

**Question 1.** What do you mean by the budget set of a consumer?

**Answer** Budget set is a set of all possible combinations of the set of two goods, which a consumer can afford at given price and income.

**Question 2.** What is budget line?

**Answer** Budget line represents different possible combinations of two goods which can be purchased by consumer with given income and prices, and the cost of each of these combinations is equal to the income of consumer.

**Question 3.** Explain why the budget line is downward sloping.

**Answer** The budget line is downward sloping because when more and more units of one good can be bought, it leads to decrease some units of other good with the given income.

**Question 4.** A consumer wants to consume two goods. The prices of two goods are Rs 4 and Rs 5 respectively. The consumer's income is Rs 20.

(i) Write down the equation of budget line.

(ii) How much of good 1 can the consumer consume if she spends her entire income on that goods?

(iii) How much of good 2 can she consume if she spends her entire income on that goods?

(iv) What is the slope of the budget line?

**Answer** (i) Assume Good 1 be X and Good 2 be Y

Price of X = Rs 4 (P= Rs 4)

Price of Y= Rs 5 (P= Rs 5)

Income of the consumer= Rs 20

Budget line =  $P_x + P_y = \text{Income}$

Budget line will be  $4X + 5Y = 20$

Budget line= Money spent= Income

(ii) If she spends her entire income on good 1 (X) then the consumption of good 2 (Y) will be zero.

Budget line =  $P_x + P_y = \text{Income}$  (from (i))

$$4X + 5(0) = 20$$

$$X = 20/4 = 5 \text{ units}$$

(iii) If she spends her entire income on good 2 (Y). then the consumption of good 1 (X) will be zero.

Budget line =  $P_x + P_y = \text{Income}$  (from (i))

$$4(0) + 5Y = 20$$

$$Y = 20/5 = 4 \text{ units}$$

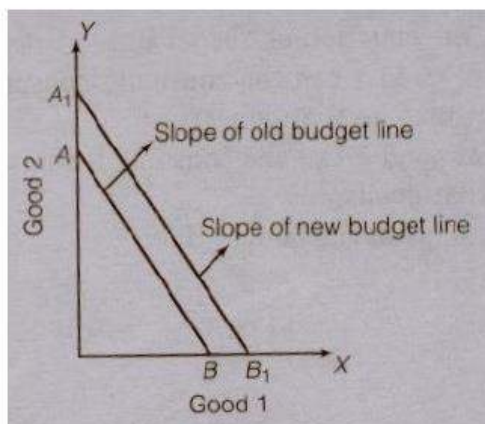
(IV) Slope of budget line = Units of good 1 Willing to sacrifice/units of good 2 willing to gain

$$= -\Delta P_x / \Delta P_y = -4/5 = -0.8$$

Note Sacrificed units always have negative value.

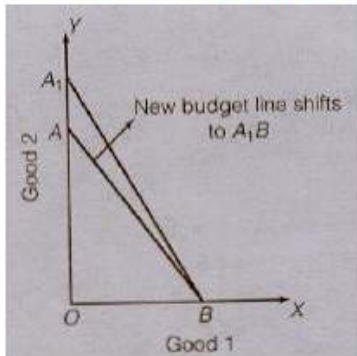
**Question 5.** How does the budget line change, if the consumer's income increases to Rs 40 but the prices remain unchanged?

**Answer** If consumer's income increases to Rs 40. then consumer can buy more of both the goods (combination goods) It will shift the budget line upward right from AB to  $A_1 B_1$  but new budget line will be parallel to the old budget line as there is no change in slope of budget line



**Question 6.** 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?

**Answer** If the price of good 2 decreases and the price of good 1 and income of consumer remain unchanged, then the budget line will be



In above figure. budget line shift to the right from AB to  $A_1B$  only on Y-axis but unchanged on X-axis (because there is no change in the price of good).

