Date: _____

ELASTICITY OF DEMAND:

Elasticity = $\frac{\text{percentage change in quantity demanded}}{\text{percentage change in price}} = \frac{\% \Delta Qd}{\% \Delta P}$

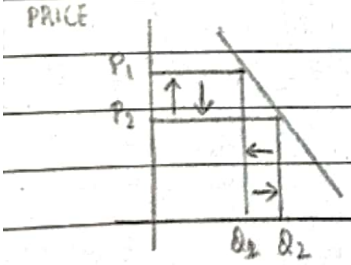
$$\varepsilon_d = \frac{(Q_2 - Q_1 / Q_2 + Q_1)}{2} \div \frac{(P_2 - P_1) / (P_1 + P_2))}{2}$$

= Responsiveness of Quantity Demanded Due to Price Change

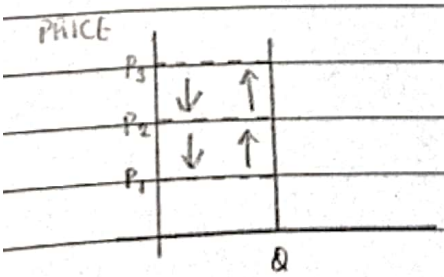
= $\frac{\text{Corresponding } \Delta \text{ sensitivity of demand}}{\Delta \text{ sensitivity of Price}}$

InElastic Demand:

1) Choices are limited
2) Necessities - products and services of routine
3) Demand curve appears to be steep / inclined
4) Huge change in price is required to bring about a change in quantity
5) Price interval should be greater than quantity interval.



Examples:
- Biryani
- Bread (price went ↑, demand quantity less Δ)

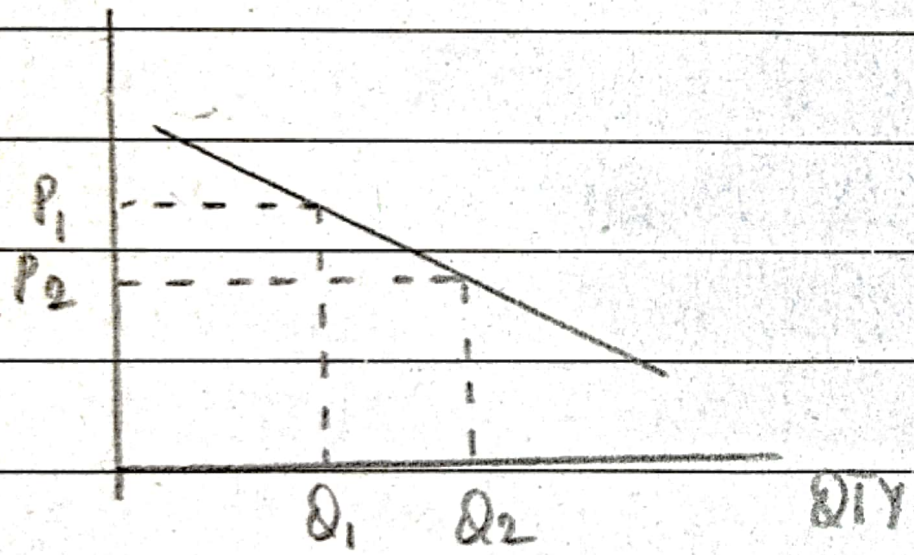


Perfectly inelastic examples:
- Cancer treatment
- Chemotherapy sessions
- Organ transplant

Elastic Demand:

1) A very small change in price is required to bring about a change in quantity.
2) Price interval is smaller, quantity interval is greater.
3) Demand curve appears to be flatter

