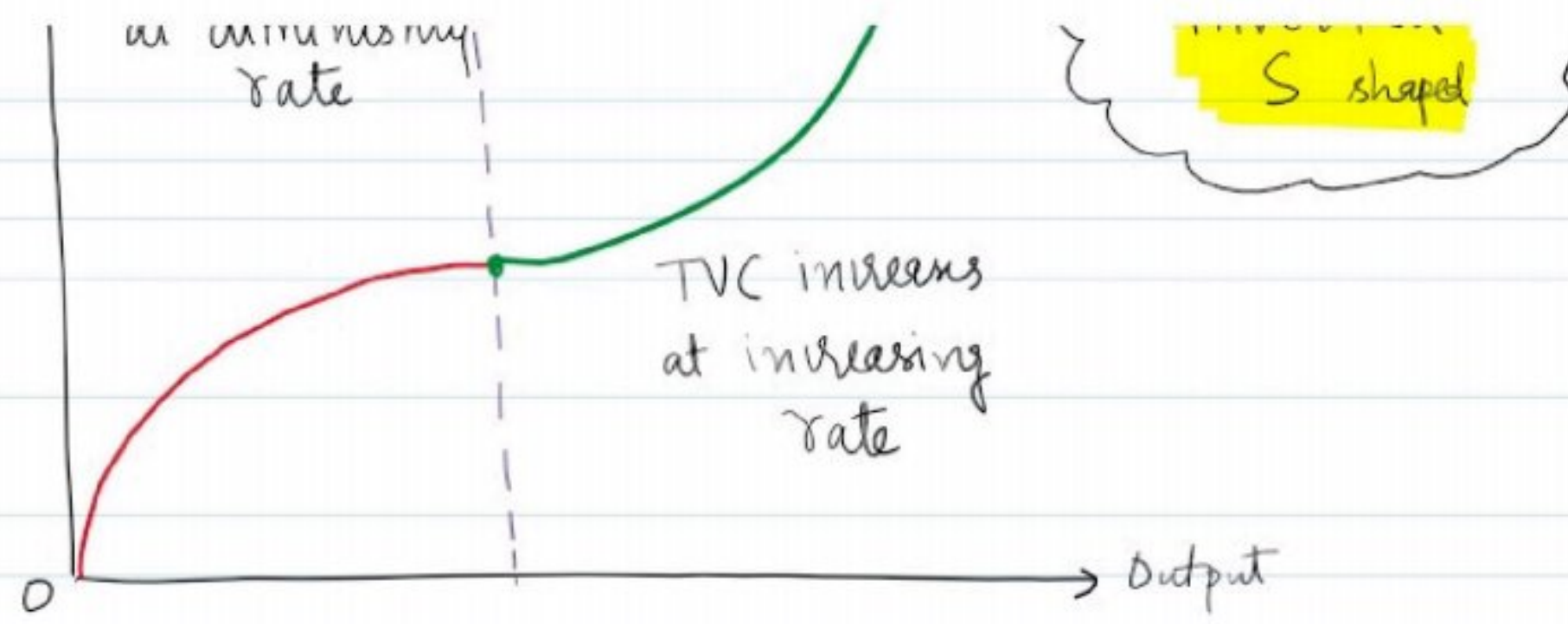
Output	TVC
0	0
1	10
2	18
3	24
4	28
5	40
6	55
7	80
8	150

Increasing at
diminishing
rate

Increasing at
increasing rate



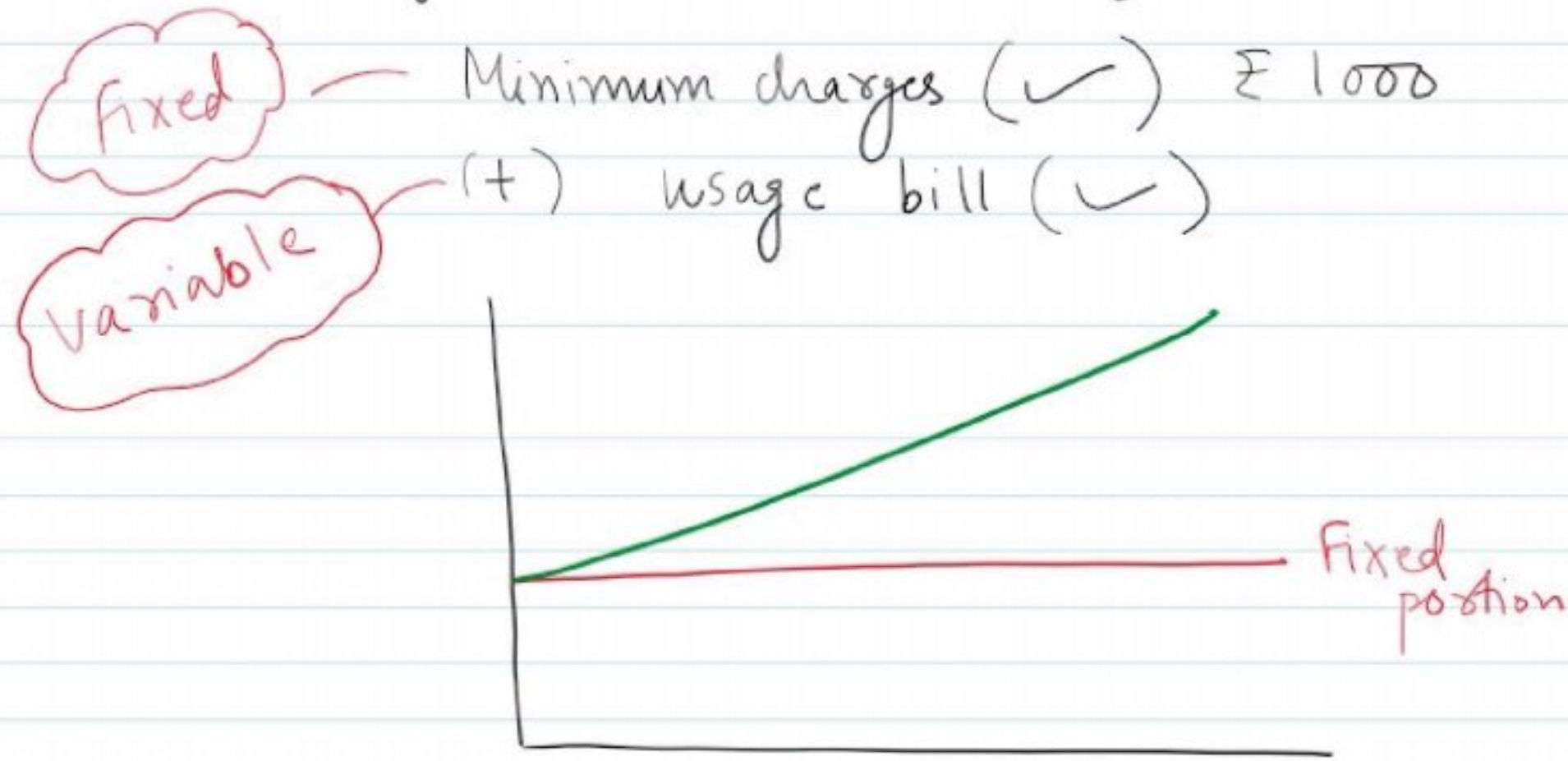
Inverted
S shaped



* Semi Variable Cost

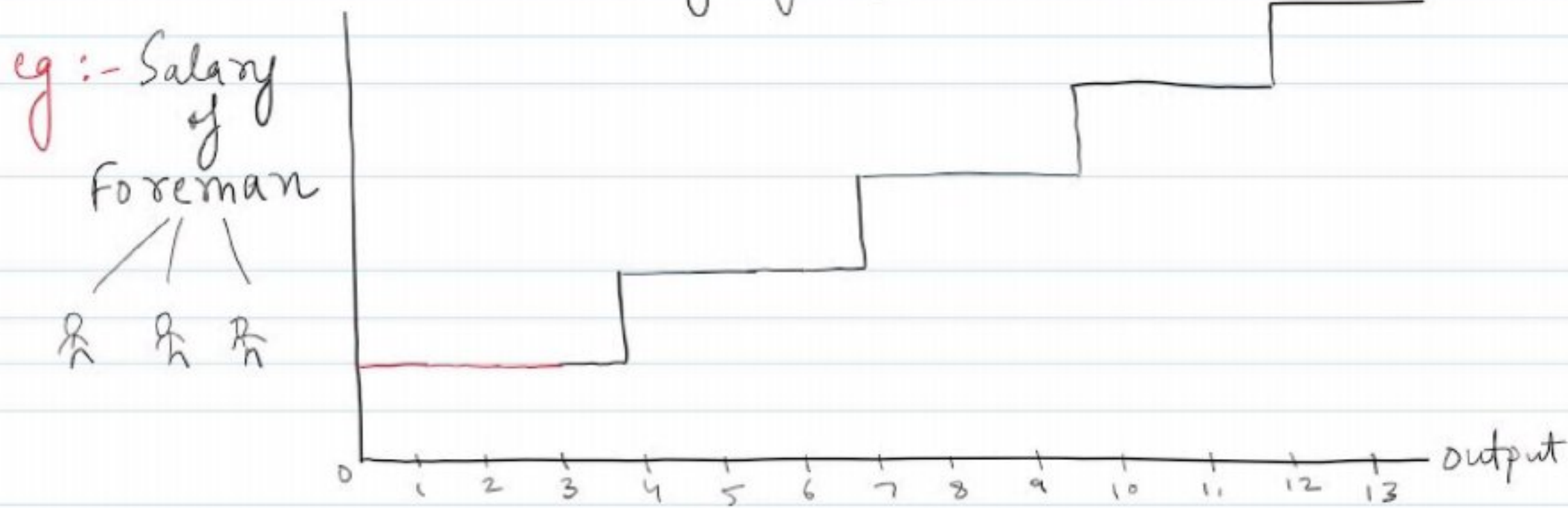
neither perfectly variable nor fixed.

Eg - electricity charges



* Stair Step Variable Cost

→ fixed over certain range of output, but suddenly jump with increase in output

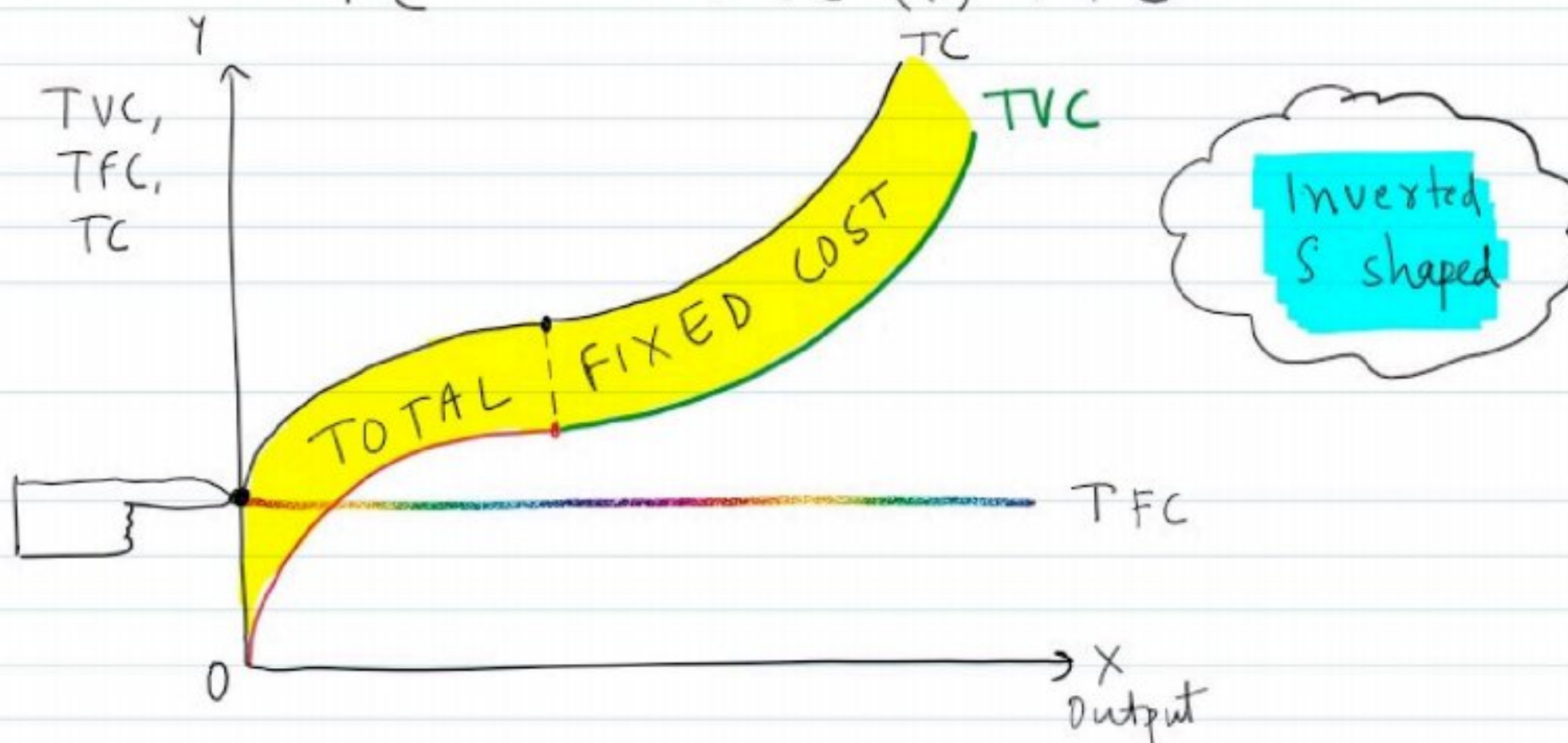


③ Total Cost (TC)

Output	TVC	TFC	TC
0	0	10	10
1	10	10	20
2	18	10	28
3	24	10	34
4	40	10	50
5	60	10	70

3	95	10	57
4	40	10	50
5	60	10	70
6	95	10	105

$$TC = TVC (+) TFC$$

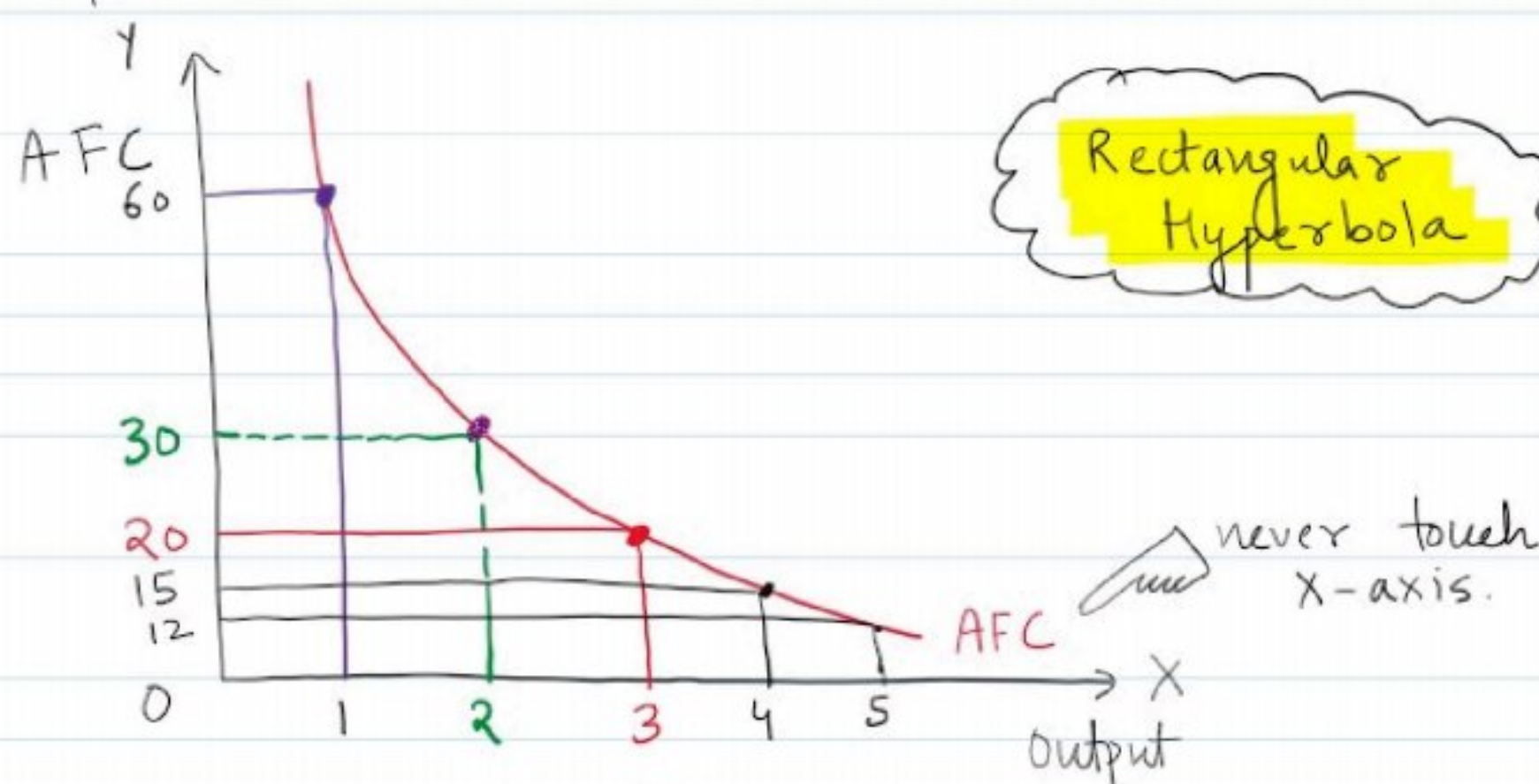


$$TC - TVC = TFC$$

④ Average fixed cost (AFC)

Output	TFC	AFC
0	60	-
1	60	60
2	60	30
3	60	20
4	60	15
5	60	12
6	60	10

$$AFC = \frac{TFC}{\text{Output}}$$



$$1 \times 60 = 60 \quad | \quad 30 \times 2 = 60 \quad | \quad 20 \times 3 = 60$$

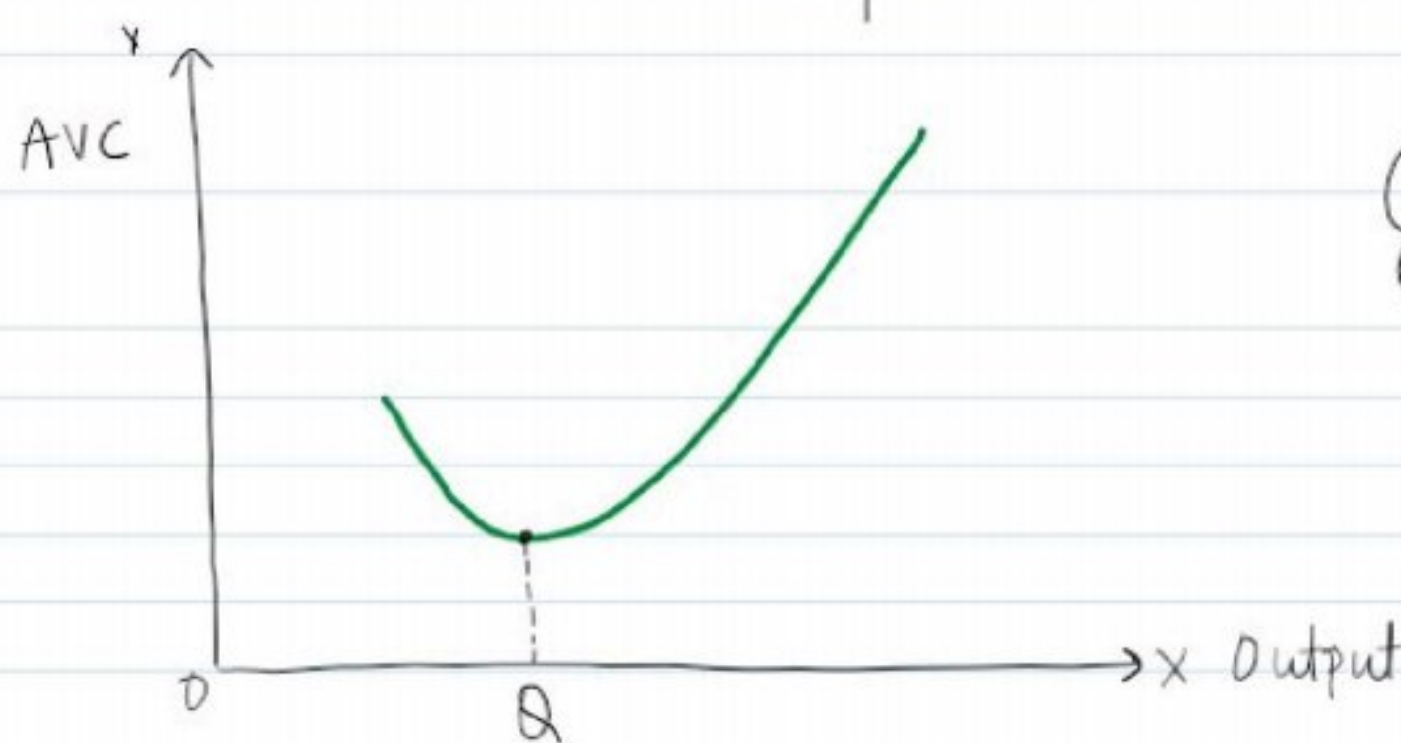
* AFC can never be zero (i.e. it will not touch x-axis) because TFC can never be zero.

