

NCERT Solutions for Class-XII Economics (Micro)

Chapter-2

Microeconomics Solutions for Class 12 Chapter 2

Q1. What do you mean by the budget set of a consumer?

Sol. A consumer budget set is a set of two or more assets at a certain price and combinations that are desirable and affordable to the consumer based on their price range. A budget set is also called a set of opportunities.

Q2. What is a budget line?

Sol. A budget line is a graphic representation of consumer issues when purchasing a combination of two or more products with a given budget. The budget line will change whenever there is a change in prices, favorites or revenue. It is also called the easy-to-use line. Here, it is assumed that the customer spends all his or her earnings on a number of products.

Q3. Explain why the budget line is downward sloping.

Sol. With limited revenue, a customer can increase the use of only one item by reducing the use of another good. That's why the budget line is declining steadily.

Q4. Consumer wants to consume two goods. The prices of the two goods are Rs 4 and Rs 5 respectively. The consumer's income is Rs 20. (i) Write down the equation of the budget line. (ii) How much of good 1 can the consumer consume if she spends her entire income on that good? (iii) How much of good 2 can she consume if she spends her entire income on that good? (iv) What is the slope of the budget line?

Sol. Suppose a buyer wants to buy X values of Good 1 and a value of Y of good value 2. As given, Good 1 has a value of Rs.4 and Good 2 has a value of Rs.5. Consumer income is Rs.20.

(i) The budget line can be represented by the number $4X + 5Y = 20$

(ii) If the buyer spends all the revenue on 1 value, the value of Y will be zero.

$$\text{Therefore, } 4X + 5(0) = 20$$

$$X = 20/4 = 5$$

Therefore, 5 units of Good 1 can be purchased.

(iii) If the buyer spends all the revenue on 2 good, the value of X will be zero.

$$\text{Thus, } 4(0) + 5Y = 20$$

$$Y = 20/5 = 4$$

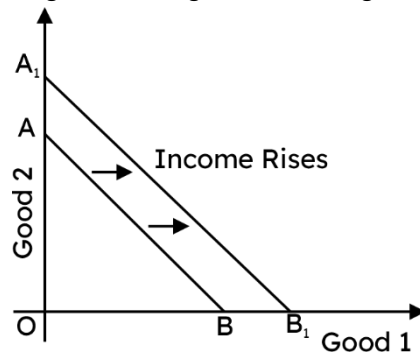
Therefore, 4 units of Good 2 can be purchased.

(iv) The volume of the budget line can be determined by the units of value 1 the consumer is willing to give up in order to obtain the fair values 2.

$$P_1 / P_2 = -4/5 = 0.8$$

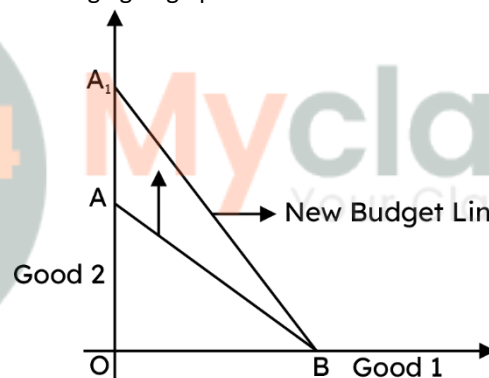
Q5. How does the budget line change if the consumer's income increases to Rs 40 but the prices remain unchanged?

Sol. If there is an increase in revenue, consumers can afford to pay extra for both good 1 and good 2. Therefore, there will be a change in the budget line to the right direction.



Q6. How does the budget line change if the price of good 2 decreases by a rupee but the price of good 1 and the consumer's income remain unchanged?

Sol. If the price of Good 2 goes down, the buyer will be able to use the additional prices of Good 2. Therefore, there will be a change going up near the vertical axis.



Q7. What happens to the budget set if both the prices as well as the income double?

Sol. If both prices and revenue double, there will be no change in the budget process.

Q8. Suppose a consumer can afford to buy 6 units of good 1 and 8 units of good 2 if she spends her entire income. The prices of the two goods are Rs 6 and Rs 8 respectively. How much is the consumer's income?

Sol. According to the information provided, the budget line = $M = P_1X_1 + P_2X_2$

Hence the equation of the budget

$$M = 6(6) + 8(8)$$

Therefore, revenue (M) can be determined by settling the calculation.

$$M = 36 + 64 = 100$$

Consumer income is Rs.100.

Q9. Suppose a consumer wants to consume two goods which are available only in integer units. The two goods are equally priced at Rs 10 and the consumer's income is Rs 40. (i) Write down all the bundles that are available to the consumer. (ii) Among the bundles that are available to the consumer, identify those which cost her exactly Rs 40.

Sol. (i) The quantities available to the buyer are (0,0) (0,1) (0,2) (0,3) (0,4) (1,0) (1,1) (1, 2) (1, 3) (2,0) (2,1) (2,2) (3,0) (3,1) (4,0)
(ii) (0, 4) (1, 3) (2, 2) (3, 1) and (4, 0) are all quantities that cost the customer directly Rs.40

Q10. What do you mean by 'monotonic favorites'?