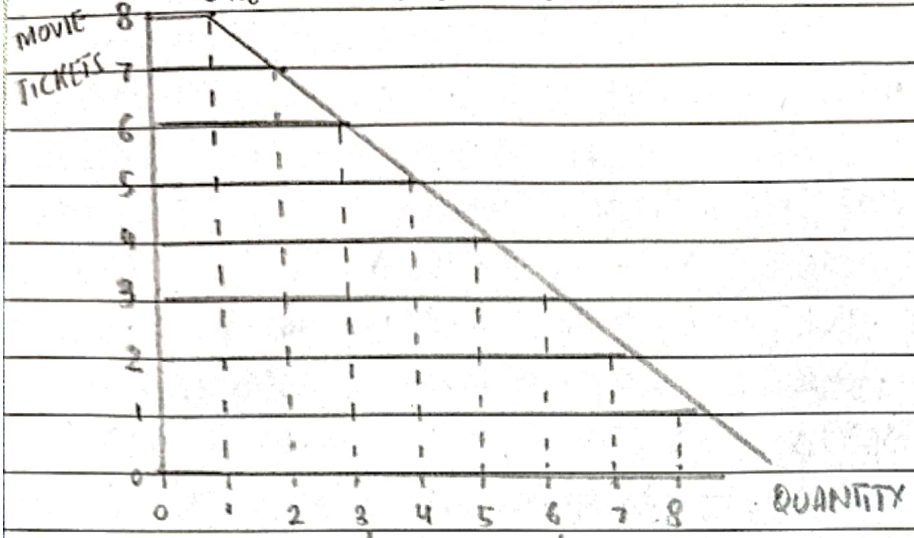
Date: ___



- Choices are not limited
- Luxuries
- Apparels / clothes
- Footwear
- Pencils

Date: _____

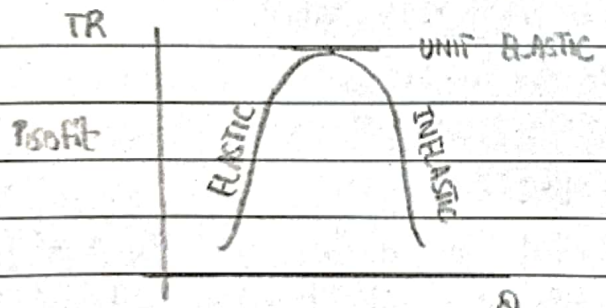
SALE OF MOVIE TICKETS:



8 x 100 = 800	4 x 500 = 200
7 x 200 = 1400	3 x 600 = 1800
6 x 300 = 1800	2 x 700 = 1400
5 x 400 = 2000	1 x 800 = 800

Total Revenue (TR) = P x Q

- On the unit elastic region, price change does not bring about a change in quantity.



Profit = Total Revenue - Cost

Profit = 800 - 8

= 792

TR ↑	$E_d > 1$	Profit ↑
TR Constant	$E_d = 1$	Profit constant
TR ↓	$E_d < 1$	Profit ↓

Date: _____

(11) From WhatsApp

(a) $Q = 2000 - 20(10)$

$Q = 1800$

(b) $Q = 2000 - 20(0)$

(c) $TR = P \times Q$

$TR = P \times (2000 - 20P)$

$TR = 2000P - 20P^2$

$P \times Q = (100 - 0.05Q)Q$

$\boxed{PQ = 100Q - 0.05Q^2}$ – total revenue

$20P = 2000 - Q$

$P = 100 - 0.05Q$ ← in terms of Price

(Marginal revenue is the rate of change of TR, differentiate!)

$\boxed{MR = 100 - 0.1Q}$ – in terms of Price

$MR = 2000 - 40P$ – in terms of Quantity

(d) $TR = 2000(70) - 20(70)^2$

$TR = 42000$

$MR = 2000 - 40(70)$

$MR = -800$

(e) ε_{PT} (point of elasticity) $= \text{slope} \times \frac{P}{Q}$

$Q = 2000 - 20(70)$

$Q = 600$

$\varepsilon_{PT} = -20 \times \frac{70}{600} = \boxed{-2.33}$

(f) $TR = 2000(60) - 20(60)^2 = 48000$

$MR = 2000 - 40(60) = -400$

$\varepsilon_{PT} = -20 \times \frac{60}{2000 - 20(60)} = \frac{-3}{2} = -1.5$

(g) $\varepsilon_d = \text{slope} \times \frac{P}{Q}$ $\Rightarrow$ $-1 = -20 \times \frac{P}{2000 - 20P}$

$2000 - 20P = 20P$

$2000 = 40P$

$P = \boxed{50}$

Date: _____

(18) From whatsApp

(a) Revenue change = $(1 \times 672,000) - (1.5 \times 623,000)$

$= -44,450$

21-3-23

CONSUMER BEHAVIOUR & UTILITY MAXIMISATION:

(1) Assumptions of Consumer Behaviour
(2) Total Utility and Marginal Utility
(3) Law of Diminishing " "
(4) Utility Maximisation Rule

Consumers?

(1) Consumers are demanders and ultimate users of product/service

Behaviour? Response / Reaction / Choice

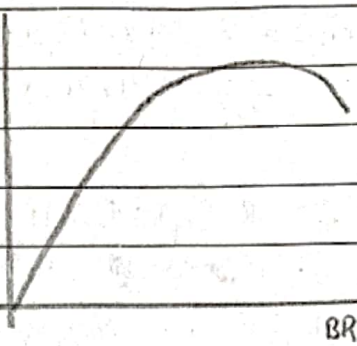
Assumptions: (1) Rationality → LOGIC → UTILITY MAXIMISATION
(2) Budget Constraint → INCOME (Easy/Severe BC)
(3) Preferences → PRIORITIZING THINGS
(4) Prices