Output	TFC
0	1
2	1
100	1
1000	1
100,000	1

$$AFC = \frac{1}{100} = 0.01$$

⑤ Average Variable Cost (AVC)

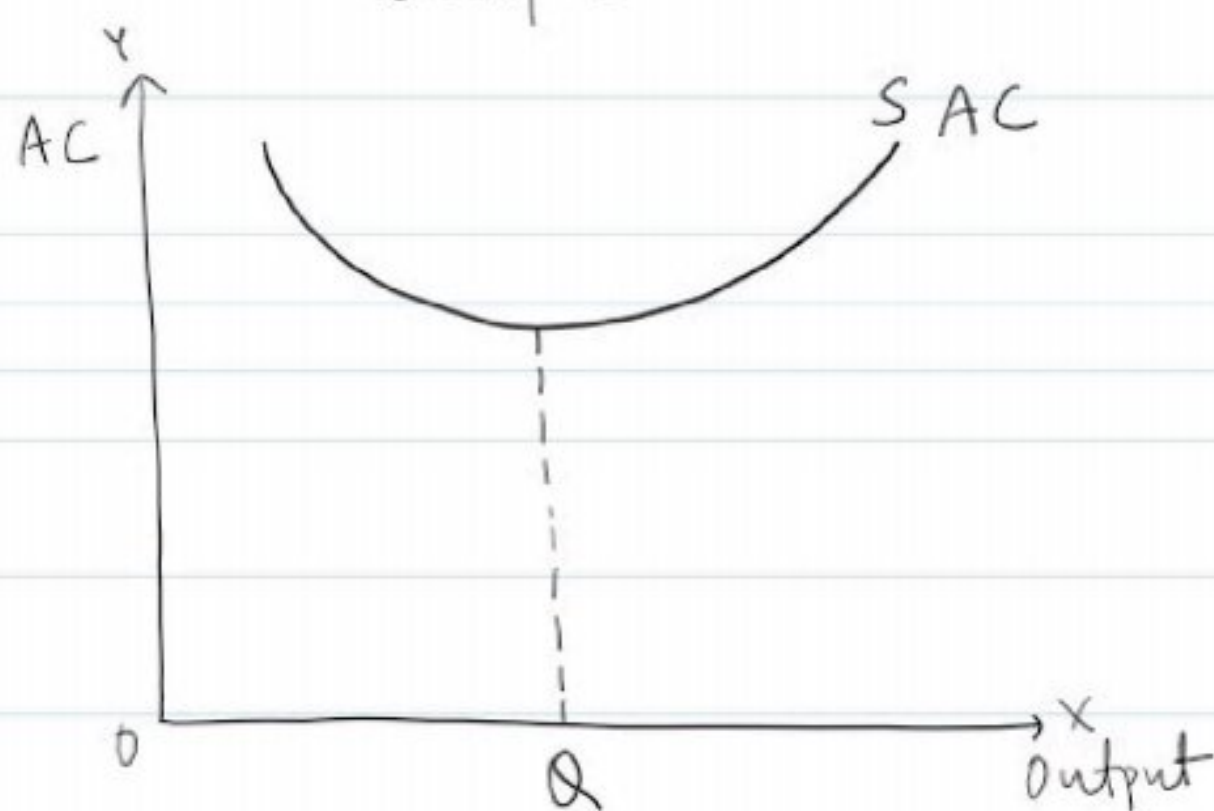
$$AVC = \frac{TVC}{\text{Output}}$$



U-shaped

⑥ Average Cost (AC) or Average Total Cost (ATC)

$$AC = \frac{\text{Total Cost}}{\text{Output}} \quad \text{or} \quad AC = AVC + AFC$$



U-shaped

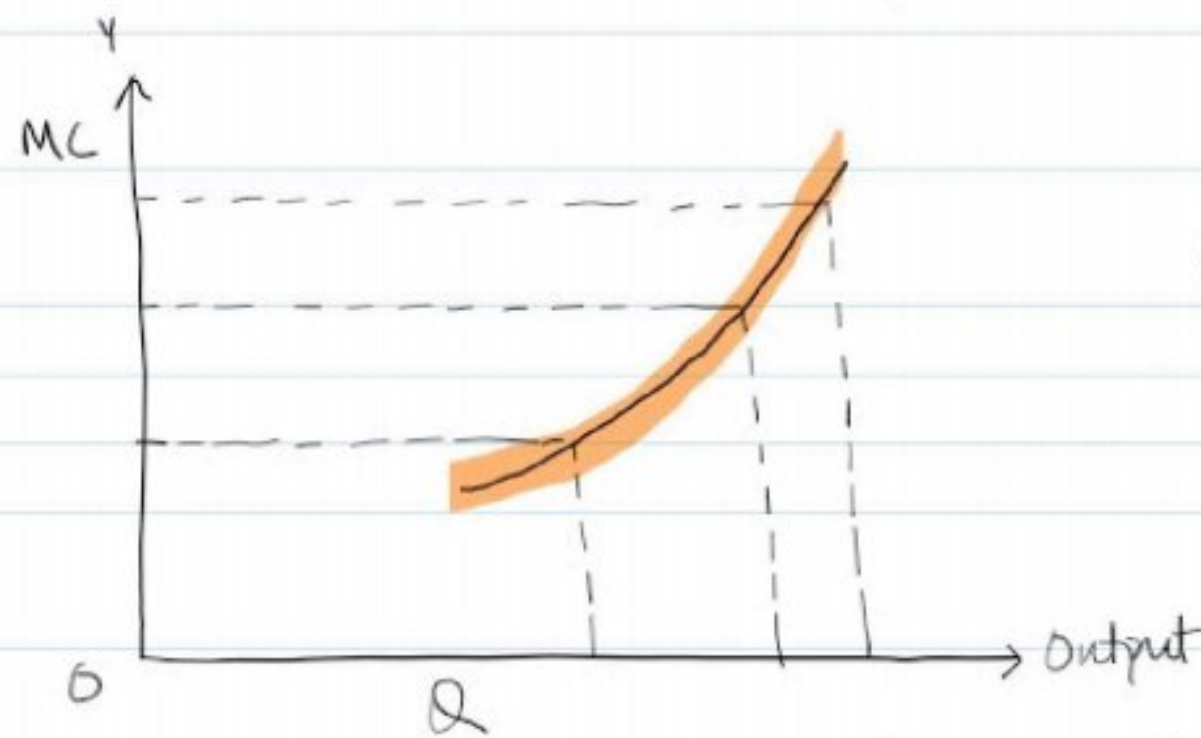
⑦ Marginal Cost (MC)

$$MC = \frac{\Delta TVC}{\Delta \text{Output}} \quad (\text{असली formula})$$

$$MC = \Delta TC \quad (\text{नकली formula})$$

$$MC = \frac{\Delta TC}{\Delta \text{output}}$$

(short formula)
emergency



U-shaped

→ MC is the **SLOPE** of **TVC**

→ Area under MC curve is **TVC**

$$TVC = MC_1 + MC_2 + MC_3 + \dots + MC_N$$

$$TVC = \sum MC$$

→ Marginal cost changes due to change in **variable cost**

- a) Fixed cost
- ☒ b) Variable cost
- c) Both
- d) None

→ **Rising portion** of MC curve is **Supply Curve**

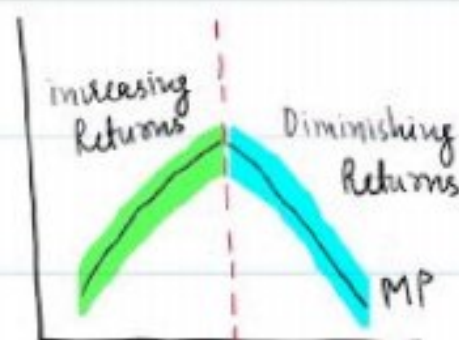
X ——— X ——— X ——— X ——— X

TVC & TC is Inverted-S
AVC, AC, MC is U-shaped

WHY ???

PRODUCTION

MP

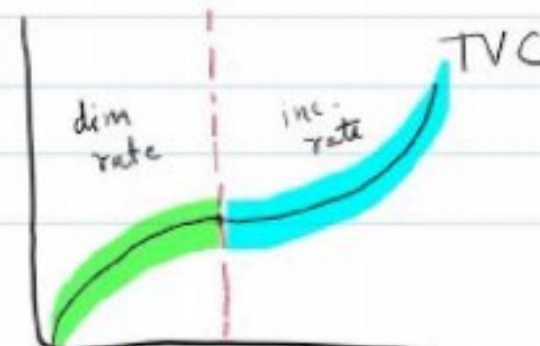


Law of Variable proportion
(**RETURNS**)

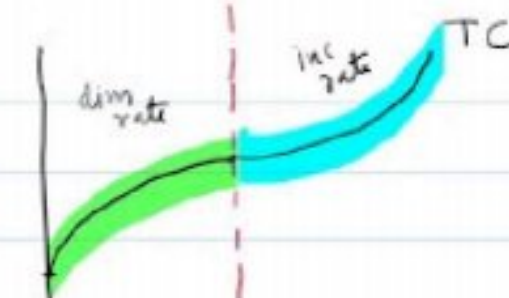
Increasing Returns
= Diminishing Cost

Diminishing Returns
=

TVC

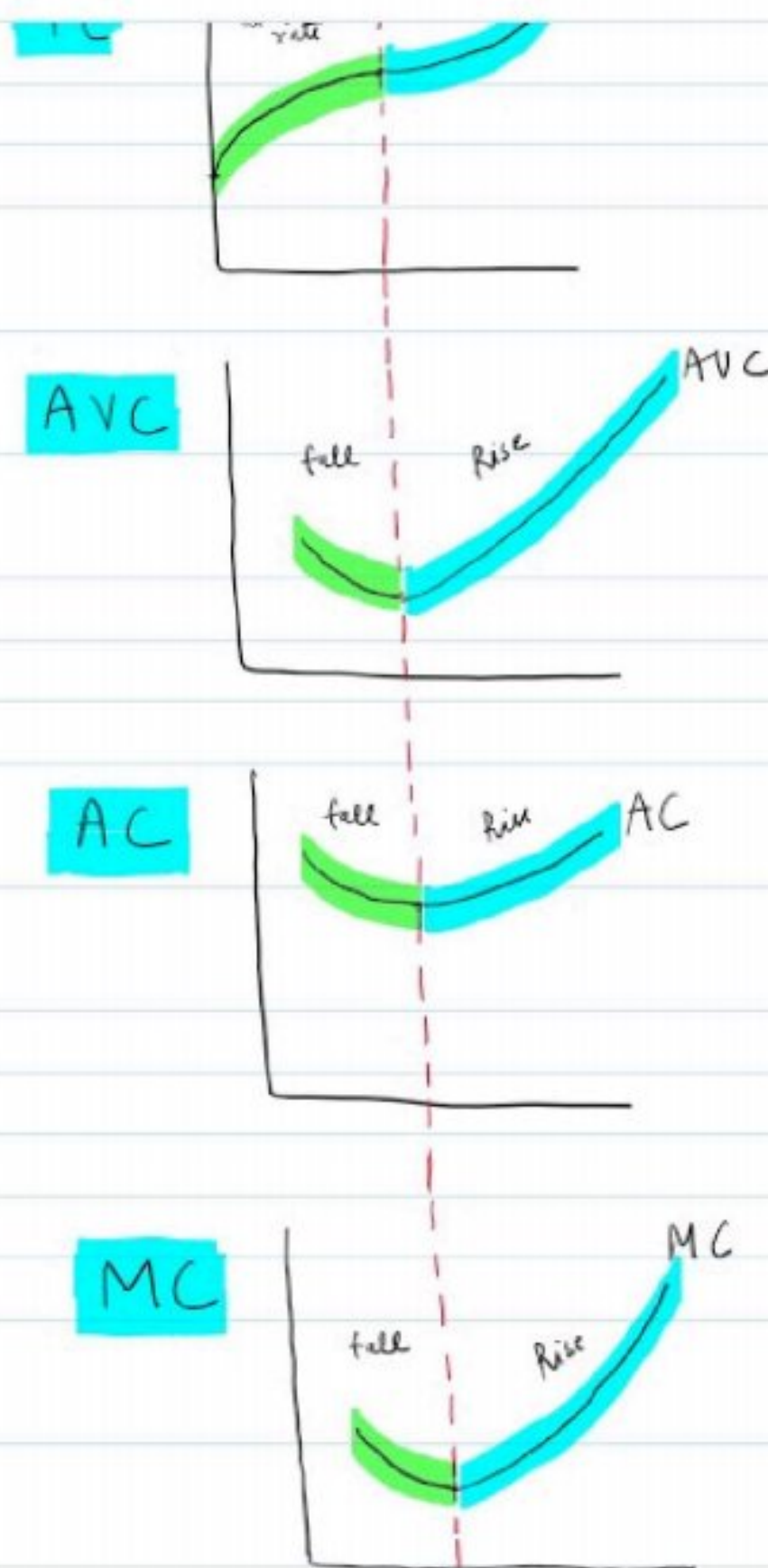


TC

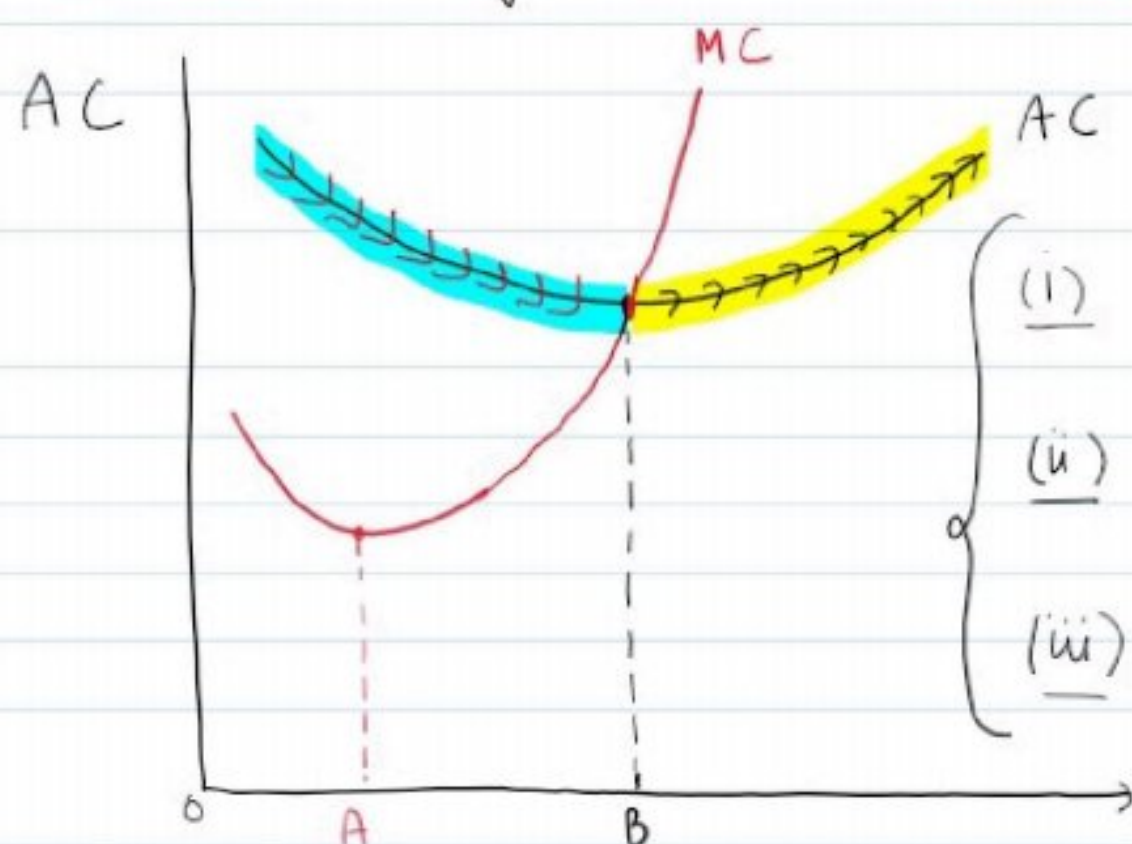


inversely
related
to
"COST"

Diminishing Returns
= Increasing Cost



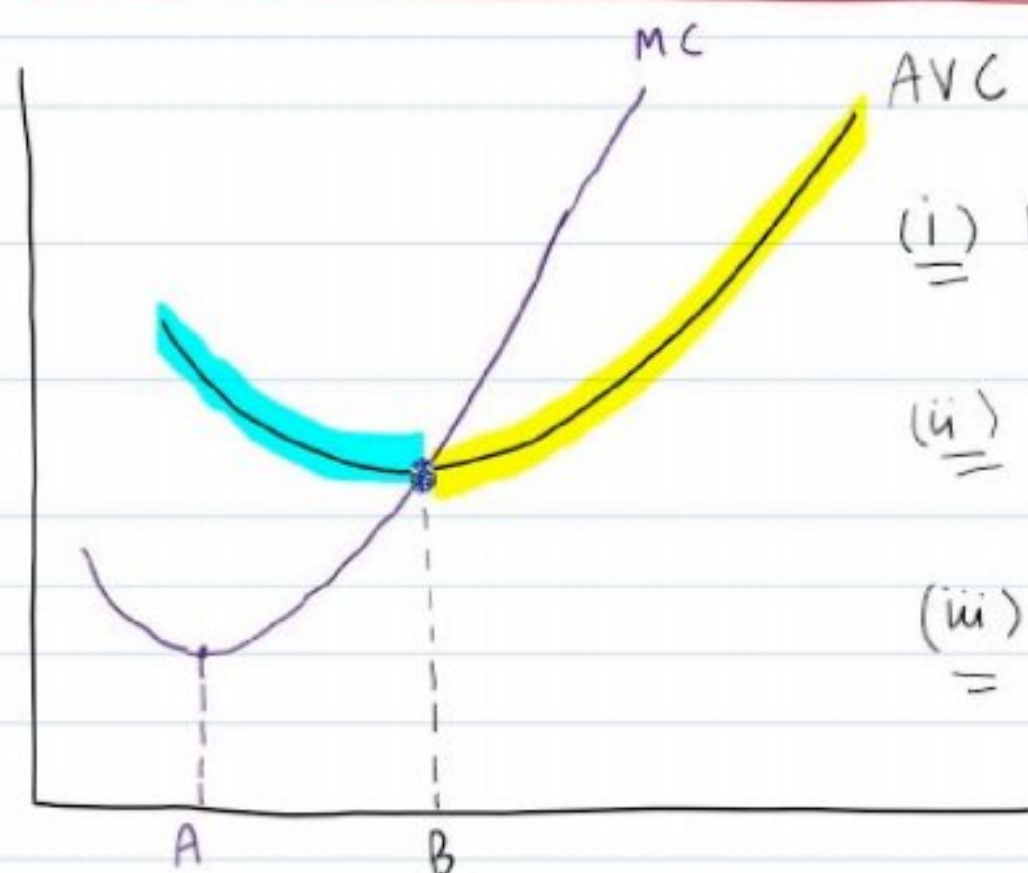
* Relation of AC & MC



(R)

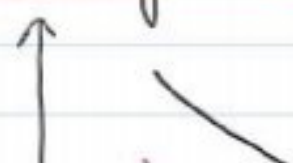
- (i) $MC < AC$ [till B] : AC falls
- (ii) $MC = AC$ [at B] : AC is Minimum
- (iii) $MC > AC$ [after B] : AC rises

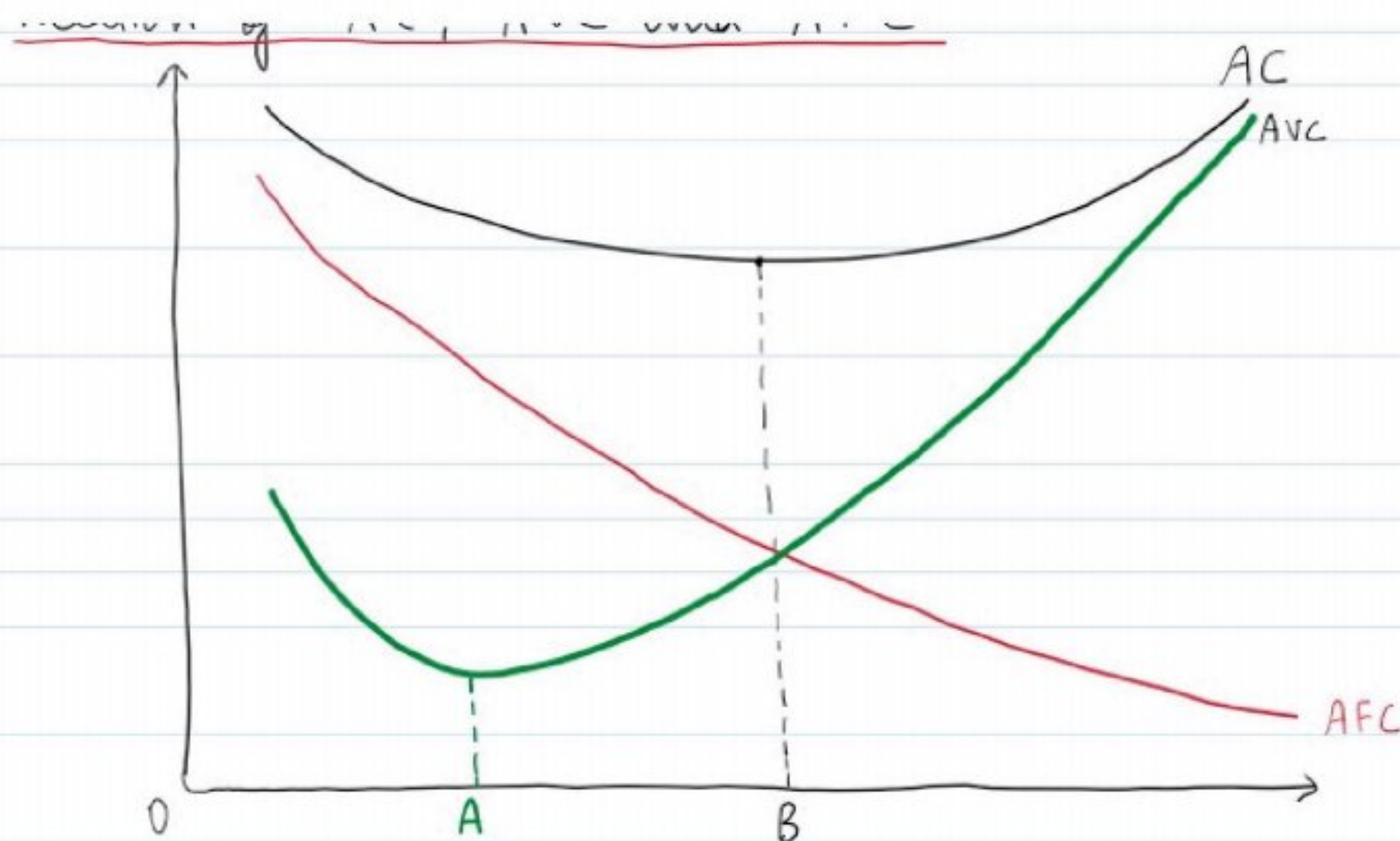
* Relation between AVC & MC



- (i) $MC < AVC$ (till B) : AVC falls
- (ii) $MC = AVC$ (at B) : AVC Minimum
- (iii) $MC > AVC$ (after B) : AVC rises

* Relation of AC, AVC and AFC





→ The gap between AC & AVC continuously falls but they never "intersect each other"

→ The gap between AC & AVC is AFC
(AFC can never be zero)

$$\left\{ \begin{array}{l} AC = AVC + AFC \\ \underbrace{AC - AVC}_{\text{Gap between AC \& AVC}} = AFC \\ \text{Gap between AC \& AVC is AFC} \end{array} \right\}$$

