

Define a function. Give two example of function.

→ A function ~~y~~ $y = f(x)$ is a relation between two variables x and y such that for every value of x there is an unique value of the variable y . As the value of y depends on x , y is called the dependent variable and x is called the independent variable.

Examples of function are —

$$y = 15 + x$$

$$y = 20 - x$$



2. Define increasing function and decreasing function. With example and graph.

→ A function $y = f(x)$ is an increasing function if the value of y does not decrease with increase in the value of x . On the other hand it is a decreasing function if the value of y does not increase with increase in the value of x .

The function $y = x + 5$ is an increasing function while the function $y = 50 - x$ is an decreasing function. Increasing and decreasing function can be shown diagrammatically as follows: —

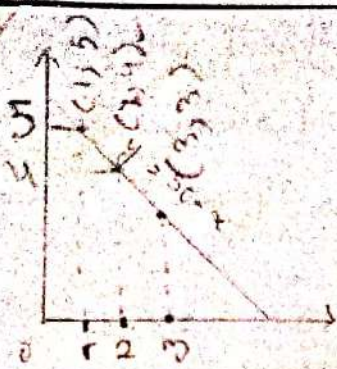


Fig - Decreasing

function	y	x
	48	2
	46	4

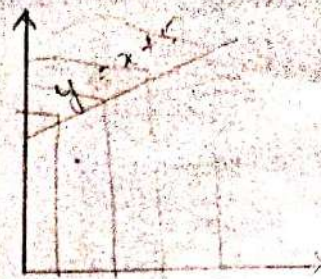
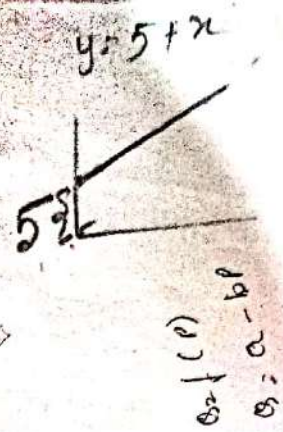


Fig : Increasing
function



3. Define demand. Distinguish between demand and quantity demanded.

→ Demand for a commodity refers to ^{the} desire to buy a commodity backed by sufficient purchasing power. Infact, the term demand refers to various quantities of a commodity that a consumer is ready to buy at different possible prices of the commodity. On the other hand, quantity demanded refers to a specific quantity to be purchased against a specific price of the commodity.

4. What is a demand schedule? Construct a hypothetical demand schedule for both individual demand and market demand.

→ The table ~~related~~ relating to price and quantity demanded is called the demand schedule.

Demand schedule is of two types —

1) Individual demand schedule : It is a table showing different quantities of a commodity that one particular

buyer is ready to buy at different possible prices of the commodities. An individual demand schedule for ice-cream is given below:—

Table - 1 : An individual Dd. schedule

Price of Ice-cream	Qt. Demanded
1	4
2	3
3	2
4	1

It is seen from above table as price ~~for~~ of ice-cream increases Qt. demanded tends to decrease. When price is ₹1 per ice-cream, then the consumer demands 4 ice-creams, But when price increases to ₹4 per ice-cream, the demand decreases to 1 ice-cream.

(ii) Market demand schedule : It is a table showing different quantities of a commodity that all buyers in the market are ready to buy at different possible prices of the commodity. For simplicity let us assume ~~there~~ there are only two buyers in the market. Then, the market demand schedule for a commodity (say ice-cream) may be constructed as under :

Table - 2 : A market Dd. schedule

Price of Ice-cream	A's Demand	B's Demand	Market Demand
1	4	5	$4+5 = 9$
2	3	4	$3+4 = 7$
3	2	3	$2+3 = 5$
4	1	2	$1+2 = 3$

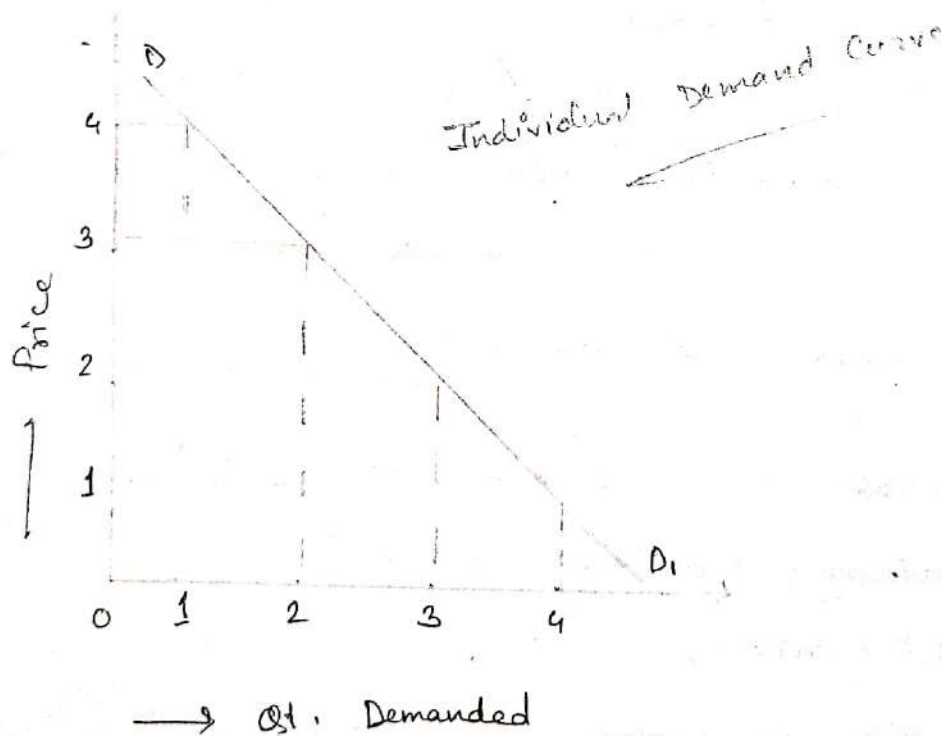
The schedule shows that when price of ice-cream rises its market demand falls. Eg : When price is ₹ 1 then, ^{A's} demand is for 4 ice-creams and B's demand is for 5 ice-creams, Thus, the total market demand at ₹ 1 is 9 ice-creams. But when price rises to ₹ 2 per ice-cream then market demand falls to 7 ice-creams and so on.