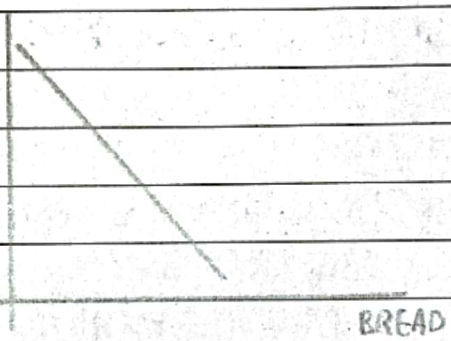
Utility refers to satisfaction / happiness
- Total utility is total satisfaction
- Marginal utility is extra satisfaction

Law of Diminishing Marginal Utility:
As the individual consumes more units of a certain good or service, total utility increases, but marginal utility declines.

Date: _____

BREAD	TU	MU
0	0	
1	10	10
2	18	8
3	24	6
4	28	4
5	30	2
6	30	0
7	28	-2





UTILITY MAXIMISATION RULE: In order to maximise satisfaction the consumer should allocate their money in a manner that the last dollar spent on each good gives them equal utility per unit currency.

Maximisation = Rationality
Allocate = Preference
Money = Budget constraint
Spend = Price

Utility per unit price = Marginal Utility / Price

UNITS	MU_a	MU_a / P_a	MU_b	MU_b / P_b
1	10	10	24	12
2	8	= 8	20	10
3	7	* 7	18	9
4	6	6	16	= 8
5	5	5	12	6
6	4	4	* 6	3
7	3	3	4	2

$P_a = \$1$ $P_b = \$2$
Income = $10
(Consumer will spend all income)

$\frac{8}{1} = \frac{16}{2}$

* if $P_b = \$1$

Date: 28-3-23

Consumer Behaviour And Utility Maximisation

(11 from WhatsApp) Two goods A & B

$MU_a = 10 - x = 3$ Income = \$10

$MU_b = 21 - 2y = 3$

x is the amount spent in A $x + y = 10$ is the marginal

y " " " " " B utility per dollar, How is it allocated?

$10 - x = 21 - 2y$

$-x + 2y = 11$

$+ \quad x + y = 10$

$3y = 21$

$y = \boxed{7}$

$x = \boxed{3}$

$MU_a = 10 - (3) = 7$

$MU_b = 21 - 2(7) = 7$

$\frac{MU_a}{P_a} = \frac{MU_b}{P_b} = 7$

$10 - x = 21 - 2y = 7$

$x = 3, y = 7$

(5 from whatsApp) © Price of Good Y increases to \$2, and income of consumer increases to \$12

(a)

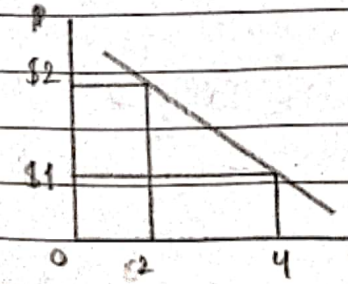
Units	MU_x / P_x	MU_y / P_y
1	5	8
2	4	7
3	3	6
4	2	5
5	1.5	4
6	1	3

(the ditto from whatsApp

(b) Price of x is \$1

Units	MU_x / P_x	MU_y / P_y
1	10	8
2	8	7
3	6	6
4	4	5
5	3	4
6	2	3

Demand curve for x:



(d) P_x = \$2 P_y = \$1 Income = \$12

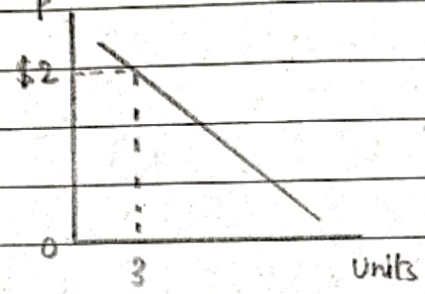
Units x = 3 Units y = 6

Date: _____

© $P_x = \$2$ $P_y = \$2$ Income = $\$12$

Units	MU_x / P_x	MU_y / P_y
1	5	4
2	4	3.5
3	3	3
4	2	2.5
5	1.5	2
6	1	1.5

Demand curve for Good Y:



29-3-23

Budget Line:

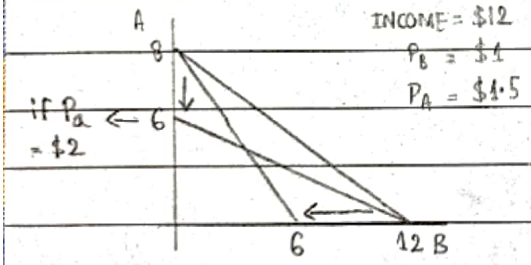
1) It is the budget constraint and it is also termed as Price line

2) Eqn. of the Budget Line:

M (Income) $= P_a \cdot A + P_b \cdot B$ (P_a = Price of A, A = Units of A)

3) Budget line Approach: It is an objective approach to utility analysis.