Formulae

① $TC = TFC + TVC$ [OR] $TC = AC \times \text{Output}$

② $TVC = TC - TFC$ [OR] $TVC = \sum MC_s$

[OR] $TVC = AVC \times \text{Output}$

③ $TFC = TC - TVC$ [OR] $TFC = AFC \times \text{Output}$

④ $AFC = \frac{TFC}{\text{output}}$ [OR] $AFC = AC - AVC$

⑤ $AVC = \frac{TVC}{\text{Output}}$ [OR] $AVC = AC - AFC$

⑥ $AC = \frac{TC}{\text{Output}}$ [OR] $AC = AVC + AFC$

⑦ $MC = \frac{\Delta TVC}{\Delta \text{Output}}$ [OR] $MC = \frac{\Delta TC}{\Delta \text{Output}}$

Δ Output

Δ Output

* When Output = 0 $\boxed{TC = TFC}$

* When Output = 1 $\boxed{TVC = AVC = MC}$

Q1- =

Output	TVC	MC
1	12	12
2	14	2
3	18	4
4	40	22

$\Delta TVC \div \Delta \text{Output}$

$(14-12) \div (2-1)$

$(18-14) \div (3-2)$

$(40-18) \div (4-3)$

Q2- =

Output	TVC	MC	AVC
1	10	10	10
5	38	7	7.6

$TVC \div \text{Output}$

$38 \div 5$

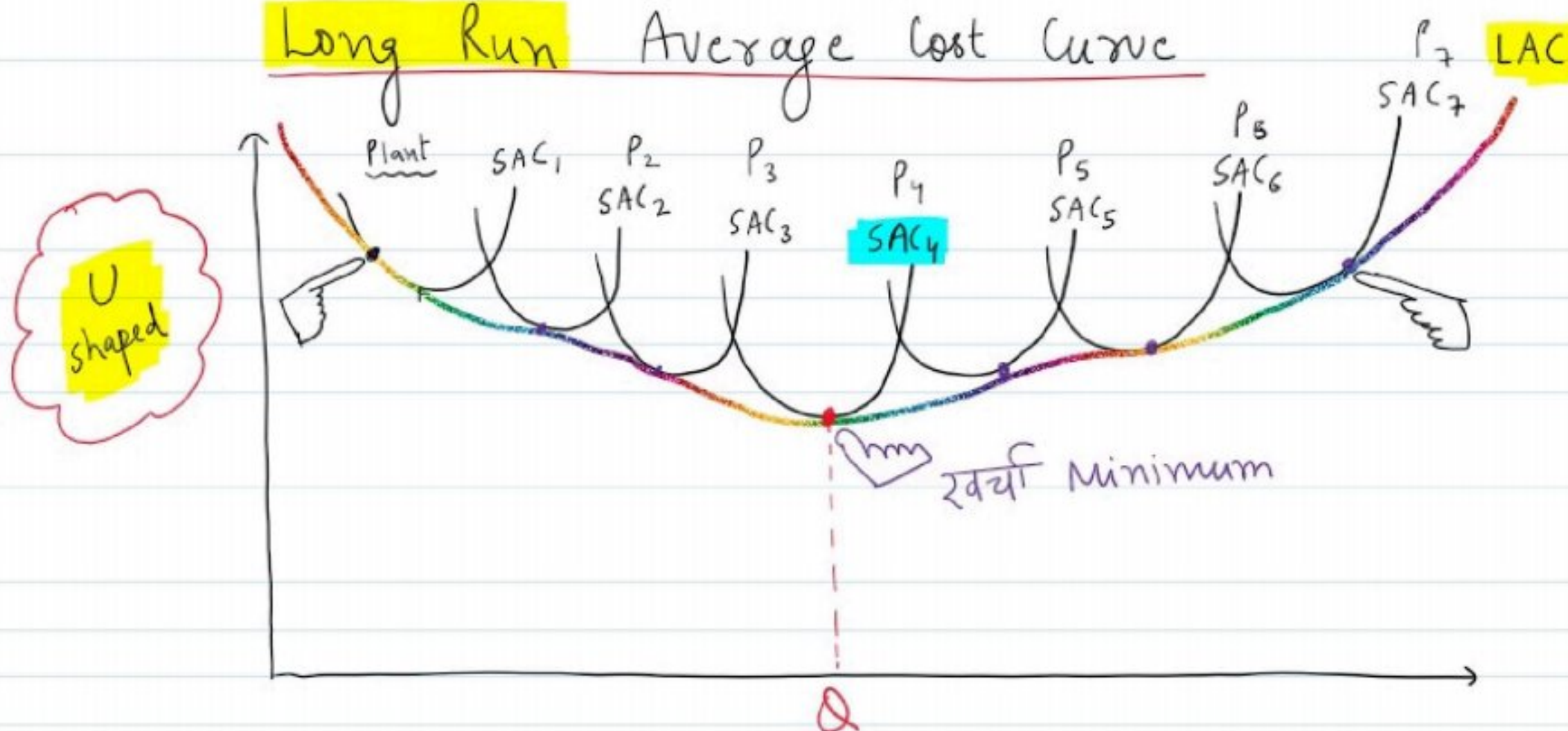
$$(38-10) \div (5-1)$$

$$28 \div 4$$

Q3- =

Output	TFC	MC	TC	TVC	AVC	AC
0	100	-	100	0	-	-
1	100	500	600	500	500	600
2	100	300	900	800	400	450
3	100	200	1100	1000	333.3	366.6
4	100	300	1400	1300	325	350
5	100	500	1900	1800	360	380
6	100	800	2700	2600	433.3	450

Long Run Average Cost Curve



- Q
- LAC is known as ENVELOPE CURVE or PLANNING curve
 - All the SACs are known as PLANT curves
 - In long run, the firm examines on which SAC it should operate, so that total cost is Minimum
 - LAC is TANGENT to each SAC
 - But it is not tangent to minimum points of SACs.
 - LAC is U-shaped because Law of Variable Proportion - short run
Returns to Scale
 - LAC is L-shaped if technology changes
 - LAC is U-shaped, if technology do not change.
 - Increasing Cost $\boxed{\text{J}}$ Diminishing Returns
Diminishing Cost $\boxed{\text{J}}$ Increasing Returns

Q - Total product :- 10, 18, 30, 50, 62, 70, 75
find Decreasing cost level.

Sol:-

Total product	Marginal product
10	-
18	8
30	12
50	20
62	12
70	8
75	5

Increasing Returns (MP > AP)
Diminishing Returns (MP < AP)

* Shut Down Point *

Short Run	Long Run
$P = AVC$	$P = AC$

$$P = AVC$$

$$TR = TVC$$

$$P = AC$$

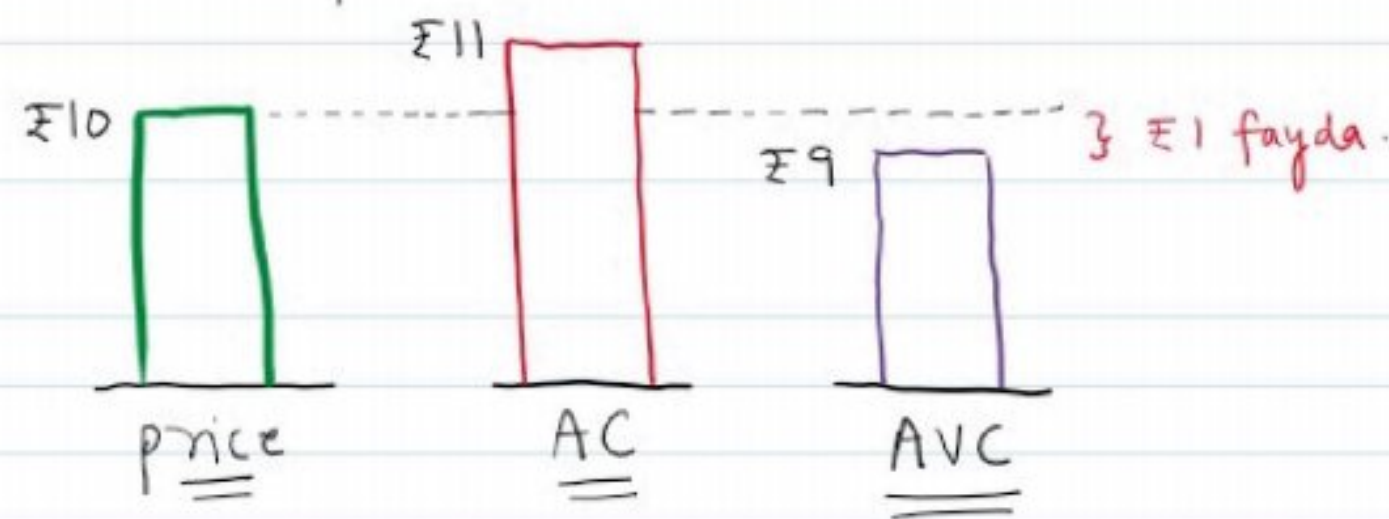
$$TR = TC$$

Q- Price = ₹ 10
AC = ₹ 11
AFC = ₹ 2

$$AVC = ₹ 9$$

should the firm shut down.

Sol:-



NOT shut down

* Economies of Scale *

LONG Run

Advantages due to large scale production

Output ↑↑↑↑ Cost of production ↓↓↓↓

Increasing Returns to Scale is a result of this
(Returns ज्यादा है)

Internal

(Benefits which accrue to firm only)

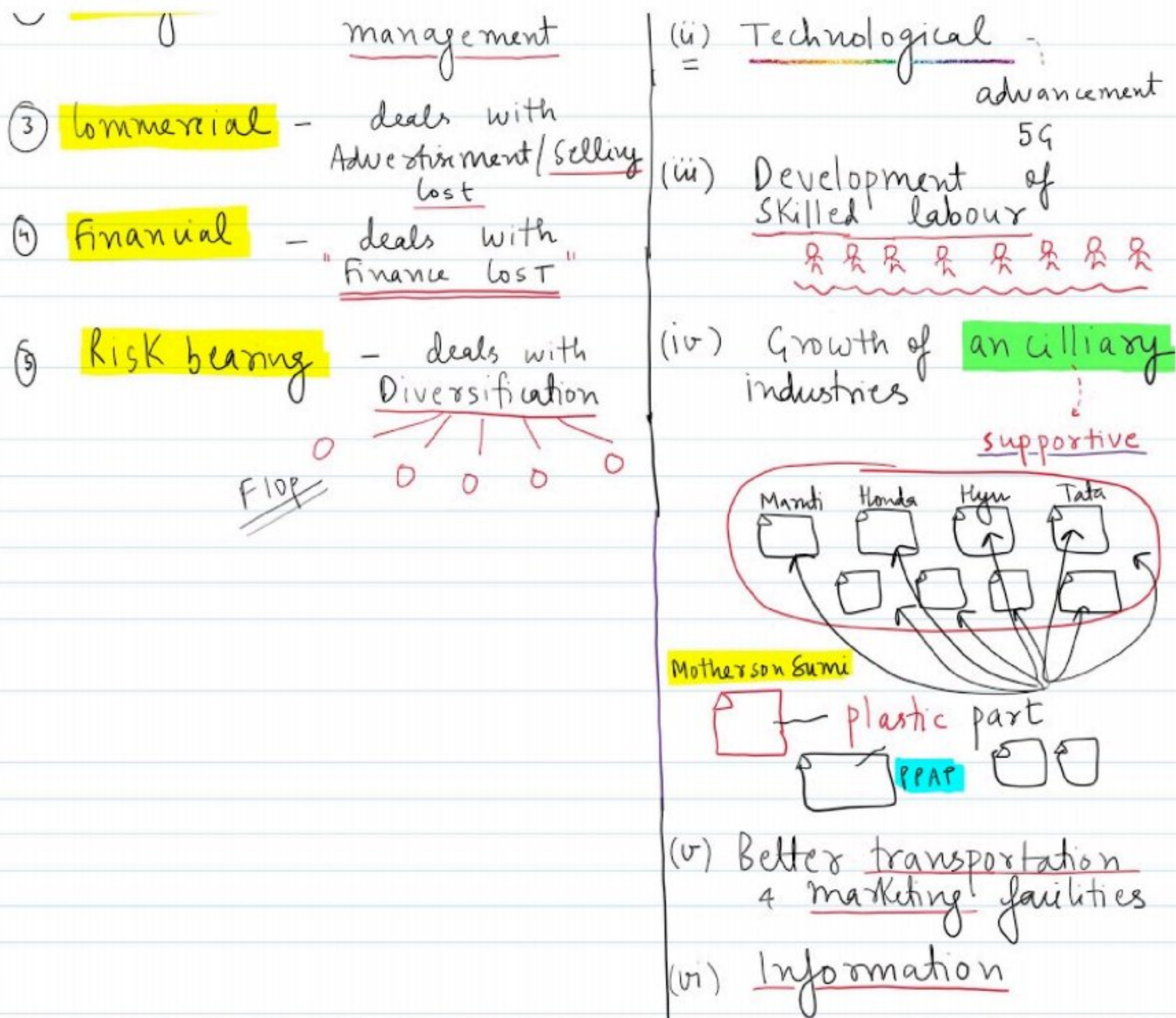
- ① Technical - deals with labour, machine etc
- ② Managerial - deals with management
- ③ Financial - deals with

External

(Benefits accrue to all firms as a result of growth of industry)
(general advantages)

(i) Cheaper Raw Materials

(ii) Technological advancement



* Dis economies of Scale *

Dis advantages caused when scale of production expands beyond optimum capacity

Decreasing Returns to Scale is a result of this

Stage	Reason
1. Increasing Returns to Scale	Economies of Scale
2. Decreasing Returns to Scale	Dis economies of Scale

Internal

↓

SAME

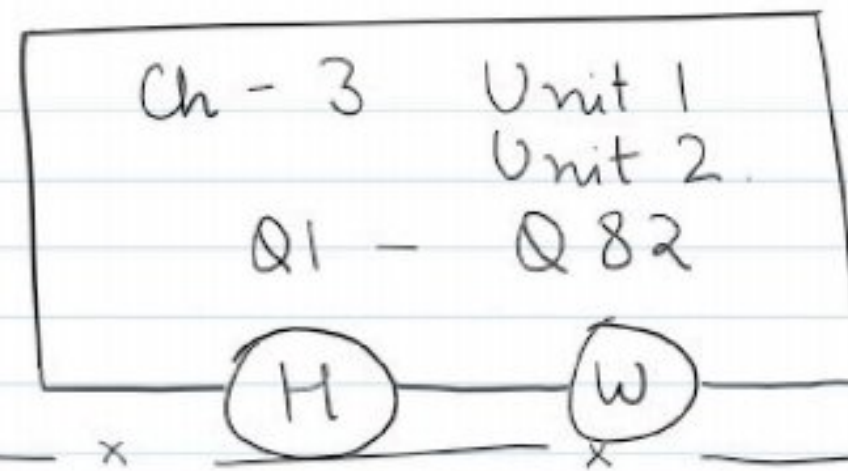
(✓)

External

↓

SAME

(✓)

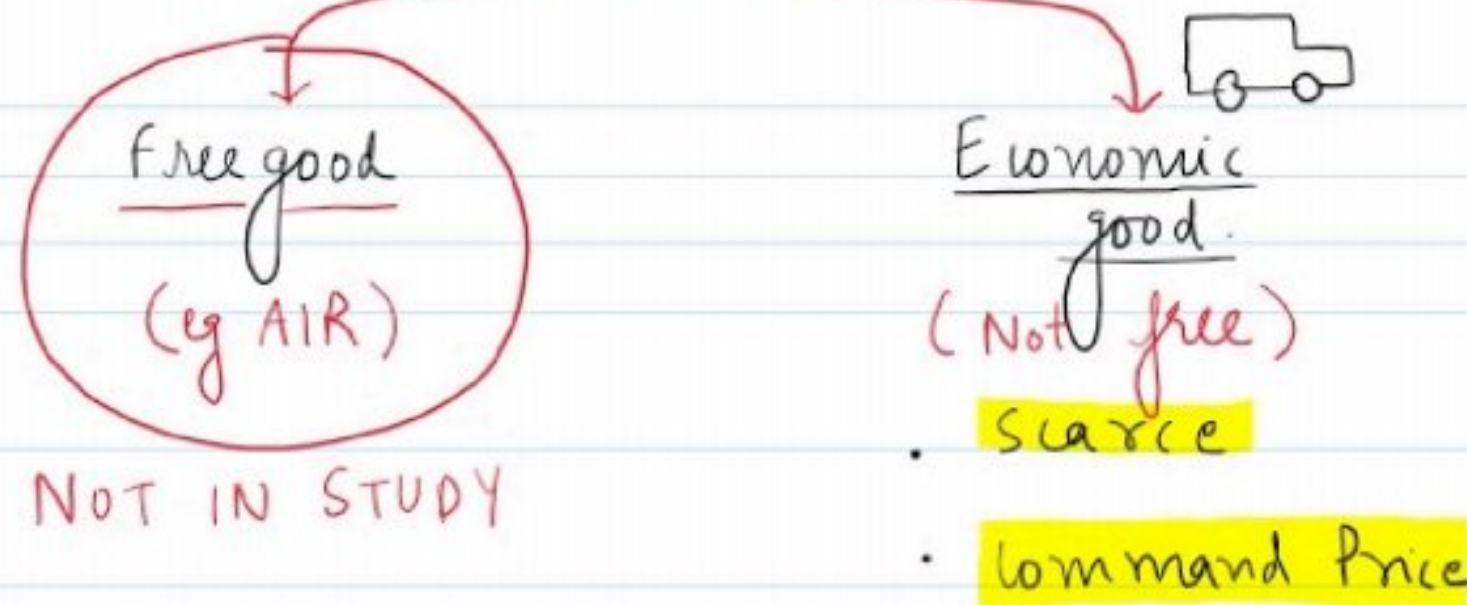


Economics

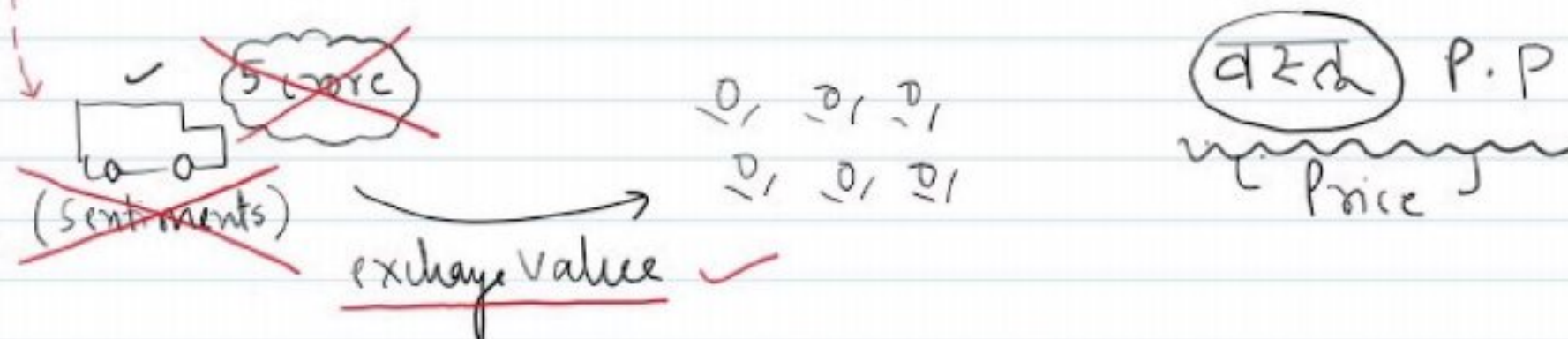
CH 4 — : Price determination in different Markets

Unit 1 : Meaning + Types of Market

→ MARKET :- a place where goods are purchased & sold



→ In market, only exchange value is significant,
not sentimental value (Price connotes money value i.e purchasing power of an article is expressed in money terms)



→ Elements of Market :-

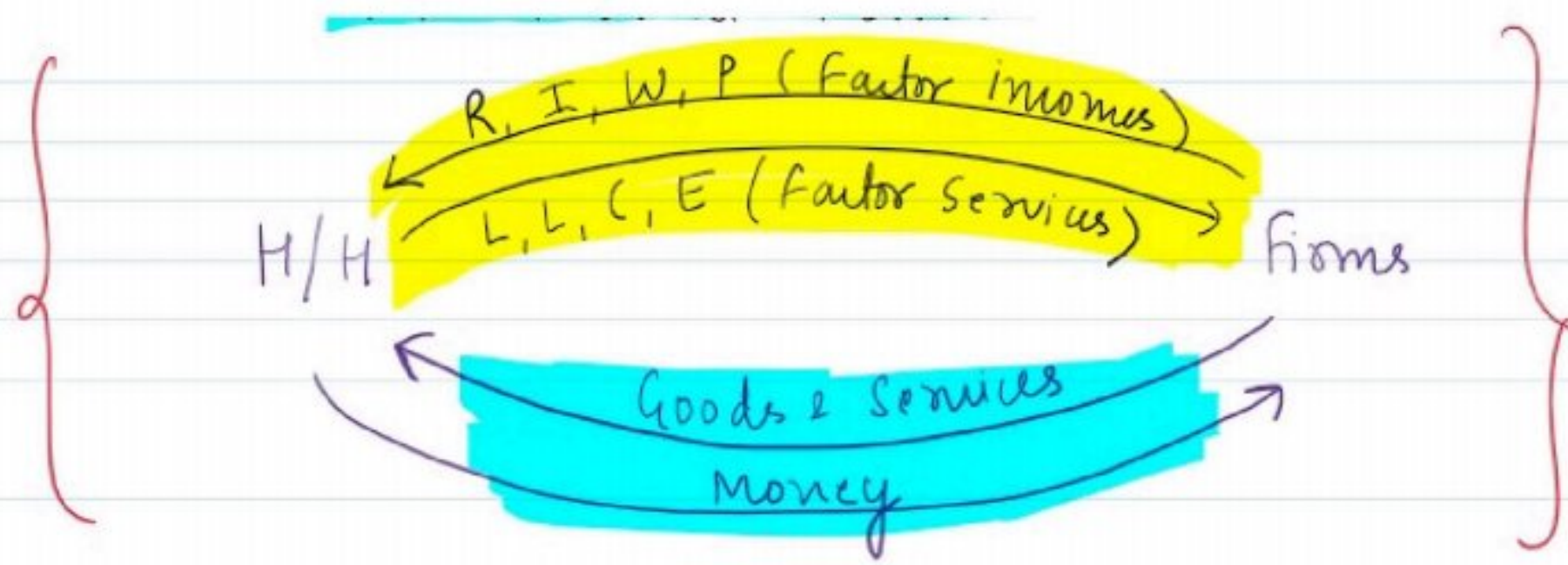
- Buyers + Sellers R R
- Product or Service
- Bargaining for Price
- Knowledge about market conditions
- One price for a product at a given time

→ Markets are generally classified into :-

(i) Factor market

(ii) Product market

R, I, W, P (Factor incomes)