Sol. Monotonic preference is to assume that a sensible consumer will always like 'more' compared to 'less' of a given product. This means that the consumer will always be very dissatisfied with the quantities that offer additional prices for the products.

Q11. If the consumer has monotonic preferences, can he not care about bundles (10, 8) and (8, 6)?

Sol. The bulk (10, 8) contains the maximum value of both products. Therefore, if the consumer has monotonic preferences, he can choose bulk (10, 8) rather than bulk (8, 6). Therefore, the buyer cannot afford to be indifferent between the two piles.

Q12. Suppose a consumer preferences are monotonic. What about his preferred level over the piles (10, 10), (10, 9) and (9, 9)?

Sol. If the consumer preferences are monotonic, the bundles can be sorted as follows:

Level 1 - (10, 10)

Level 2 - (10, 9)

Level 3 - (9, 9)

The bulk (10, 10) will always have the highest choice for the monotonic buyer.

Q13. Suppose your friend does not care about piles (5, 6) and (6, 6). Are your friend's favorites monotonic?

Sol. No, friend preferences are not monotonic. If a friend had monotonic preferences, they would be indifferent to the masses (5, 6) and (6, 6). Since bulk (6, 6) has the highest value of both goods, they are naturally more selective than the other.

Q14. Suppose there are two consumers in the market for a good and their demand functions are as follows: $d_1(p) = 20 - p$ for any price less than or equal to 20 and $d_1(p) = 0$ at any price greater than 20. $d_2(p) = 30 - 2p$ for any price less than or equal to 15 and $d_2(p) = 0$ at any price greater than 15. Find out the market demand function.

Sol. According to the question,

$$d_1(p) = 20 - p \quad \begin{cases} p \leq 20 \\ p > 20 \end{cases}$$

$$d_2(p) = 30 - 2p \quad \begin{cases} p \leq 15 \\ p > 15 \end{cases}$$

For more than Rs.15 but less than Rs.20 ($15 < p < 20$)

Market demand = $d_1(p) + d_2(p)$

= $20 - p + 0$ (for $p > 15$, $d_2(p) = 0$)

= $20 - p$

For price more than Rs.20 ($p > 20$)

Market demand = $d_1(p) + d_2(p)$

= $0 + 0$ ($\because$ for $p > 10$, $d_1(p) = 0$, $d_2(p) = 0$)

= 0

For price less than Rs. ($p \leq 15$)

Market demand for a good = $d_1(p) + d_2(p)$

= $20 - p + 30 - 2p$

= $50 - 3p$

Thus, market demand

= $20 - p$ if $15 < p \leq 20$

= 0 if $p > 20$

= $50 - 3p$ if $p \leq 15$

Q15. Suppose there are 20 consumers for a good and they have identical demand functions:

$D(p) = 10 - 3p$ for any price less than or equal to $\frac{10}{3}$ and $d_1(p) = 0$ at any price greater than $\frac{10}{3}$. What is the market demand function?

Sol. According to the question,

$D(p) = 10 - 3p$ if $p \leq \frac{10}{3}$

$d_1(p) = 0$ if $p > \frac{10}{3}$

Market demand = Total sum of demand of all the consumers in the market

For price $\leq \frac{10}{3}$

Market demand = $20 \sum d(p)$ ($\because$ As consumers have identical demand function)

= $20 \times (10 - 3p)$

= $200 - 60p$

For price $> \frac{10}{3}$

$$= \text{Market demand} = 20 \times d_1(p)$$

$$= 20 \times 0$$

$$= 0$$

$$\text{Market demand function} = \begin{cases} 200 - 60p & \text{If } p \leq \frac{10}{3} \\ 0 & \text{If } p > \frac{10}{3} \end{cases}$$

Q16. Consider a market where there are just two consumers and suppose their demands for the good are given as follows:

Calculate the market demand for the goods.

p	d ₁	d ₂
1	9	24
2	8	20
3	7	19
4	6	16
5	5	14
6	4	12

Sol. The market demand can be calculated as follows

P	d ₁	d ₂	Market Demand = D = d ₁ + d ₂
1	9	24	9 + 24 = 33
2	8	20	8 + 20 = 28
3	7	19	7 + 18 = 25
4	6	16	6 + 16 = 22
5	5	14	5 + 14 = 19
6	4	12	4 + 12 = 16

Q17. What do you mean by a normal good?

Sol. A normal good is a good for which the demand increases with an increase in the consumer's income or wages. For example, let's consider a fruit like an apple. When the consumer's income increases, the demand for apples also increases.

Q18. What do you mean by an 'inferior good'? Give some examples.

Sol. Inferior goods are goods for which the demand decreases with an increase in the consumer's income. For example, consider goods like cheap cigarettes, low-cost furniture and inexpensive food fast items. There are always better alternatives to these products which are priced higher. So, when the consumer's affordability increases, the need for inferior goods decreases.