4) It shows various combinations of goods which can be utilized (taken) by the consumer.



↳ if P_B = $2

$\frac{\text{Income}(M)}{P_A} = \frac{12}{1.5} = 8$

$\frac{M}{P_B} = \frac{12}{1} = 12$

$U = \frac{M}{P_A}$

PROPERTIES:

(1) Budget line can rotate along the axis. $\Delta M / P_A$

(2) Budget line can also parallely shift. $\Delta M / P_B$

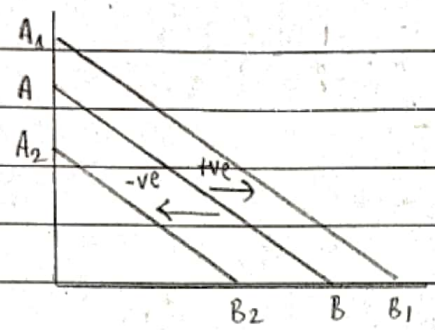
- Price can rotate the budget line.
- Income can shift the budget constraint.

Assumption: Price of B increases → Consumption of B should decline → Budget line should rotate inwards → and vice versa

Date: _____

Income = was $12 , now $16

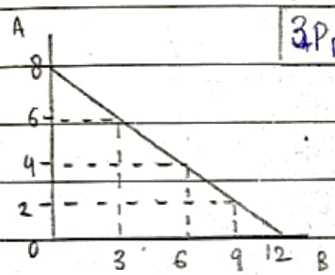
Increase in Income, shifts the budget constraint rightwards and vice versa



Slope = Ratio of Prices of Goods $= \frac{P_B}{P_A} = \frac{1}{1.5} = \frac{2}{3}$

Combinations: (8,0) (0,12)

$3P_B = 2P_A$



A	B	M = $P_A \cdot A + P_B \cdot B$
8	0	12 = (1.5)(8) + (0)(1)
6	3	12 = (1.5)(6) + (1)(3)
4	6	12 = (1.5)(4) + (1)(6)
2	9	12 = (1.5)(2) + (1)(9)
0	12	12 = 0 + (1)(12)

Income is now 16: (P_A = $1.5 , P_B = $1)

30-3-23

REVIEW:

$E_d = \frac{\%\ \Delta Q_s}{\%\ \Delta P}$

$E_d > 1$ Elastic Demand $\Delta P < \Delta Q_D$

$E_d < 1$ Inelastic Demand $\Delta P > \Delta d$

$E_d = 1$ Unitary Demand $\Delta p = \Delta Q$

TYPES:

(1) ARC ELASTICITY: $E_{arc} = \frac{\frac{Q_2 - Q_1}{(Q_2 + Q_1)/2}}{\frac{P_2 - P_1}{(P_2 + P_1)/2}}$

(2) INCOME ELASTICITY: $E_y = \frac{\frac{Q_2 - Q_1}{(Q_2 + Q_1)/2}}{\frac{Y_2 - Y_1}{(Y_2 + Y_1)/2}}$

Date: _____

CROSS ELASTICITY: $E_{cross} = \frac{Q_{2B} - Q_{1B}}{(Q_{2B} + Q_{1B})/2}$

Substitutes & Complements $\frac{P_{2A} - P_{1A}}{(P_{2A} + P_{1A})/2}$

Point Elasticity:

(1) Point Price Elasticity:

$$E_{PT} = \frac{-\Delta Q}{\Delta P} \times \frac{P}{Q}$$

(2) Point Income Elasticity:

$$E_y = \frac{\Delta Q}{\Delta y} \times \frac{y}{Q}$$

$Q_D = 20.2D + 0.T.Y$

Advertising Elasticity:

$$E_{adv} = \frac{\% \Delta Q_D}{\% \text{ Adv. expenses}}$$

Date: 30-3-23

Apply Total Utility & Marginal Utility Concerns:

1) Criminal Behaviour vs Consumer Behaviour

2) Cash and Non-Cash Gifts

Cash →	Total Utility	↑	↓	← Non-Cash
	Marginal //	↓	↑	

→ Criminal is not rational, has no preferences, no budget constraint.
↳ Price = Guilt Cost & Social Cost

3) Diamond - Water Paradox

- more expensive, more demand
- Water
  - more important, less price
  - Total Utility ↑, Marginal a little less
- not at all important
- no total utility, marginal utility ↑