Imp. →

Types of Market :-

On the basis of AREA

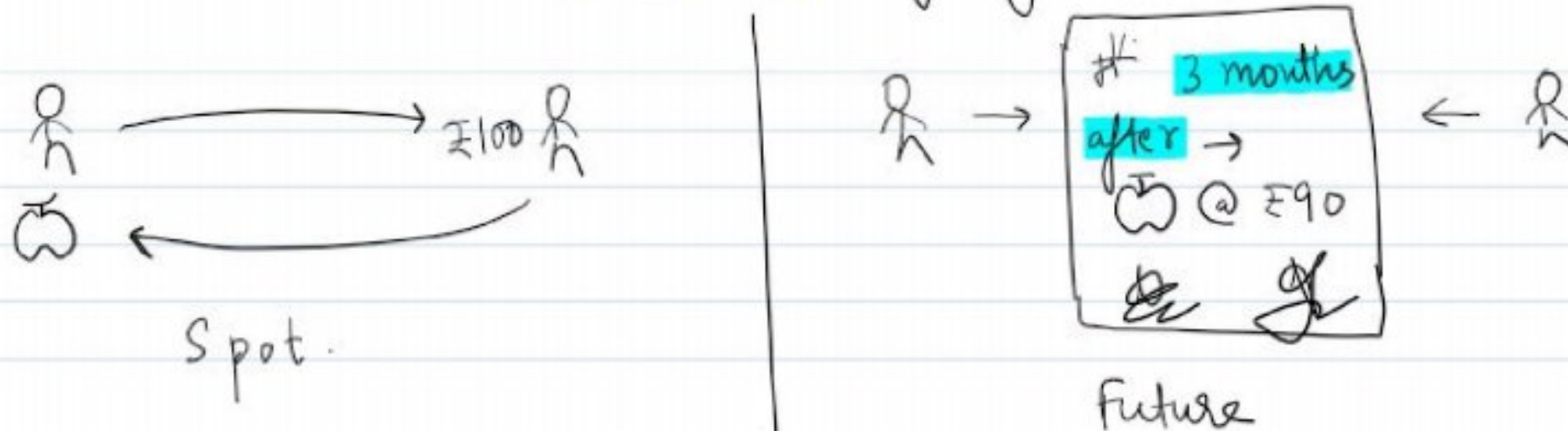
- Local - for "perishable" goods. (Bread)
- Regional - for semi-durable goods (Cloth)
- National - for Durable goods (Car, TV)
- International - for Precious goods (Gold, Diamond)

On the basis of TIME (Alfred Marshall)

- Very Short - Supply CANNOT change
- Short - Supply can slightly change
- Long - Supply can change
- Very Long - Supply can easily change
↓
Secular Period

On the basis of transaction

- Spot - goods are physically transferred
- Future - Contracts of future date



On the basis of Regulation

- Regulated - Stock exchange → SEBI
- Unregulated - NO Regulation (Free Market)

On the basis of Volume

- Wholesale - Bulk / large quantities

On the basis of Volume

- Wholesale - Bulk / large Quantities
- Retail - for ultimate consumer (Small Quantity)

On the basis of competition

- Perfect competition
- Imperfect competition
 - Monopoly
 - Monopolistic
 - Oligopoly

BASIC CONCEPTS

① Total Revenue (TR)

$$= P \times Q$$

Price per unit $\times$ Quantity sold

② Average Revenue (AR)

$$= \frac{TR}{Q}$$

$$= \frac{P \times \cancel{Q}}{\cancel{Q}}$$

$$AR = P$$

AR curve is also known as **DEMAND** curve

③ Marginal Revenue (MR)

$$= \frac{\Delta TR}{\Delta Q}$$

$\therefore$ MR is **SLOPE** of TR

Q1:-

Price	Quantity	TR	AR	MR
₹ 10	5	50	10	-
₹ 9	6	54	9	4
₹ 8	10	80	8	6.5

E_9	6	54	9	4
E_8	10	80	8	6.5
E_7	14	98	7	4.5
E_6	20	120	6	3.6

$\frac{\Delta TR}{\Delta Q}$

Q2-

Output	MR	TR
3	4	22
5	9	x

$$MR = \frac{\Delta TR}{\Delta \text{Output}}$$

$$9 = \frac{x - 22}{5 - 3}$$

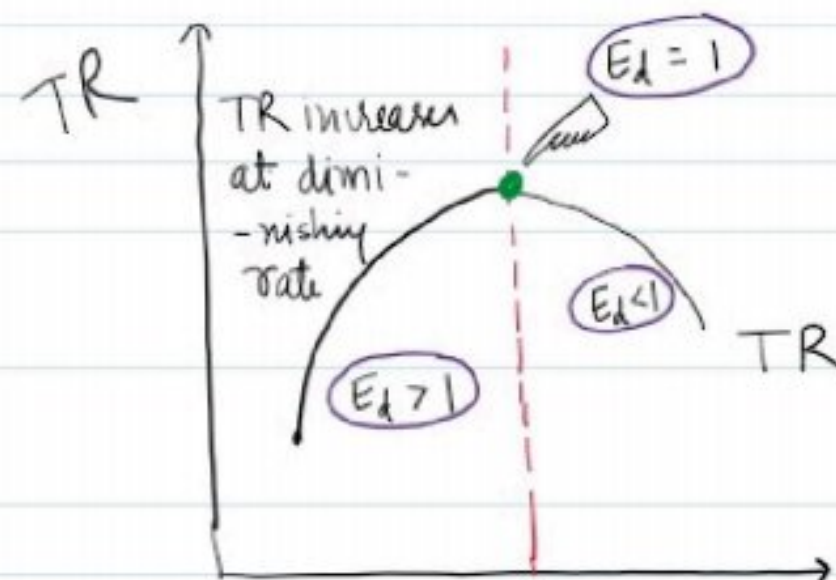
$$9 = \frac{x - 22}{2}$$

$$\therefore x = 18 + 22 = 40$$

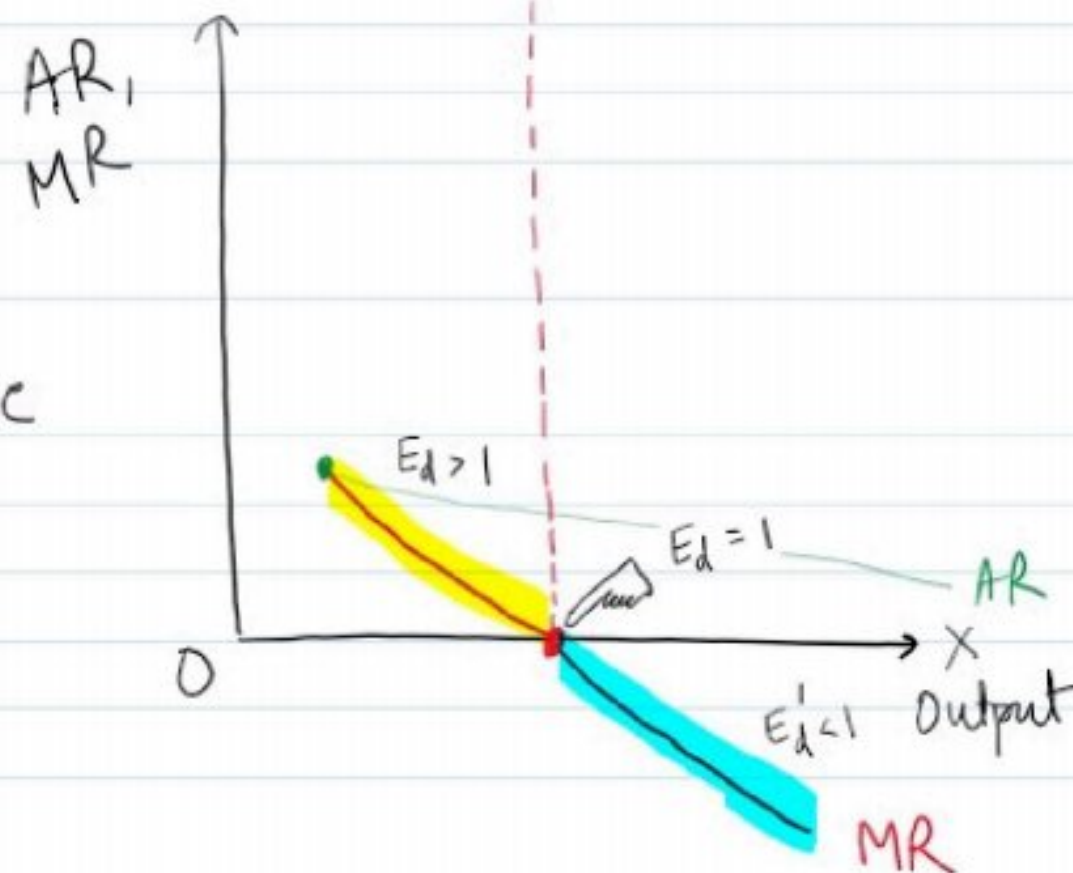
MOST IMPORTANT POINTS

① TR, AR, MR

(i) When $MR > 0$ i.e. (+)ve then TR increases at diminishing rate



(ii) When $MR = 0$ then TR is MAXIMUM



(iii) When $MR < 0$ i.e. (-)ve then TR falls.

② Relation of E_d , MR, AR (or TR)

(R)

(2) Relation of E_d , MR , AR (or IR)

$$MR = AR \times \frac{(E_d - 1)}{E_d}$$

**

	MR	TR
$E_d > 1$ (elastic)	(+) ve	Increasing at diminishing Rate
$E_d = 1$ (Unit elastic)	= 0	MAXIMUM
$E_d < 1$ (inelastic)	(-) ve	Falls

(3) Behavioral Principles

- For a firm to produce

$$* TR \geq TVC$$

- For PROFIT MAXIMISATION (Producer's equilibrium)

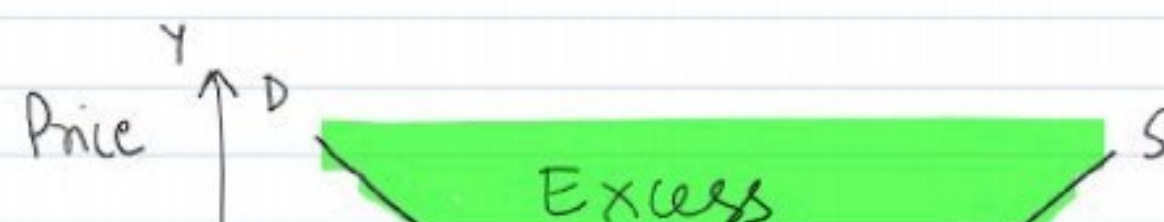
$$MR = MC$$

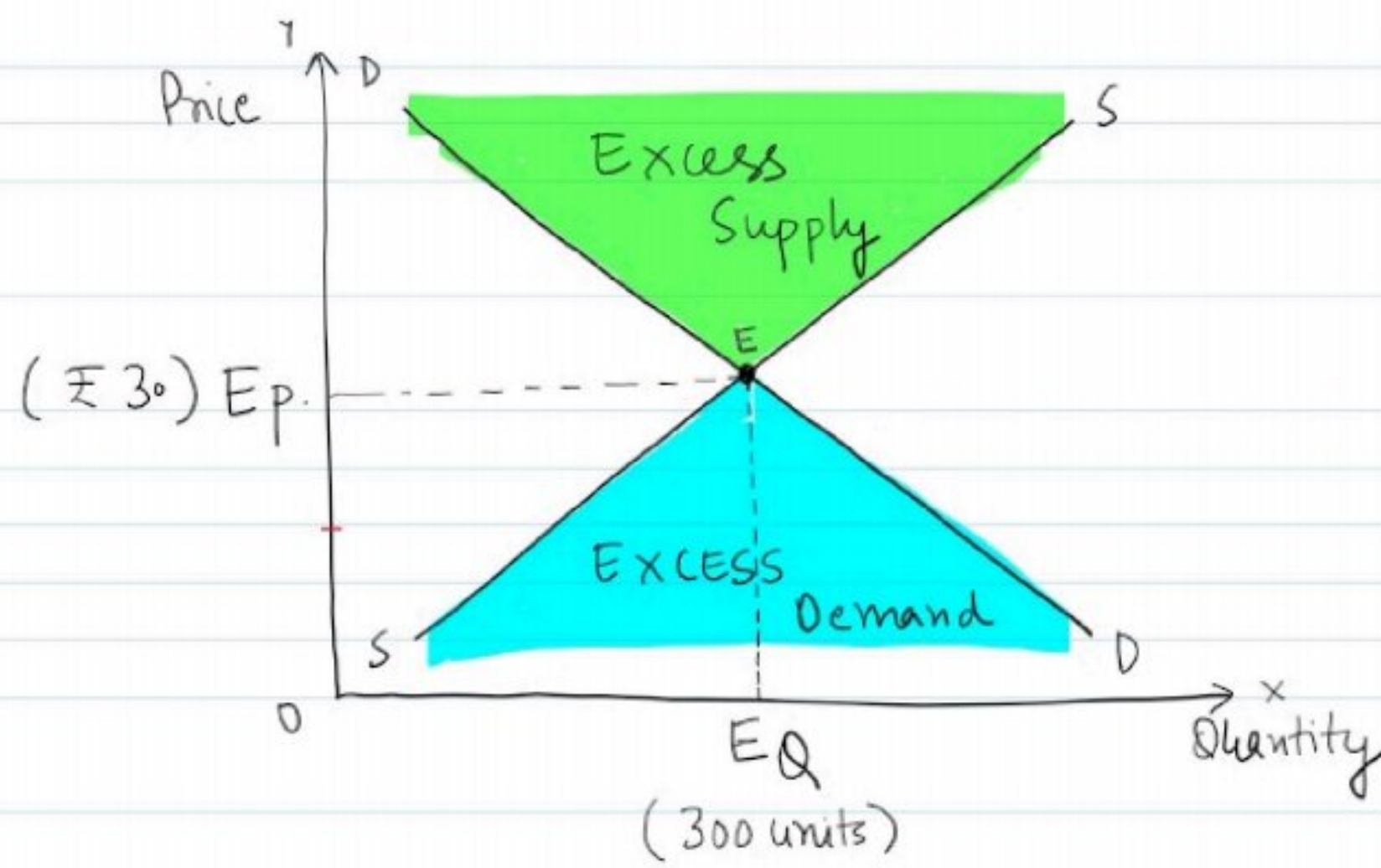
Unit 2 : Determination of Price

→ In general, interaction between demand & supply determines the price

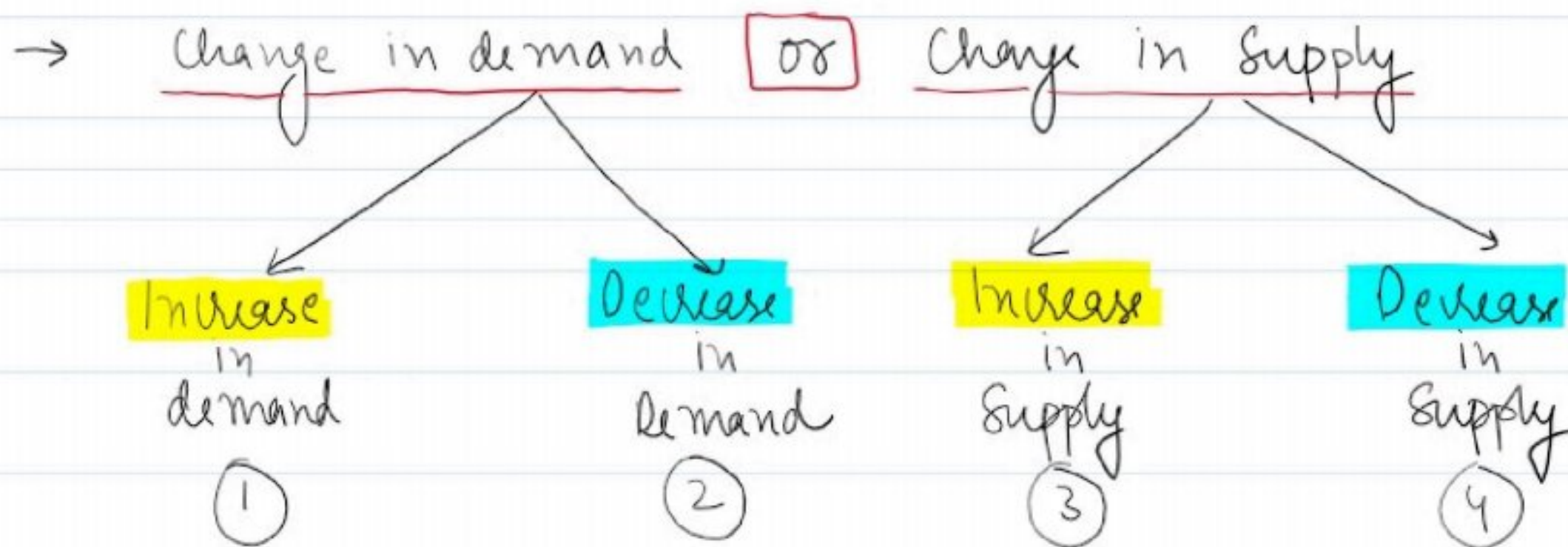
	(Consumers)	(Producers)	
Price	Qty demanded	Qty Supplied	
₹10	500 units	100 units	} EXCESS DEMAND
₹20	400 units	200 units	
₹30	300 units	300 units	— EQUILIBRIUM
₹40	200 units	400 units	} EXCESS SUPPLY
₹50	100 units	500 units	

Equilibrium price

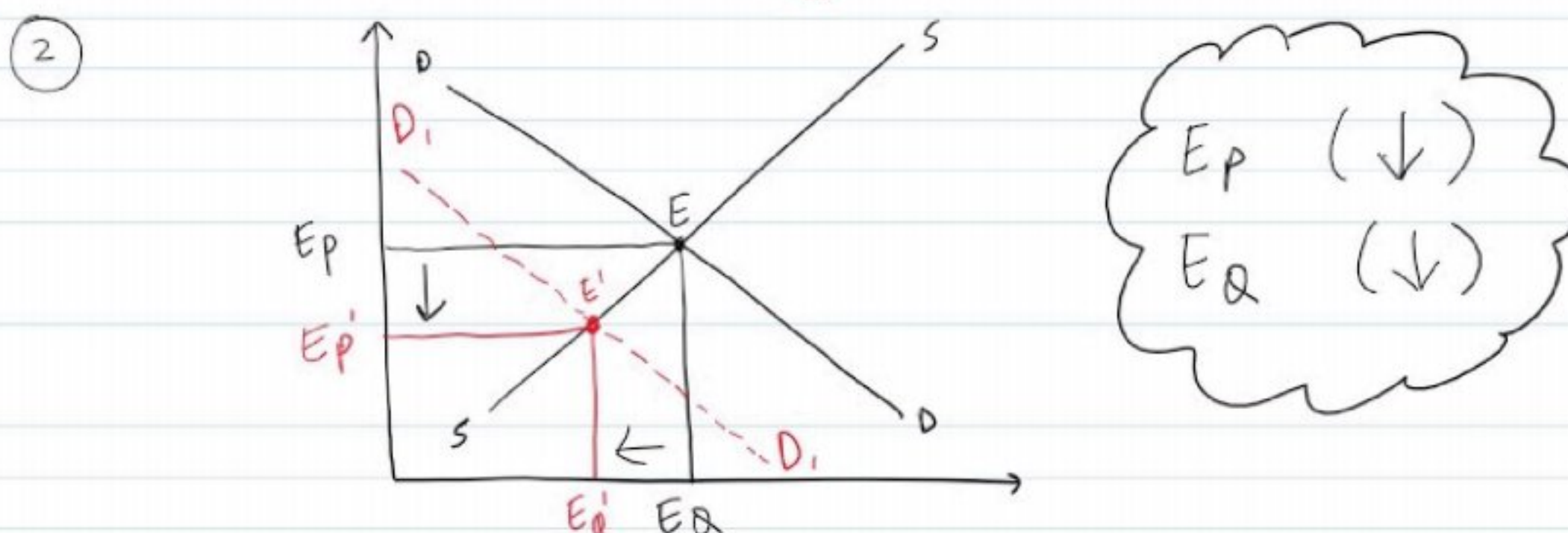
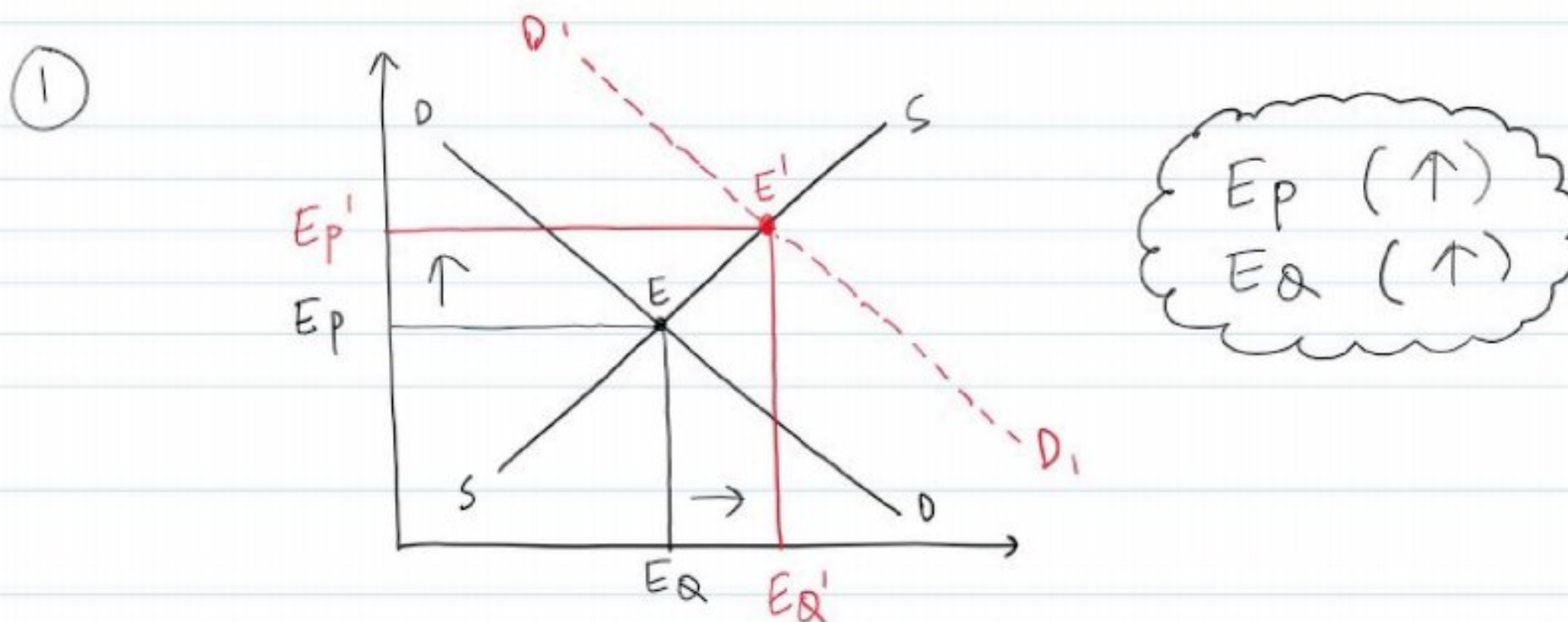




But in some cases, **government intervenes** and determines the price [eg :- Fertilizers, Kerosene etc.]