Q19. What do you mean by substitutes? Give examples of two goods which are substitutes of each other.

Sol. Substitutes are the goods of the same category which can be used interchangeably to some extent. For example, let us consider the products tea and coffee. Both of these products fall under the same classification of hot beverages, fulfil similar needs and are also similarly priced. Hence, a consumer will shift to coffee if the price of tea increases and vice versa.

Q20. What do you mean by complements? Give examples of two goods which are complements of each other.

Sol. Complements are goods which are usually consumed together and complement each other. An example would be tea and sugar or printers and cartridges. The prices of complementary goods also affect each other's demand. For example, if the price of sugar goes up, it is likely that the demand for tea would decrease significantly.

Q21. Explain price elasticity of demand

Sol. Price elasticity of demand measures how a change in price affects the demand of the product among its consumers. It is determined by dividing the percentage change in the quantity of a product demanded by the percentage change in the cost of the product. Here, the elasticity refers to the responsiveness of the product's demand in relation to its price. The price elasticity of demand changes from one product to another.

It can be represented as:

$$\text{Price Elasticity of Demand (PED)} = \frac{\% \Delta \text{ in } Q_d}{\% \Delta \text{ in } p}$$

Where

$\% \Delta \text{ in } Q_d$ = Percentage change in demand for a good

$\% \Delta \text{ in } P$ = Percentage change in price of good

Or

$$e_d = \frac{\text{Percentage change in the demand for a good}}{\text{Percentage change in the price of the good}}$$

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

Where,

$\Delta Q = Q_2 - Q_1$, Percentage change in demand for a good

$\Delta P = P_2 - P_1$, Percentage change in price of good

P = initial price

Q = Initial quantity

- Q22.** Consider the demand for a good. At price Rs 4, the demand for the good is 25 units. Suppose the price of the good increases to Rs 5, and as a result, the demand for the good falls to 20 units. Calculate the price elasticity.

Sol. According to the question

$P_1 = 4$	$Q_1 = 25$
$P_2 = 5$	$Q_2 = 20$
$\Delta P = P_2 - P_1$	$\Delta Q = Q_2 - Q_1$
$= 5 - 4$	$= 20 - 25$
$= 1$	$= -5$

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

$$= \frac{-5}{1} \times \frac{4}{25}$$

$$= \frac{-4}{5}$$

$$e_d = -0.8$$

- Q23.** Consider the demand curve $D(p) = 10 - 3p$. What is the elasticity at price $\frac{5}{3}$?

Sol. According to the question

$$D(p) = 10 - 3p$$

$$P = 5/3$$

$$D(P) = 10 - 3 \times 5/3 = 5$$

$$\frac{\Delta D(p)}{\Delta p} = 3 \Rightarrow$$

Change in demand per unit change in price.

Now,

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

$$p = 3 \times \frac{p}{10 - 3p} \times \frac{3p}{10 - 3p}$$

$$\text{At price } p = \frac{5}{3}$$

$$e_d = \frac{3 \times \frac{5}{3}}{10 - 3\left(\frac{5}{3}\right)}$$

$$e_d \cdot p \frac{-5}{5} = -1$$

Therefore elasticity is perfectly elastic at $\frac{5}{3}$.

Q24. Suppose the price elasticity of demand for a good is -0.2 . If there is a 5% increase in the price of the good, then by what percentage will the demand for the good go down?

Sol. According to question

$$e_d = -0.2$$

Change in price = 5%

$$e_d = \frac{\text{Percentage change in demand}}{\text{Percentage change in price}}$$

$$-0.2 = \frac{\text{Percentage change in demand}}{5}$$

$$= 1$$

So, the percentage change in demands is 1.

Q25. Suppose the price elasticity of demand for a good is -0.2 . How will the expenditure on the good be affected if there is a 10% increase in its price?

Sol. According to the question

Price elasticity of demand = -0.2

Percentage increase in price = 10%

$$e_d = \frac{\text{Percentage change in demand}}{\text{Percentage change in price}}$$

$$-0.2 = \frac{\text{Percentage change in demand}}{10}$$

$$-2 = \text{Percentage change in demand}$$

From the above results we can infer that when price increases and $e_d < 1$, the demand becomes inelastic and hence, the expenditure will increase.

Q26. Suppose there was a 4% decrease in the price of a good, and as a result, the expenditure on the good increased by 2%. What can you say about the elasticity of demand?

Sol. According to the question

Percentage decrease in price = 4%

Increase in expenditure = 2%

$$\Delta E = \Delta P \{q + (1 + ed)\}$$

As the price has decreased, the expenditure on the good will increase. This implies that the percentage of change in demand has increased more than the percentage decrease in price.

$$\text{Therefore, elasticity} = \frac{\text{Percentage change in demand}}{\text{Percentage change in price}}$$

As numerator is greater than denominator, which means it is more than 1. Therefore a small change can lead to bigger change in demand, therefore demand is elastic.





Myclass24
Your Class. Your Pace.