**Question 7.** What happens to the budget set, if both the prices as well as the income double?

**Answer** There will be no change in the budget set. Explanation by Example Let.

Price of good 1 (X) = Rs 2

price of good 2 (y) =Rs 4

Income of consumer = Rs 50

Budget line will be  $2X+4Y = 50$

if prices as well as the income doubles, then new budget line will be

$$4X+8Y =100$$

$$2(2X+4Y)=2 (50)$$

$$2X+4Y= 50$$

Therefore, there will be no change in the budget set

**Question 8.** 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?

**Answer** Assume

Good 1 = X, Good 2 = Y

Price of X =  $P_x$  Price of Y =  $P_y$

Income = M

Budget line is  $P_xX + P_yY = M$

After the putting value, we get

$$6 \times 6 + 8 \times 8 = M$$

$$\text{Income (M)} = 100$$

Where, X=6 units,  $P_x = \text{Rs}6$ , Y= 8 units,  $P_y = \text{Rs}8$

**Question 9.** 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.

**Answer** (i) Given.

Price of goods ( $P_x$ ) and good 2 = Rs 10

Income of consumer = Rs 40

The bundles are available to the consumer –

First option – (0,0), (0,1), (0,2), (0,3), (0,4)

Second option – (1,0), (1,1), (1,2), (1,3)

Third option – (2,0), (2,1), (2,2)

Fourth option – (3,0), (3,1)

Fifth option – (4,0)

(ii) The exactly cost of Rs 40, the bundles are (0,4), (1,3), (2,2), (3,1) and (4,0)

**Explanation**

(a) First bundle (0,4)

$$\text{Cost} = 0 \times 10 + 4 \times 10 = \text{Rs } 40$$

(b) Second bundle (1,3)

$$\begin{aligned}\text{Cost} &= 1 \times 10 + 3 \times 10 \\ &= 10 + 30 = \text{Rs } 40\end{aligned}$$

(c) Fifth bundle (4,0)

$$\text{Cost} = 4 \times 10 + 0 \times 10 = \text{Rs } 40$$

**Question 10.** What do you mean by 'monotonic preferences'?

**Answer** It means greater consumption of a commodity by the consumer gives higher level of satisfaction

**Question 11.** If a consumer has monotonic preferences, can she be indifferent between the bundles (10,8) and (8,6)?

**Answer** The bundle (10,8) should be preferred Instead of bundle (8,6) because bundle (10,8) has more of both goods.

**Question 12.** Suppose a consumer's preferences are monotonic. What can you say about her preference ranking over the bundles (10,10), (10,9) and (9,9)?

**Answer** A consumer's preferences will rank as

Rank 1st – (10,10)

Rank 2nd – (10,9)

Rank 3rd – (9,9)

Rank based on monotonic preferences.

**Question 13.** Suppose your friend is indifferent to the bundles (5,6) and (6,6). Are preferences of your friend monotonic?

**Answer** The preferences is monotonic because his bundles shows the more goods to less goods and monotonic preference implies more and more consumption of two sets of goods to get maximum satisfaction.

**Question 14.** Suppose there are two consumers in the market for a goods 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

$d_1(P) = 0$  at any price greater than 15.

Find out is the market demand function.

**Answer** In the given demand functions, both the consumers do not want to demand the goods for any price above f 15. Both of them demand only at a price less than or equal to ~ 15. Therefore, market demand will be

$$(P) = d_1(P) + d_2(P)$$

$$(P) = 20 - p + 30 - 2p$$

$$(P) = 50 - 3p$$

For any price less than or equal to 15 and market demand  $(p) = 0$  at any price greater than 15.

**Question 15.** Suppose there are 20 consumers for a good they have identical demand  $d(p) = 10 - 3p$  for any price less than or equal to  $10/3$  and  $d_1(P) = 0$  at any price greater than  $10/3$  what is the market demand function?

**Answer** In the given demand function if the consumers demand only when price is either less than or equal to  $10/3$  Therefore. market demand will be

(d) Market demand

$$(P) = 20 [0(P)]$$

$$(P) = 20(10 - 3p)$$

$$(P) = 200 - 60p$$

For any price less than or equal to 10 and market  $(p) = 0$  at any price greater than  $10/3$