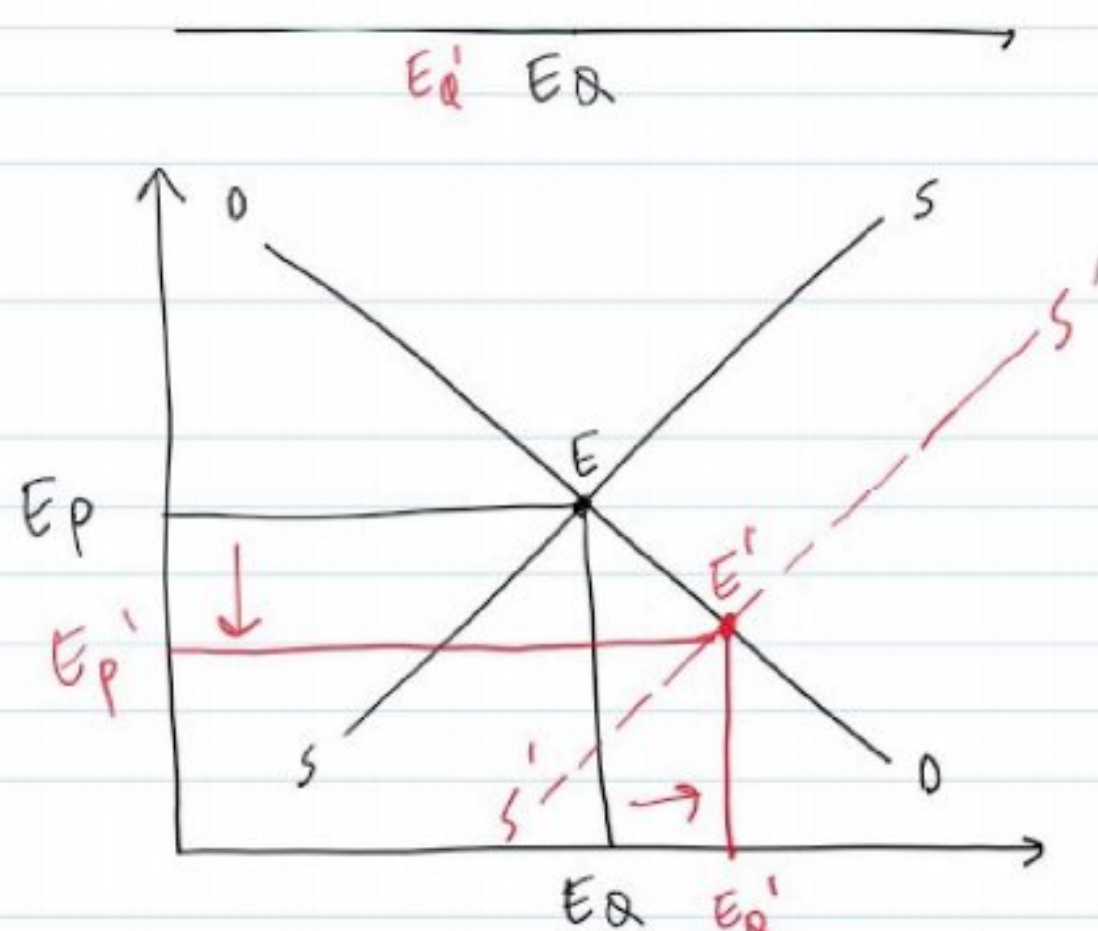


WE ALREADY KNOW THE REASONS FOR ABOVE



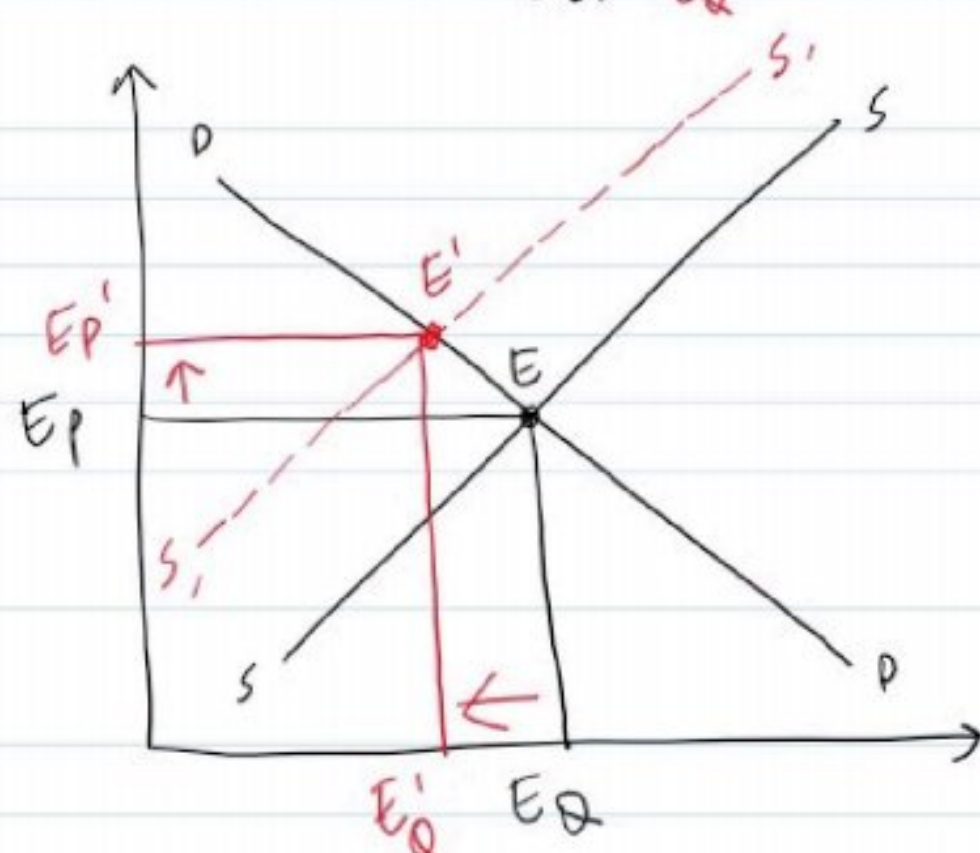
(3) ↑ 0 , S

(3)



$E_p (\downarrow)$
 $E_Q (\uparrow)$

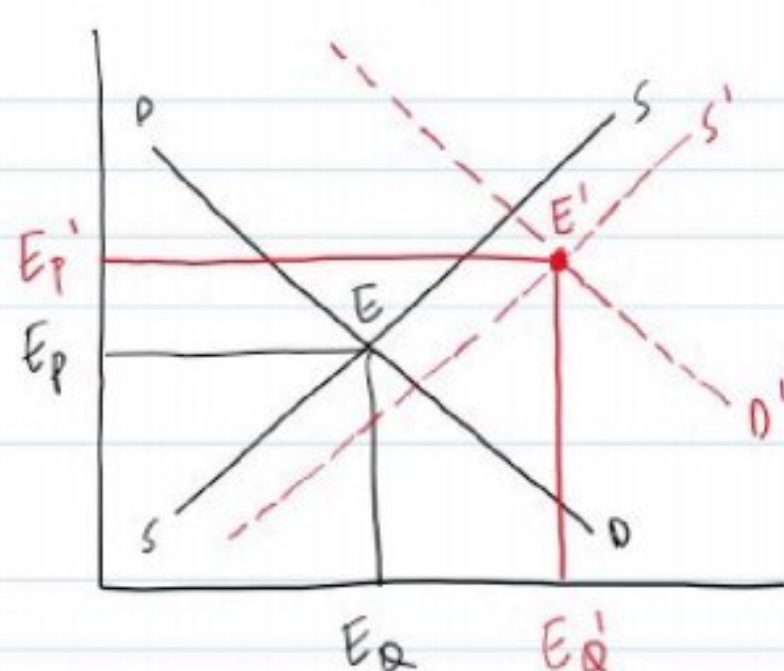
(4)



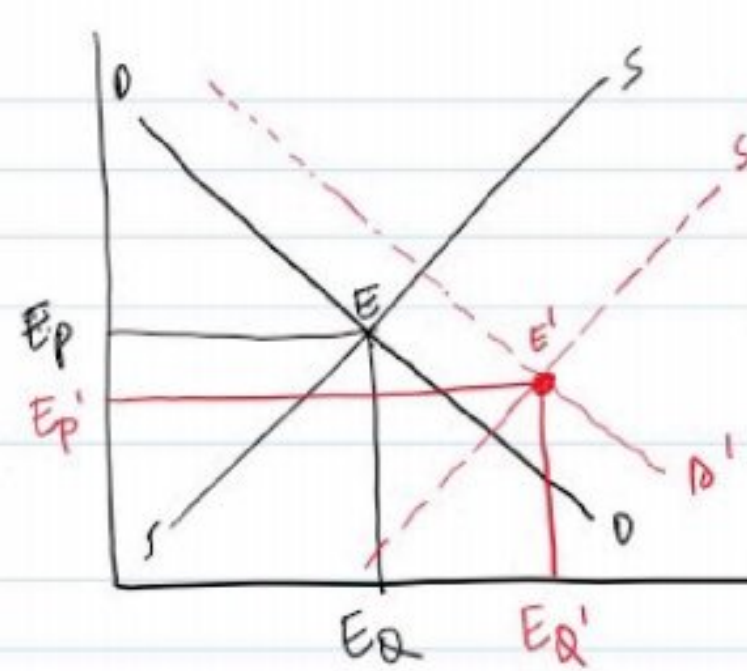
$E_p (\uparrow)$
 $E_Q (\downarrow)$

→ Simultaneous Increase in Demand & Increase in Supply

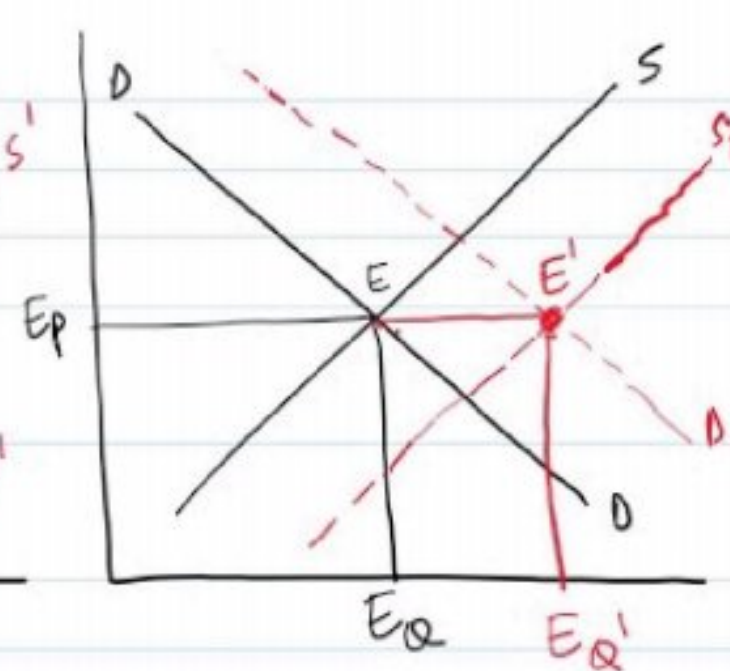
(i)



(ii)



(iii)



$\uparrow D > \uparrow S$

$E_p (\uparrow)$
 $E_Q (\uparrow)$

$\uparrow D < \uparrow S$

$E_p (\downarrow)$
 $E_Q (\uparrow)$

$\uparrow D = \uparrow S$

$E_p \text{ same}$
 $E_Q (\uparrow)$

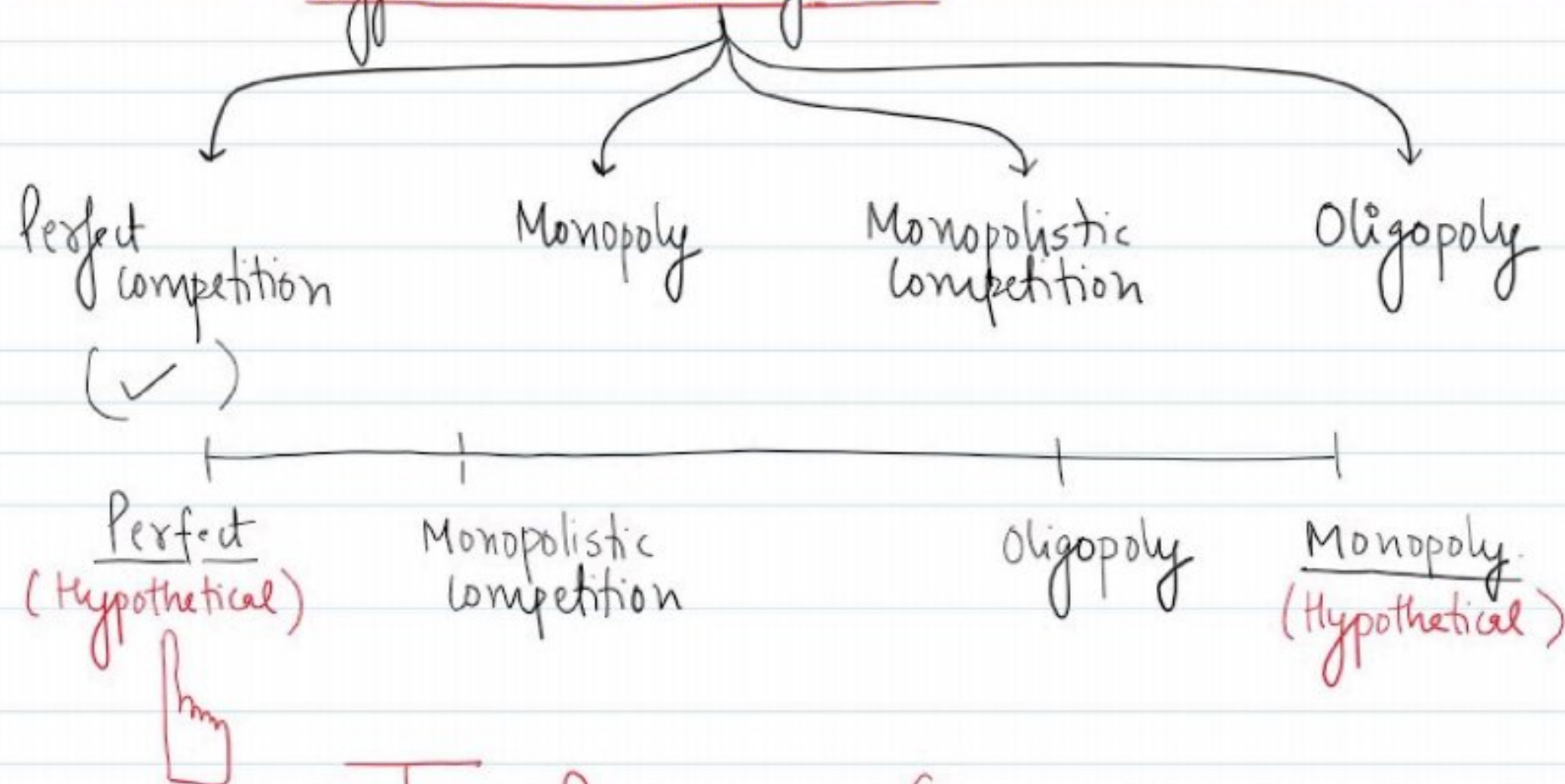
→ Simultaneous Decrease in demand & decrease in Supply

→ Simultaneous Decrease in demand & increase in Supply

→ Simultaneous Increase in demand & decrease in Supply

CH4 Unit 3

Price and output determination under different market forms



I. PERFECT COMPETITION

(eg :- Agricultural products, Stock market, Metals etc)

① Very large number of Buyers + Sellers

Individual buyer or individual seller cannot influence demand, supply or price.

② Homogeneous Product

→ Identical products (NOT SIMILAR)

→ i.e Goods are PERFECT SUBSTITUTES

→ Price will remain SAME

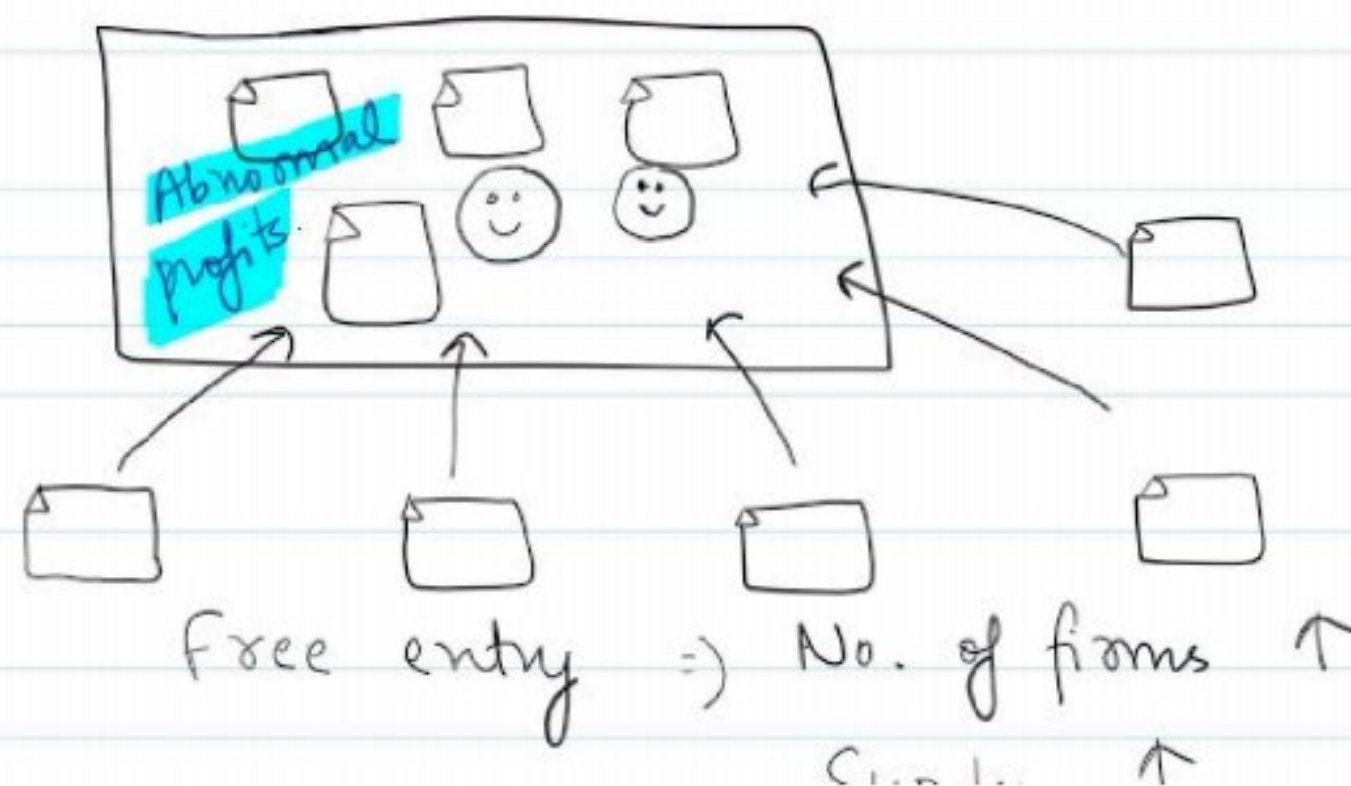
③ Free Entry and Free exit of firms

All firms will earn NORMAL PROFITS in long Run

$$AR = AC$$

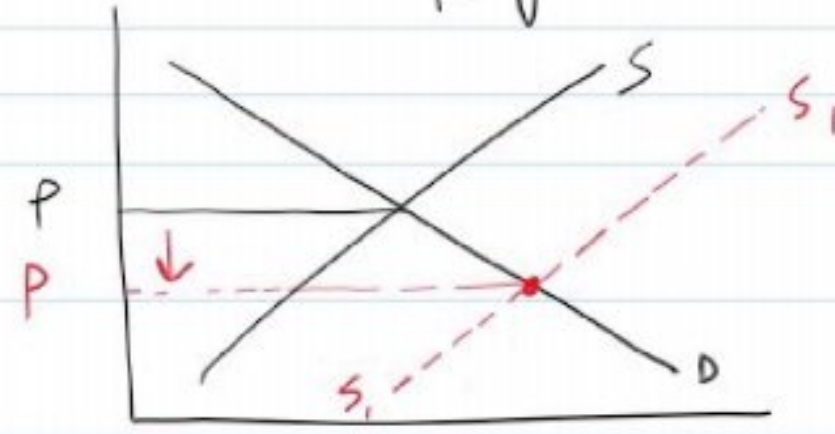
Why??

Abnormal profits



Free entry $\Rightarrow$ No. of firms $\uparrow$

Supply $\uparrow$



Price $\downarrow$

Profits $\downarrow$

Normal Profits.

(✓)

Exit

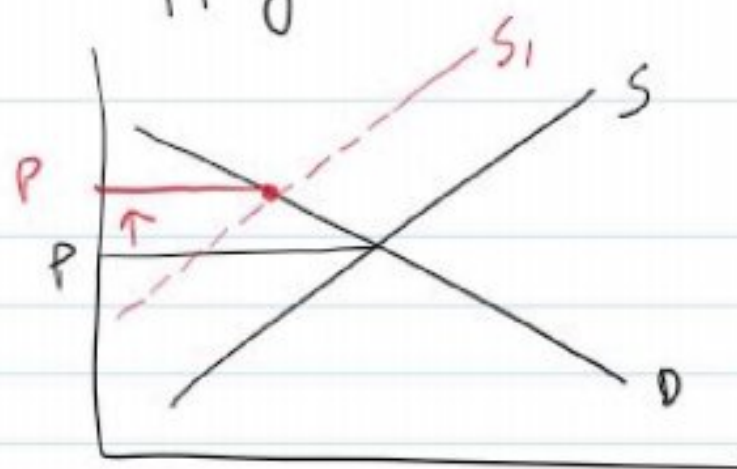
Exit

Exit

Exit

No. of firms $\downarrow$

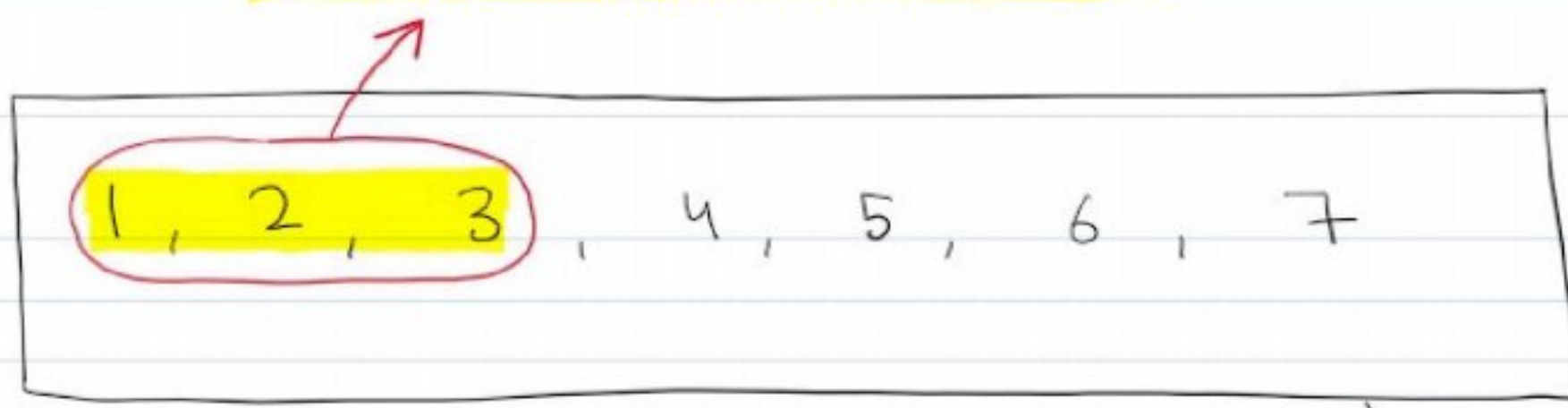
Supply $\downarrow$



Price $\uparrow$

* Feature 1, 2 and 3 is known as

PURE COMPETITION

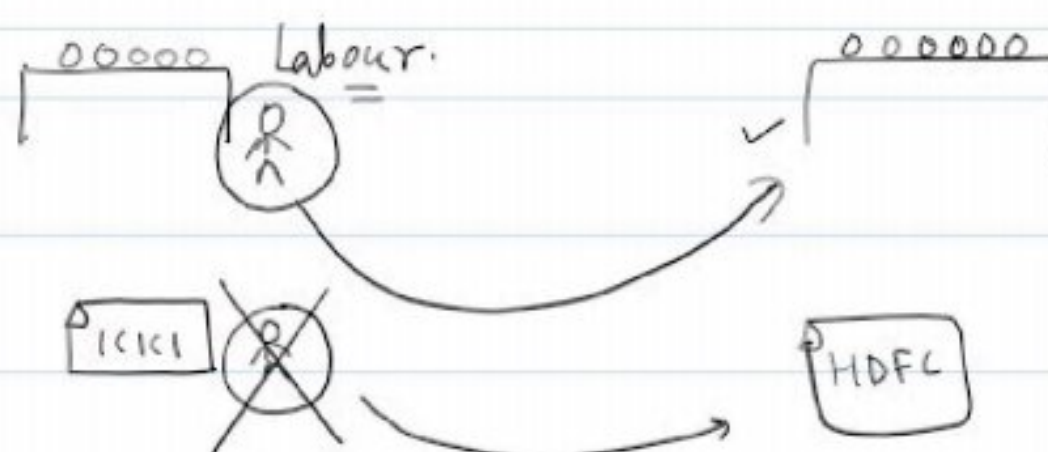


Perfect Competition

④ Perfect **Knowledge** of Market

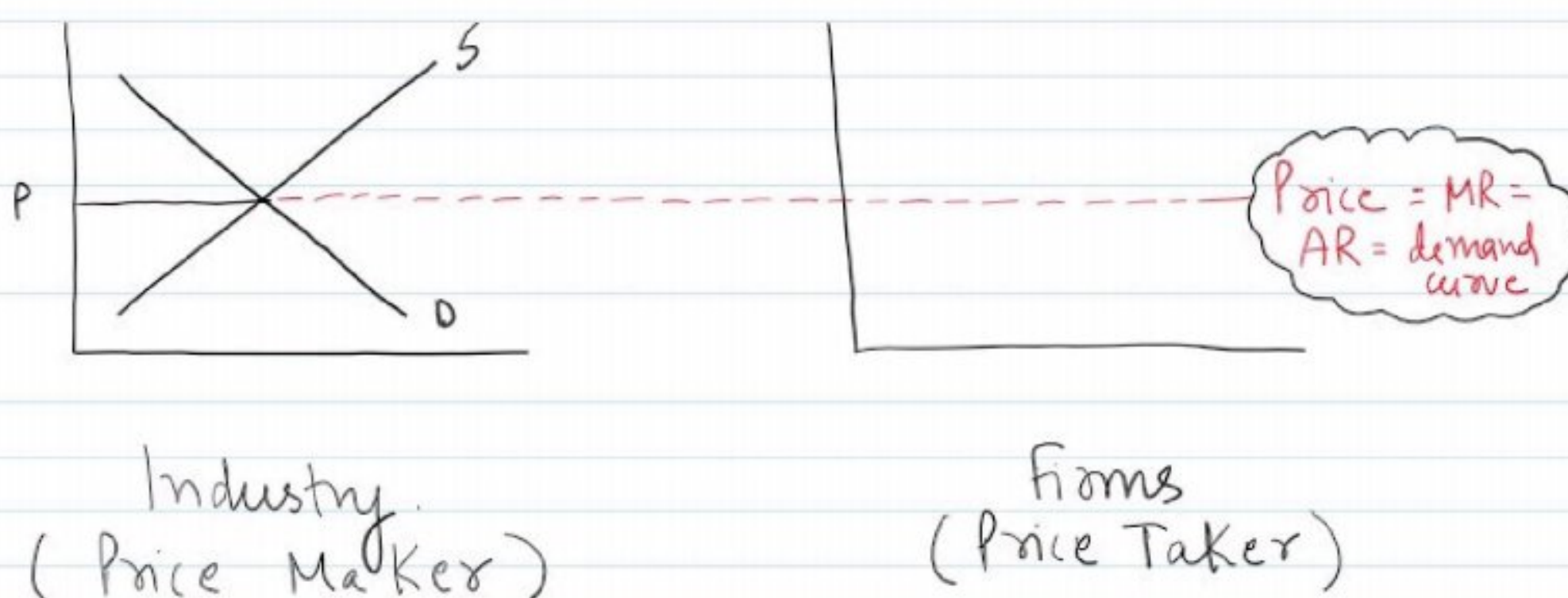
④ Perfect **Knowledge** of Market
{ Buyers & Sellers }

⑤ **Free mobility** of factors of production
↓
Perfect (transferable)



⑥ **NO** Selling cost / Transportation cost is involved
↓
Advertisement

⑦ Firms are **PRICE TAKER**



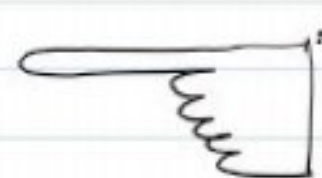
★ Industry = Group of Firms ★

* Perfect market is also known as **IDEAL Market** or **COMPETITIVE market**

* In Perfect Competition,

Price = MR = AR = Demand Curve

$E_d = \infty$
(perfectly Elastic)



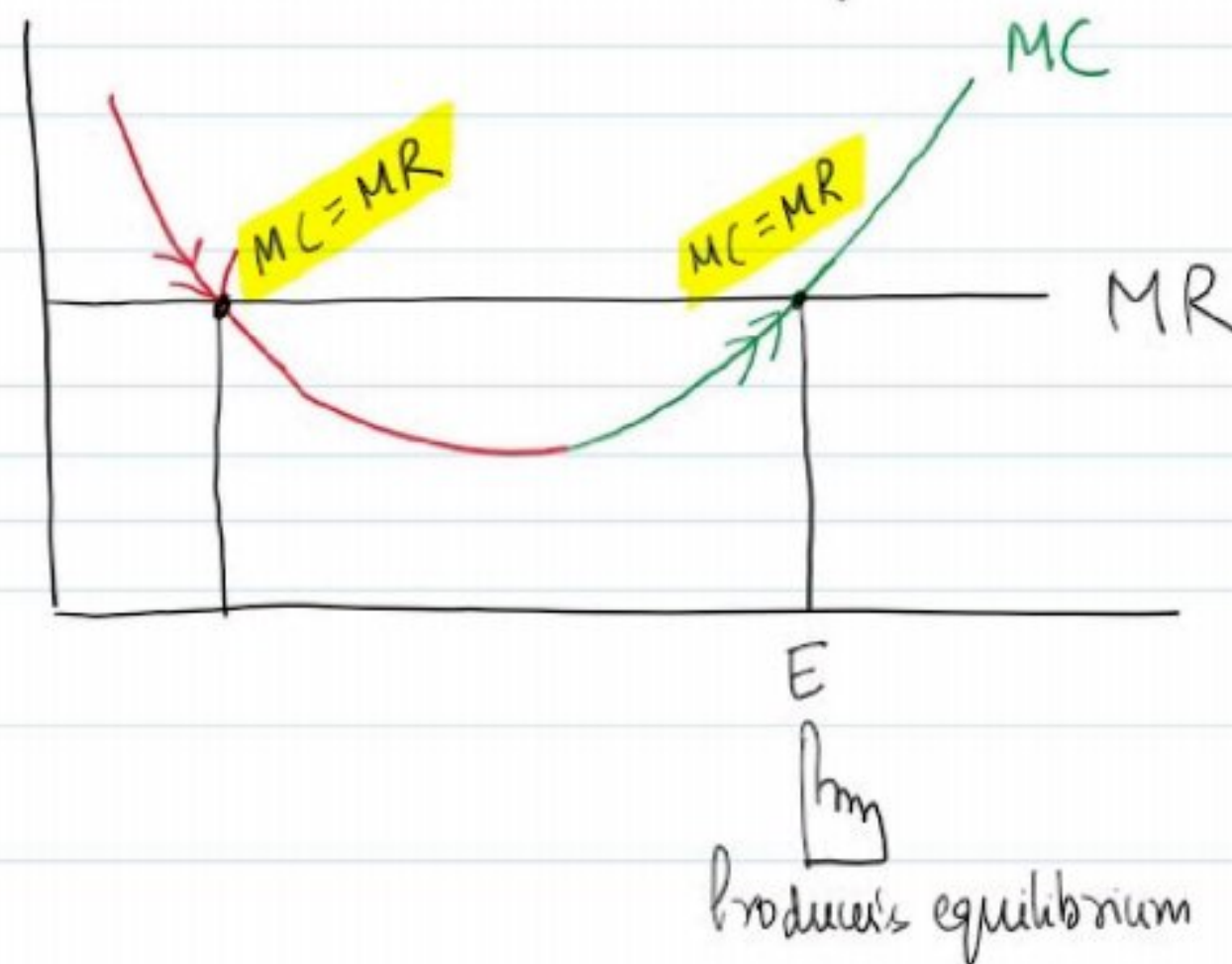
parallel to
X-axis

* Producer's Equilibrium (i.e. Profit Maximisation)

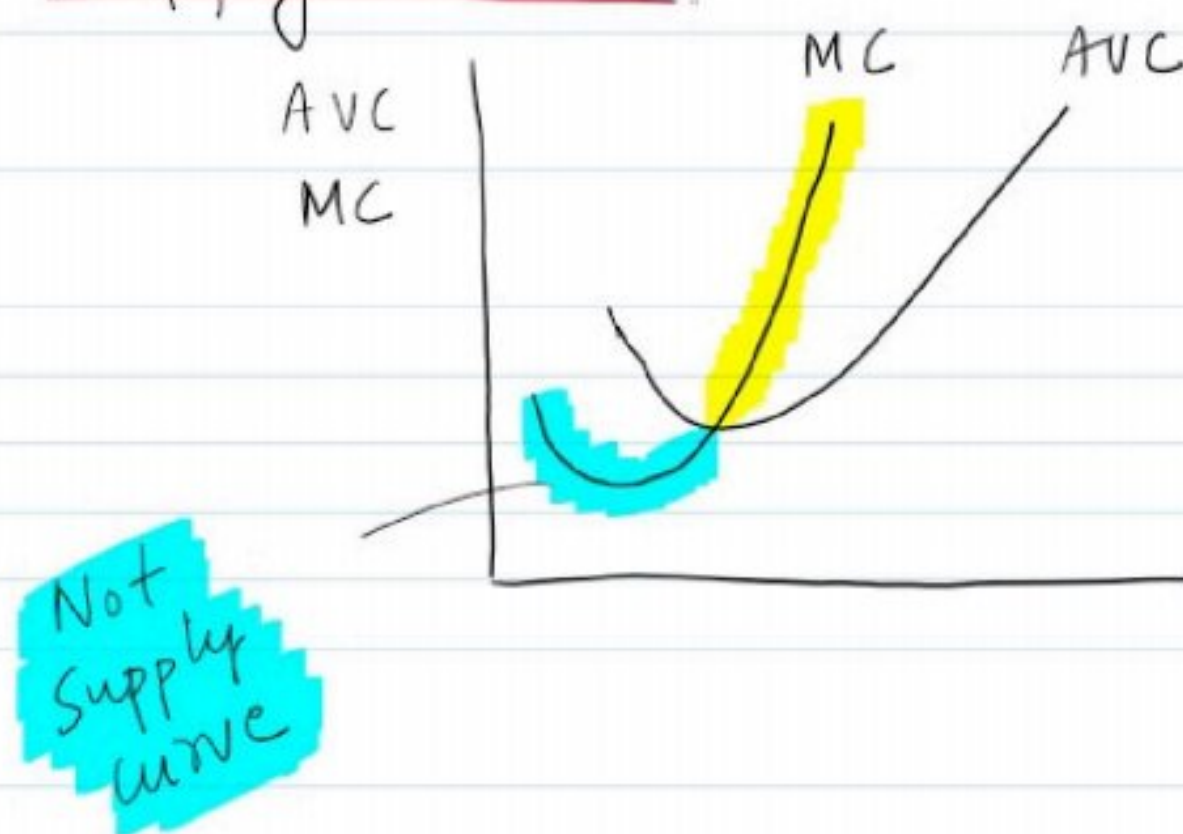
* Producer's Equilibrium (i.e. Profit Maximisation)

(i) $MC = MR$

(ii) MC should cut MR from below
i.e. MC should have positive slope
(i.e. $MC > MR$ after Intersection)



* Supply curve



The rising portion of MC is Supply curve (after intersection)

* Profits of Perfect Market (Competitive Firm)

- Abnormal profits : $AR > AC$
(Super Normal profits)
- Normal Profits : $AR = AC$
- Losses : $AR < AC$

* Price = £10, AC = £12, AVC = £9

Find (i) AFC

(ii) Should the firm continue?

find (i) AFC

(ii) Should the firm continue?

Sol:-

$$\begin{aligned} \text{(i) } AFC &= AC - AVC \\ &= 12 - 9 \\ &= 3 \end{aligned}$$

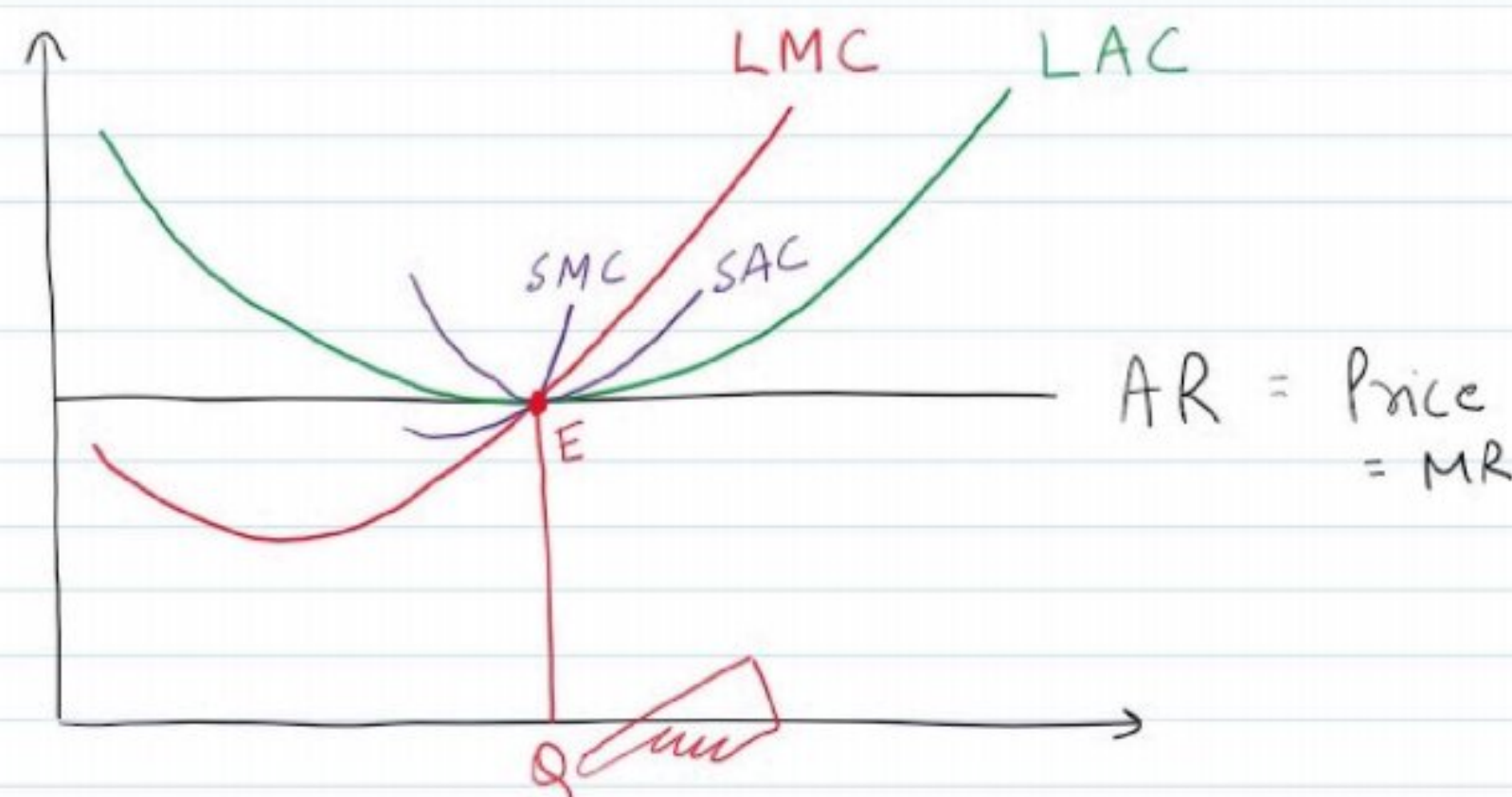
(ii) Yes, firm will continue.

$$\text{Price (£10)} > \text{AVC (£9)}$$

* Long Run Producer's Equilibrium (of Firm)

$$LMC = LAC = \text{Price}$$

i.e. minimum point of LAC should be Tangent to demand curve (i.e. AR curve)



Also, $SMC = LMC = SAC = LAC = \text{Price} = MR$

* Minima of LAC & SAC "inside"

* Point E shows OPTIMUM COST

* A firm producing Q level of output at Optimum cost is called OPTIMUM FIRM

* Long Run Equilibrium of Industry

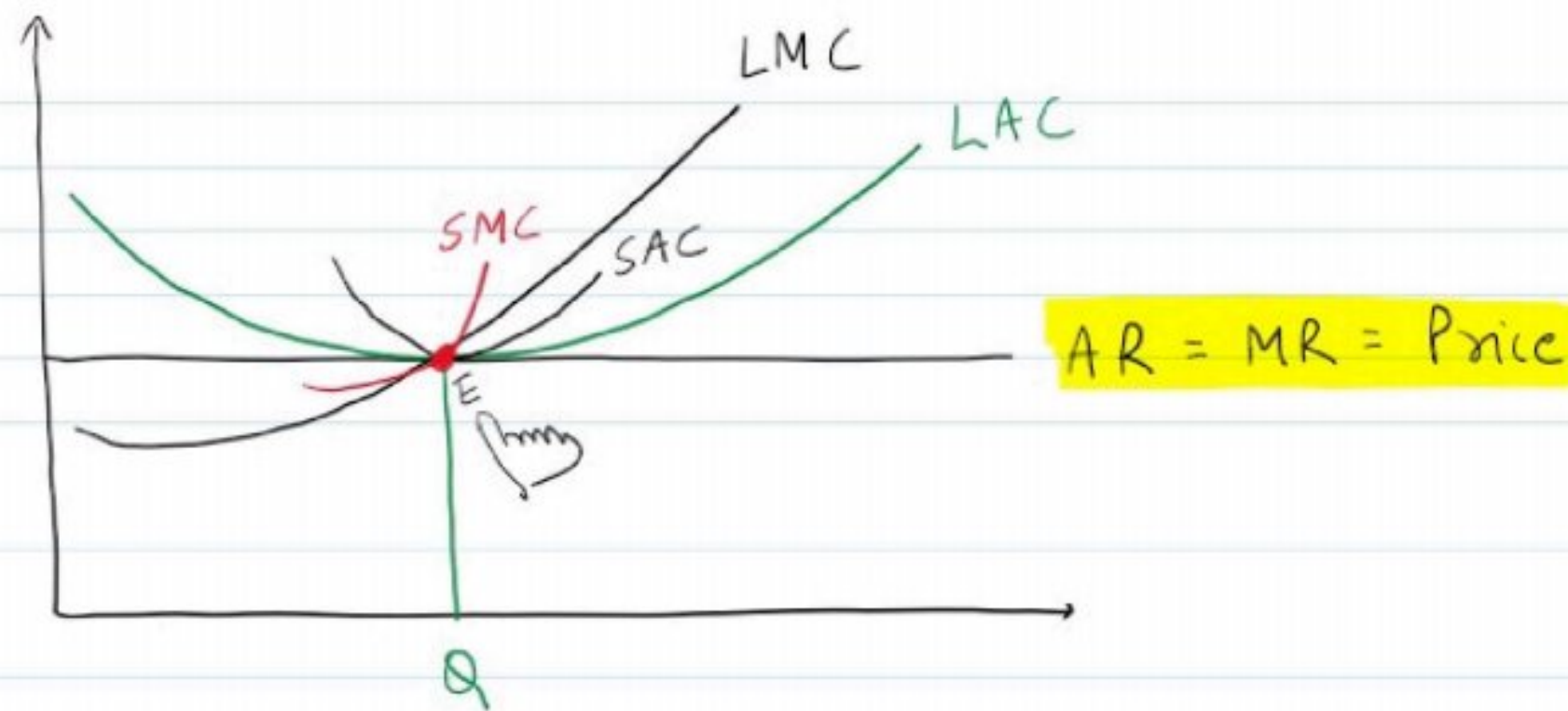
• when all the firms earn Normal Profits

AND

(TTND)

- NO further entry or exit takes place.

100%
*
Ratta.



At E Point

(i) $MC = AR$

Consumer pays Minimum Price (✓)

(ii) $MC = AC$

Plants are used at FULL capacity (✓)
(i.e. NO wastage of resources)

(iii) $AC = AR$

Firms earn NORMAL PROFIT

(iv) $MC = MR$

Producer's equilibrium (Profit Maximisation)

II. MONOPOLY (eg. Railways)

Single

Seller

→ Monopoly means "alone to sell"

→ Here firm and Industry is Same

Features

(i) Single seller - Price Maker i.e.

Substantial control over Supply.

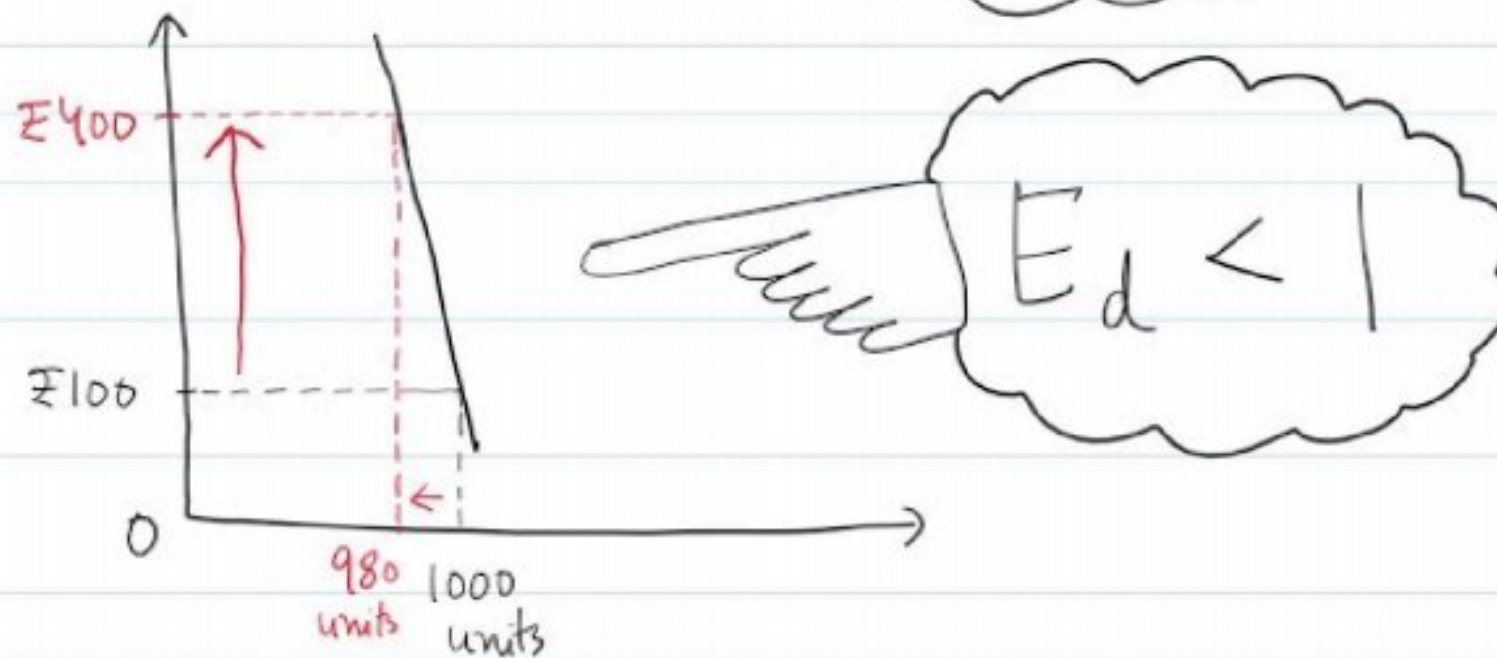
Substantial control over Supply.

(ii) **Restriction** in Entry

(iii)** **NO** close substitute

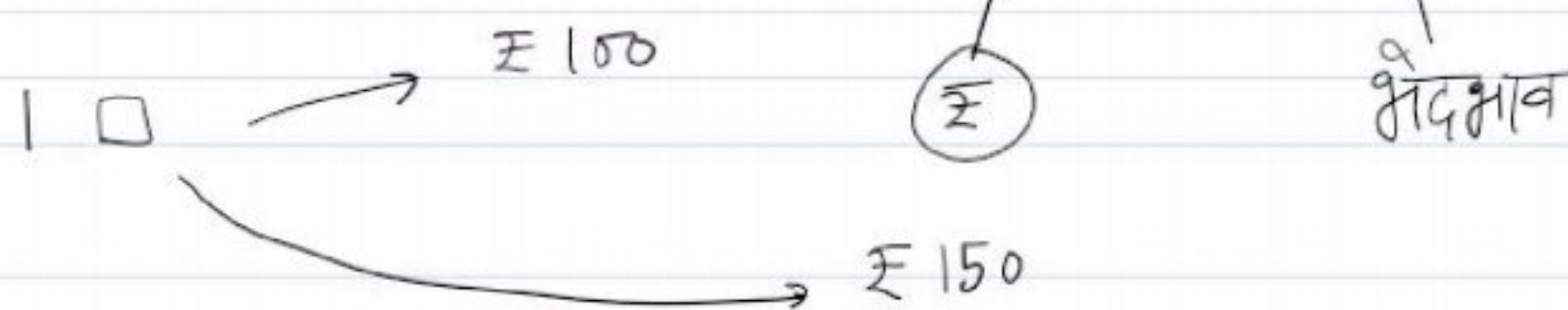
$\therefore$ Cross elasticity is **ZERO**

$\therefore$ Demand curve is **NEGATIVELY SLOPED** **STEEPER** curve



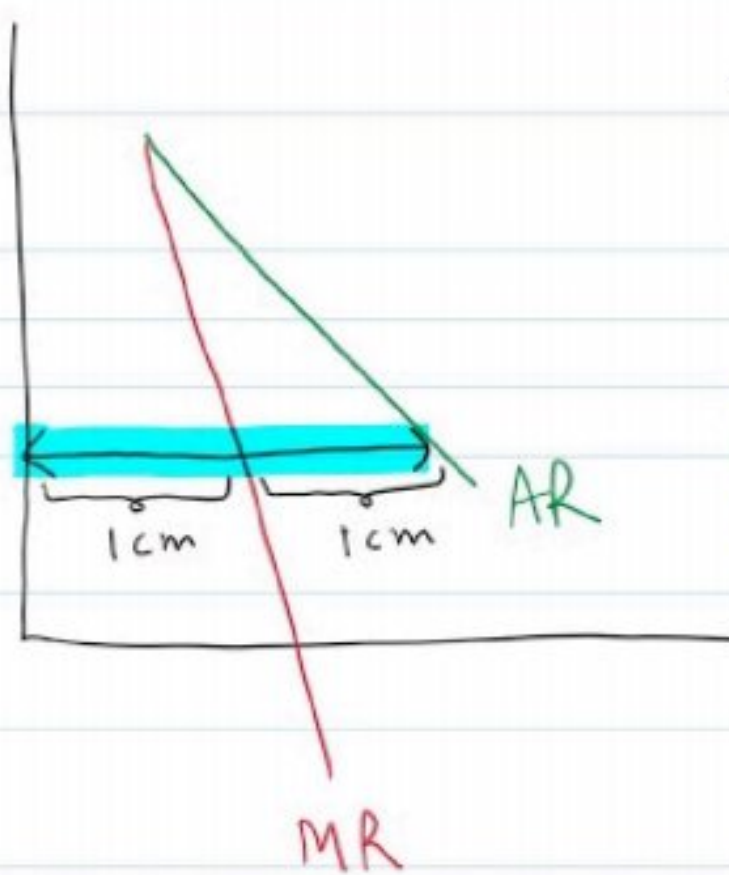
(iv) Monopolist has market power i.e. **charging price above MC**

(v) Monopolist may adopt **Price Discrimination**



(vi) Monopolist can also incur **Losses** **$AR < AC$**

(vii) Relation of AR & MR



$\rightarrow$ Both MR & AR are downward sloping (negatively sloped)
 $\rightarrow$ AR can never be zero but MR can be zero or negative.

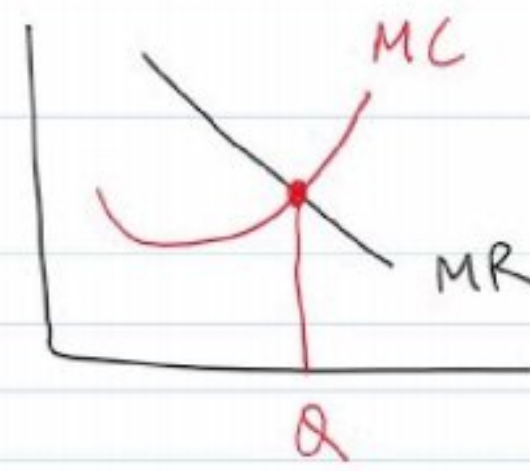
$\rightarrow$ MR curve lies half way between AR curve & Y-axis.

* EQUILIBRIUM (profit Maximum)

1 \ MC

MR = MC (Profit Maximizing)

$$MR = MC$$



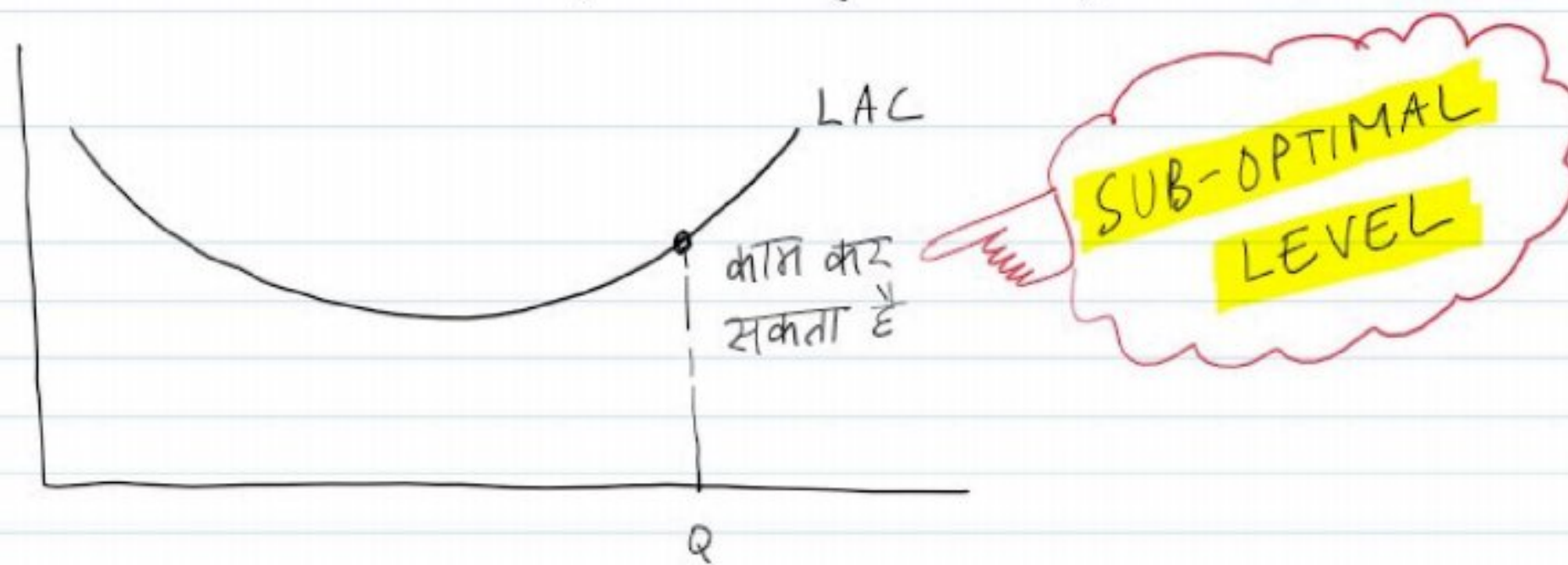
* Profits

- Abnormal profits : $AR > AC$
- Normal profits : $AR = AC$
- Losses : $AR < AC$

* LONG RUN

→ In long run, monopolist can earn **Abnormal profits** since **outside entry of new firm is blocked**.

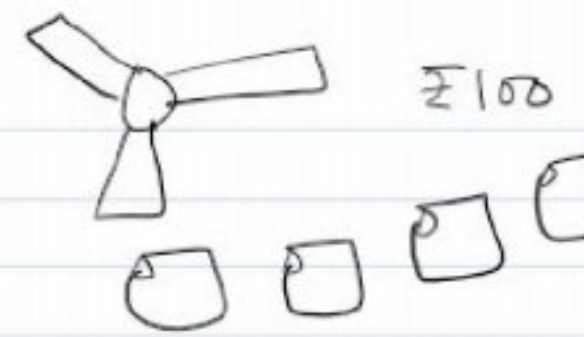
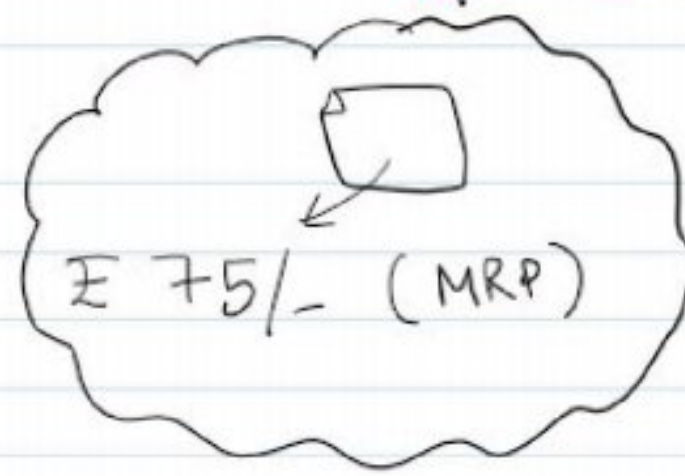
→ In long run, monopolist need not produce at **Optimum level** (i.e. Minimum point of LAC)



* How do monopoly arise ?

- Strategic **control over** Resources
- Government granting exclusive rights (Patents or copyrights) **प्राप्ति**
- Business combinations i.e. **CARTEL**
- Extremely large startup **(cost)**
- Firm may use anti-competitive practice like **predatory / limit pricing**

practice like predatory / limit pricing



*

Imp.
100%

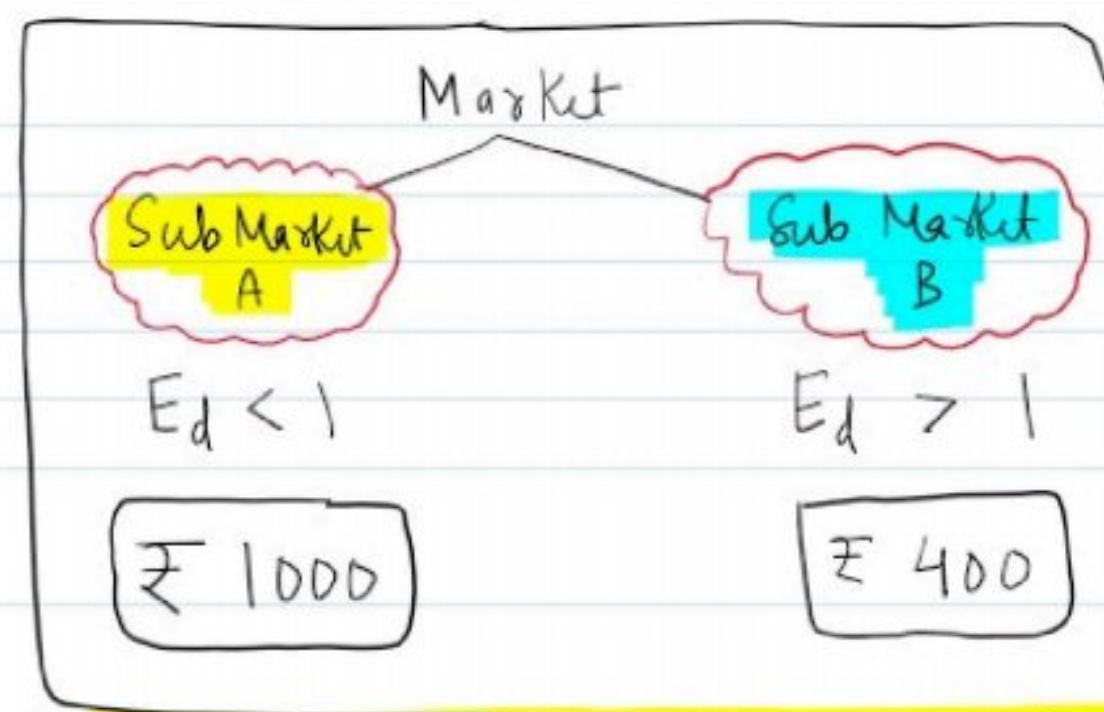
Price Discrimination

1) Objectives

- to earn "maximum profits"
- to capture foreign markets.
- to enjoy economies of Scale (dispose excess stock)

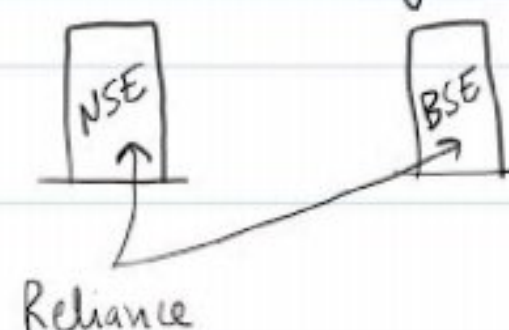
2) Price discrimination is possible only when the following conditions are satisfied

- Monopoly must exist
- Seller must be able to divide the market into sub markets
- Price elasticity is different in different sub markets.



Higher prices where demand is inelastic

→ No market arbitrage



NSE = ₹ 2,312/-
BSE = ₹ 2,325/-

} arbitrage

3) Degrees of Price Discrimination - A.C. Pigou

3) Degrees of Price Discrimination - A.C. Pigou

First Degree - Price is such that it takes away **ENTIRE** consumer surplus

Second Degree - Price is such that it takes away **ONLY PART** of consumer surplus

Third Degree - Price varies because of **LOCATION** or customer segment)

eg Popcorn in "Cinema Hall"

* Price discrimination may relate to time, size of purchase, income etc

x — x — x — x — x — x — x

III MONOPOLISTIC COMPETITION

- This market is a blend of Perfect Competition and Monopoly

[eg:- **SOAP Industry**]

Features

(i) Large number of buyers + Sellers

- Individual buyer or seller has a very small share in the market

(ii) **Product differentiation**

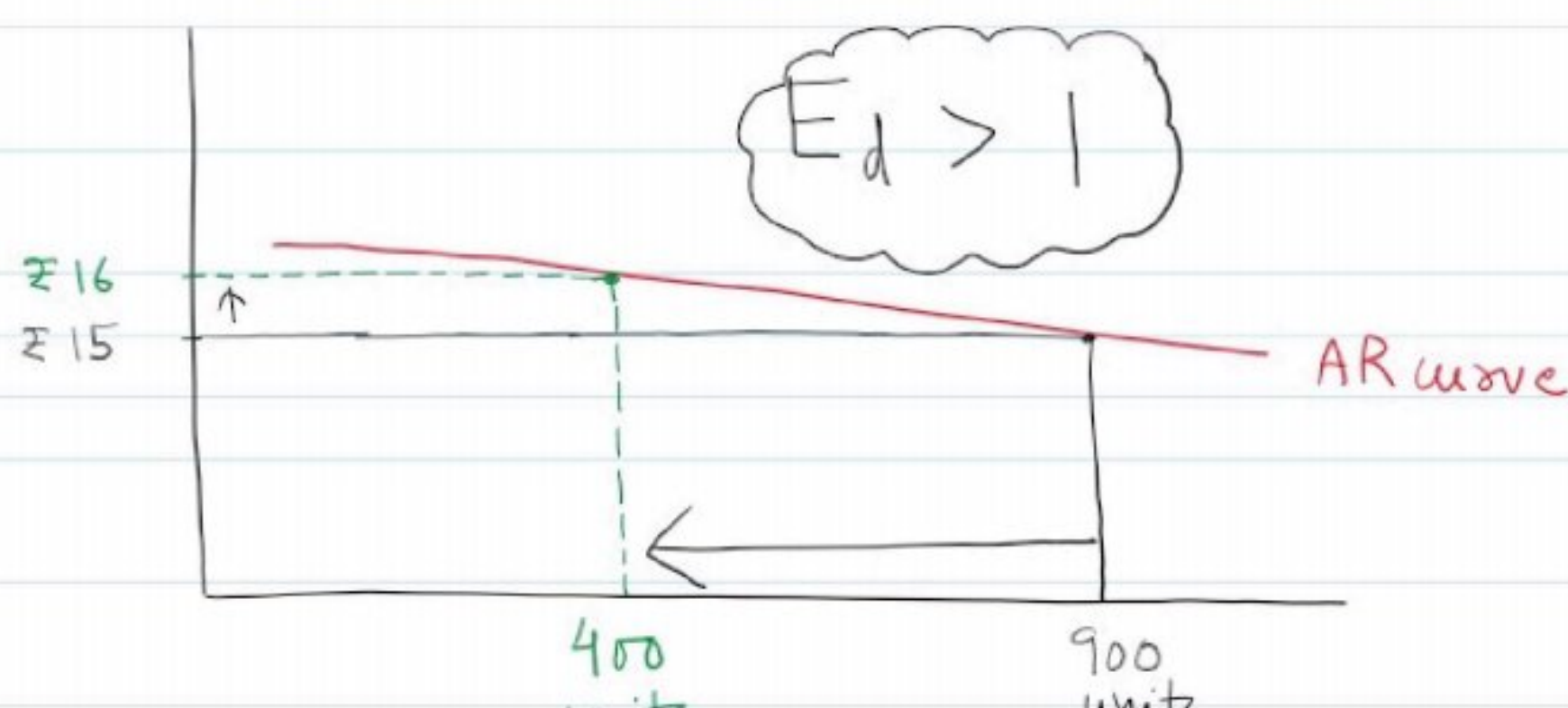
- Heterogeneous products (**Similar products**)

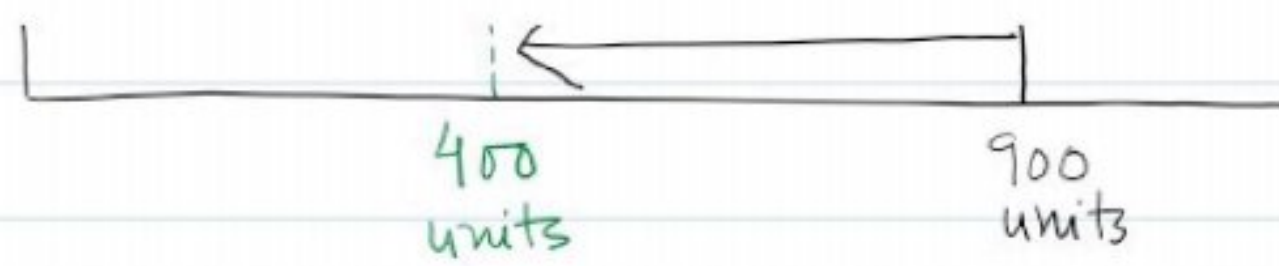
- Products are close substitutes



- Demand curve (or AR curve) is

DOWNWARD SLOPING FLATTER curve





(iii) Free entry and exit of firms

Firms will earn **normal profits** in long run

$AR = AC$

(iv) **Huge** Selling / Advertisement cost is involved

₹ ₹ *crores*

(v) **Non** Price competition

~~Price War~~

₹ → ₹
SRK
Co. tie up.

₹ ← ₹
AR
Co. tie up.

* **EQUILIBRIUM (Profit Maximisation)**

(i) $MR = MC$

(ii) MC should cut MR from below

* **Profits**

- Abnormal profits : $AR > AC$
- Normal profits : $AR = AC$
- Losses : $AR < AC$

* In long run, all the firms earn **Normal profits.**

ZERO Super Normal Profit

IV OLIGOPOLY

(eg **Cold drink** Industry)

(eg Cold drink Industry)

(i) Competition among FEW
2 - 10

(ii) Strategic Interdependence
(iii) Group Behavior
(iv) Price Rigidity ✓

collusive } Discussion Later.

(v) Product may be Homogeneous or Heterogeneous

Cement, LPG Industry Cold drink industry.

(vi) Entry of new firms are "Very difficult"

(vii) Huge selling & advertisement cost.

→ Types of Oligopoly

(1) Pure (or Perfect) - deals with homogeneous product
(2) Differentiated (or Imperfect) - deals with heterogeneous product.

(3) Open - New firm can enter

(4) Closed - Entry is restricted

(5) Collusive - Commonly decide price & output

(6) Non-collusive - Compete with each other.
(Competitive)

(7) Partial - Industry is dominated by one large firm

(8) Full - NO leadership

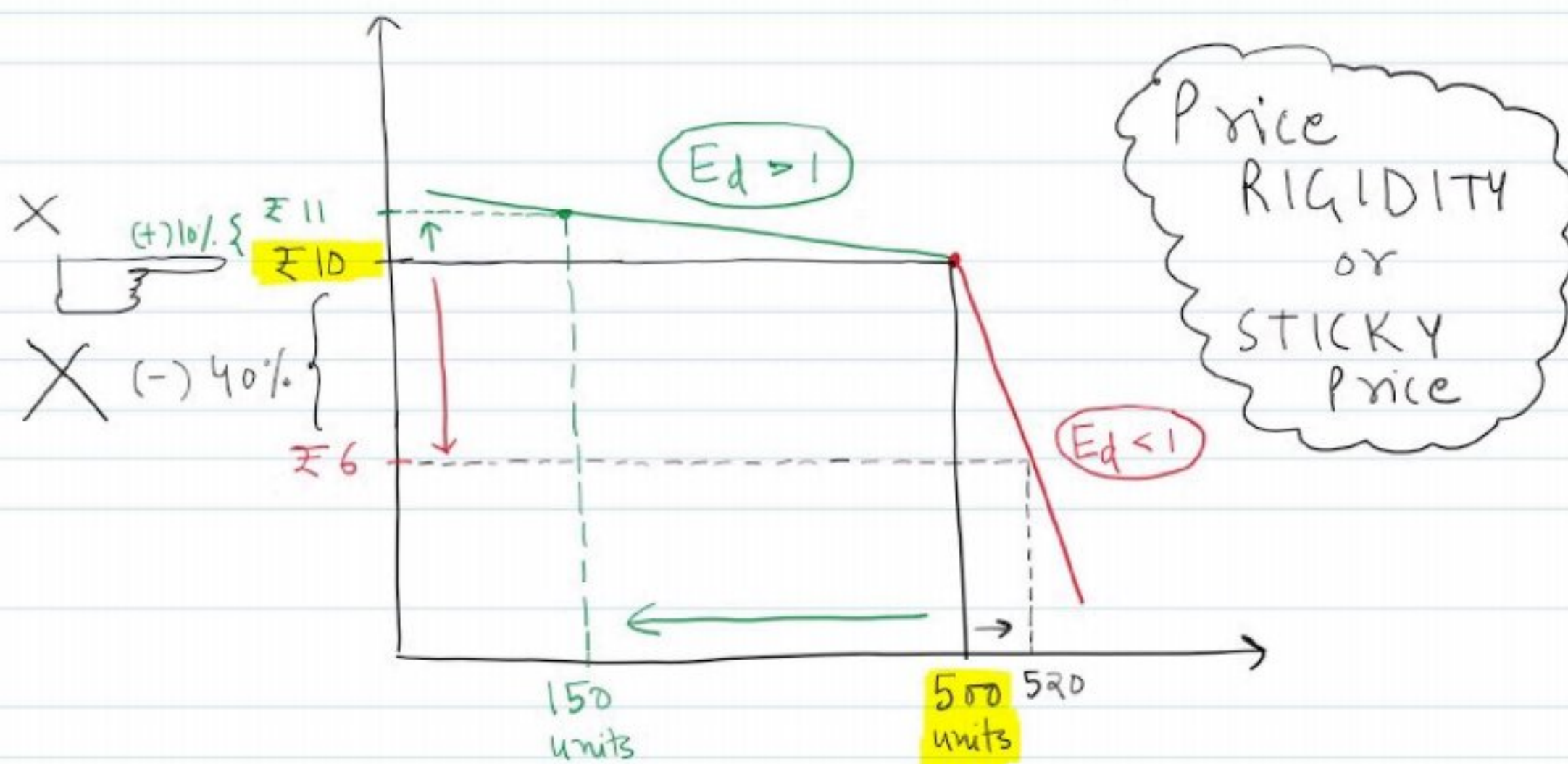
(9) Syndicated - Small group control it i.e. centralised body

(10) Organised - All firms decide their

⑩ Organised - All firms decide their output (centrally organised)

* Demand Curve

→ Because of price rigidity, demand curve is **KINKED** - given by SWEEZY



→ Response to price increase is **MORE THAN** response to price decrease.

* Price & Output decision

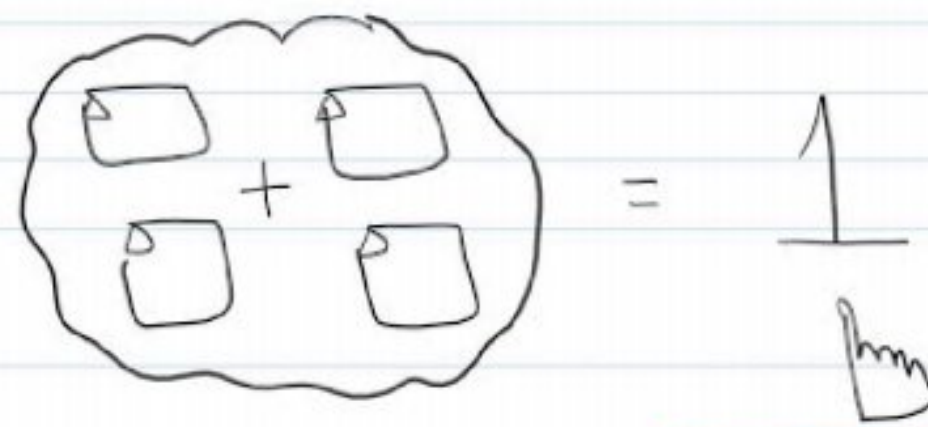
(i) Interdependence is ignored then output is determined by **MR = MC** → profit Maximisation

(ii) Oligopolist tries to predict the reaction of his competitor.

COUR NOT model	Stackelberg's Model	Bertrand Model
↓ each firm decides its Output	↓ Leader decides Output	↓ Each firm decides its price

(iii) Oligopoly firms **act as monopoly organisation** & fix their prices to enjoy maximum profits.

U & V fix their prices to enjoy maximum profits.



OPEC

(Organisation of Petroleum Exporting Countries)

* Price leadership

→ Cartel : = 1 unit

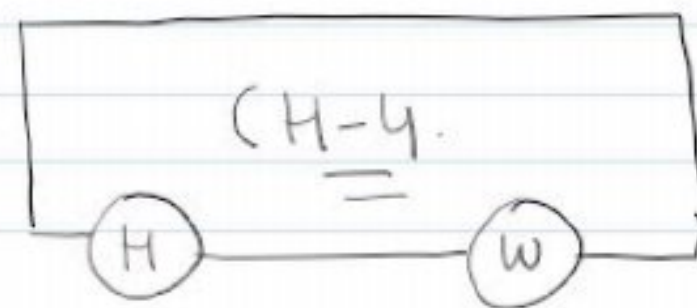
→ Price leadership : → leader decides price
"FRINGE firms"

→ Barometric price leadership : Old, experienced, most respected firm becomes price leader.

* Other market forms

- 1) Duopoly — Two firms (sellers)
- 2) Monopsony — Single Buyer
- 3) Oligopsony — Few Large Buyers
- 4) Bilateral Monopoly — One Buyer & One Seller

X — X — X — X — X — X — X — X



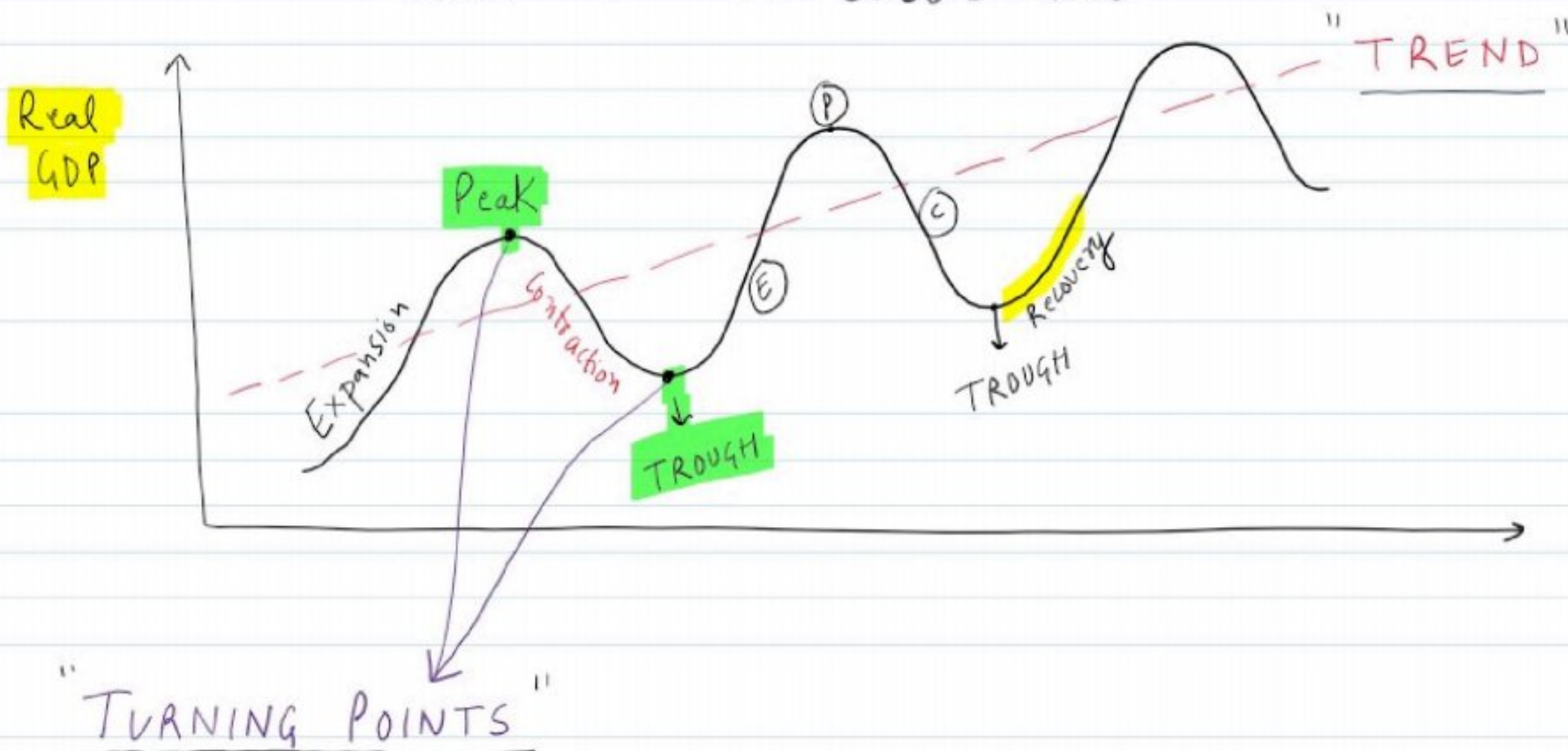
CH5 :-

"Business Cycles"

→ Rhythmic Fluctuations in aggregate economic activity that an economy experiences over a period of time are called business cycles or trade cycles

eg :- 1920 UK → GDP ↑↑↑↑
1929-30 Great Depression (US)

eg :- 1920 UK → GDP ↑↑↑
 1929-30 Great Depression (US)
 2020 China → Recession
 2007-2008 :- US Banks
 2000 :- IT Bubble burst.



Phases of Business Cycle

① Expansion

National Output, employment
 Aggregate demand, expenditure
 Sales, Profits, Stock prices,
 Bank rate, Investments,
 production, Confidence,
 factor Income etc etc



* Involuntary unemployment is almost zero.
 Only Frictional & Structural unemployment exists

willing to work
 but do not find
 work

change
 in Job

change in
 Structure

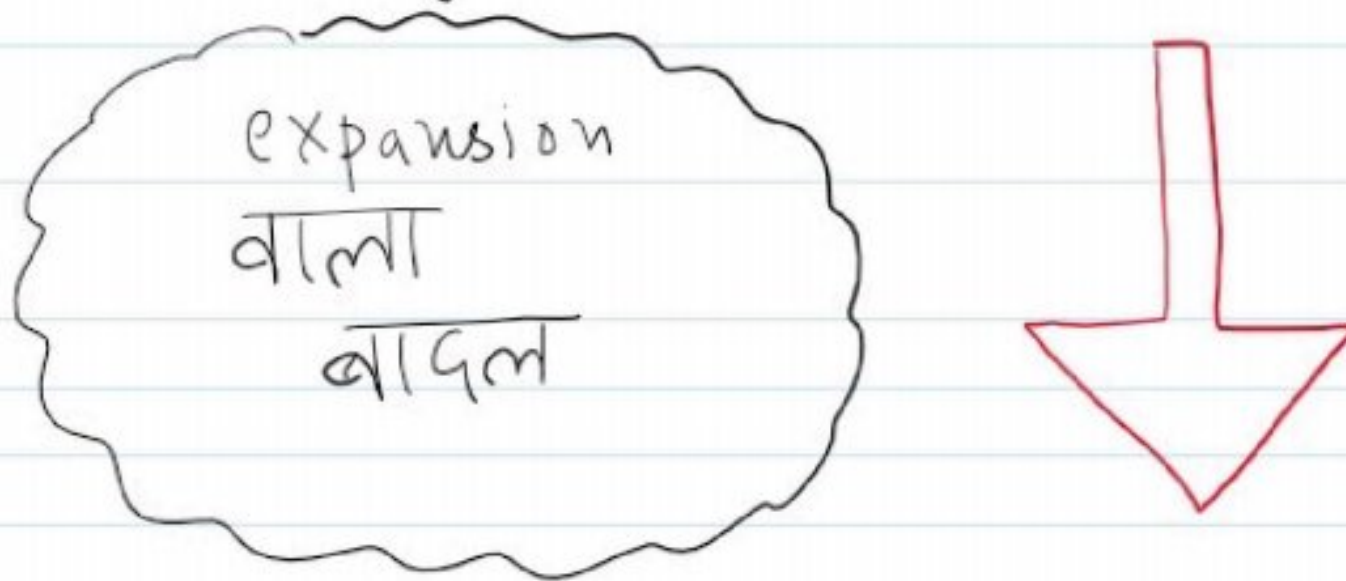
27 March Leave → 3 May New Joining

② PEAK

- End of Expansion
 - Highest point
 - ⑦ → Inputs are difficult to find as they are short of their demand.
 - ⑧ → Actual demand stagnates.
- " रुक जाते रुक जाते "

③ Contraction (Down Swing / Recession)

→ Supply > Demand



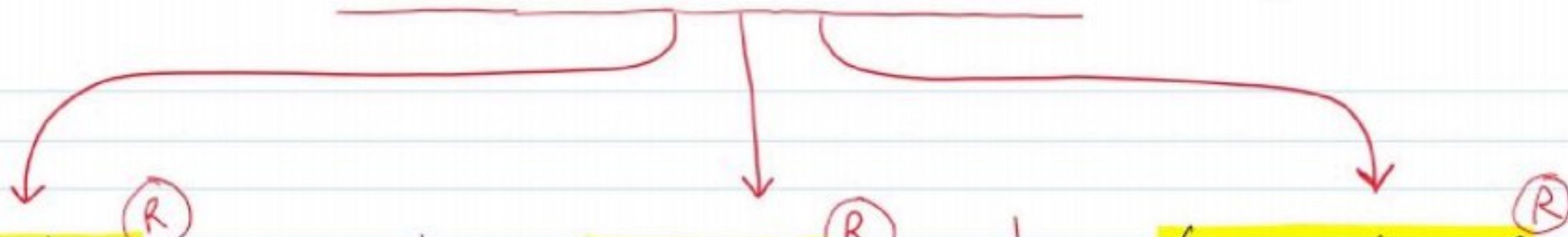
④ TROUGH (Depression)

- Growth rate becomes negative
- Occurs when "recession is complete"
- People's demand for liquid money increases
- National Income & expenditure declines rapidly

Great Depression 1929-33 (US)

* Recovery - Beginning of Expansion

* Economic Indicators *



Leading^(R)

- Change in stock price
- Profit margins
- Housing Interest Rates
- New Capital or Consumer good orders

Lagging^(R)

- Unemployment
- Corporate profits
- Labour cost per unit of Output
- "Interest Rates" (some times)
- Consumer Price Index

Coincidental^(R)

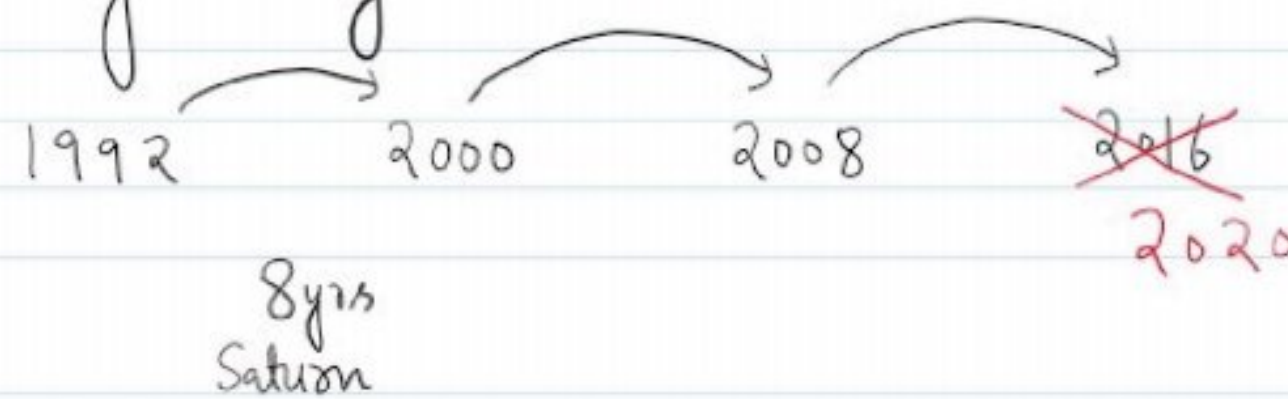
- GDP
- Inflation
- Industrial Production
- Retail Sales
- Personal Income

* Features of Business Cycle

1) Differ in duration & Intensity



2) NO Regularity



3) Length of each phase is not definite

4) Generally originate in Free Market (Capitalist) economy

5) It affects Industrial sector more than agricultural sector

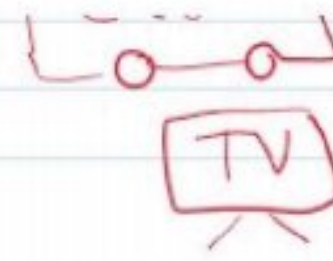
6) Capital Good Industry & Durable Consumer good Industry is severely affected

Machine

Car

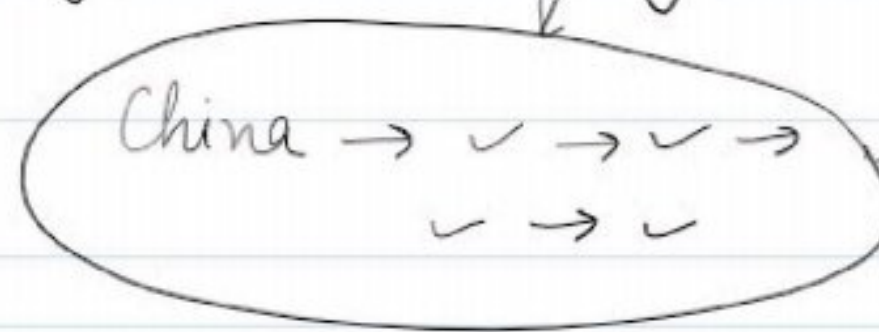
TV

Machine



7) Its effect can be felt on all economic variables.

8) Business cycle is contagious and international



* Causes of Business Cycle *

Internal

→ Fluctuations in effective demand (KEYNES)

$$AD = C + I + G + NX$$

→ Fluctuations in Investment (MOST VOLATILE)

→ Fluctuations in Government expenditure

→ Fiscal & Monetary Policies

Govt

RBI

→ Changes in Money Supply by HAWTREY

→ Psychological factors

→ AC Pigou : Anticipation of optimism or pessimism

→ Schumpeter : due to innovations

External

→ WAR

→ Post war reconstruction

→ Technological shocks*

→ Natural factors (Floods, earthquake)

→ Population (increase)

→ Others:-

Savings ↓

Investments ↓

* CONCLUSION

(i) B. cycles have tremendous influence on business decisions

(ii) B. cycles do not affect all sectors uniformly

(iii) [ⓧ] Business whose fortune are closely linked to the rate of economic growth are referred to as CYCLICAL Business

Economic Growth ↑
↓



Restaurants, Construction firms, Fashion Retailers, electric goods etc

(iv) Economic ^{*}forecasts^{*} are not perfectly reliable but can help the business to prepare for changes

"H.W Q28"

x ————— x ————— x ————— x ————— x ————— x