5. What is a demand curve? Explain the process of drawing individual demand curve and market demand curve.

→ Demand curve is simply a graphic presentation of demand schedule expressing the relationship between different quantities demanded at different possible prices of a commodity. Like demand schedule, demand curve is of two types :-

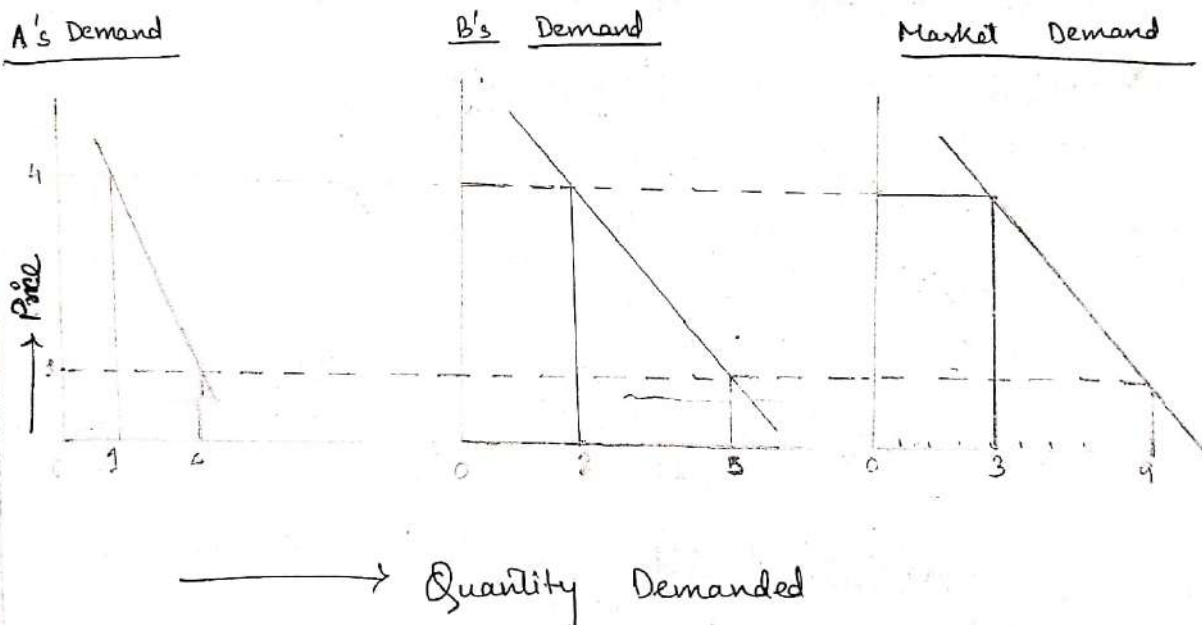
(i) Individual Demand Curve: It is a curve showing different quantities of a commodity that one particular buyer is ready to buy at different possible prices of the commodity at a point of time. The following figure shows an individual demand curve. In this diagram quantity of the commodity is shown along x-axis and price of the commodity along y-axis.

It is actually a graphic presentation of individual demand schedule given earlier in Table - I.



The demand curve (D, D_1) slopes downward from left to right. It shows inverse relation between price and quantity demanded.

(i) Market Demand Curve : Market Demand Curve is the horizontal summation of individual demand curve. It shows various quantities of a commodity that all buyers in the market are ready to buy at different possible prices of the commodity at a point of time. The following figure is an illustration of Market Demand Curve. It is actually a graphic presentation of the market demand schedule given earlier in Table - 2.



Let us consider A and B are two buyers in the market. Fig. 1 is A's demand curve Fig. 2 is B's demand curve. Fig. 3 shows the market demand curve. When price is ₹ 1 per ice-cream, A's demand is for 4 and B's demand is for 5. Accordingly, market demand is $4 + 5 = 9$ ice-creams, when price is ₹ 1 per ice-cream. Likewise, when price is ₹ 4 per ice-cream, market demand

is 1 + 2 = 3 ice-creams,

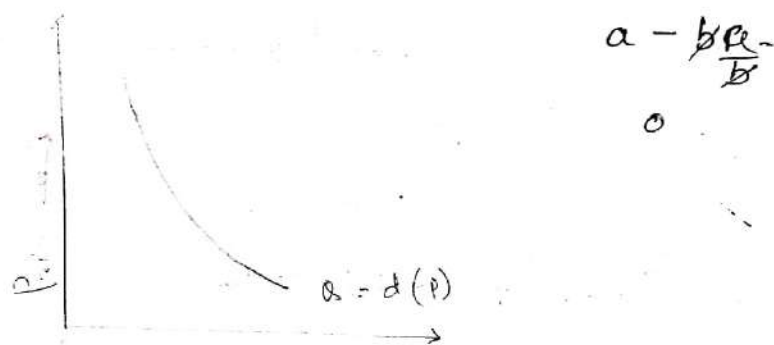
6. Define demand function. Cite the example of linear demand function. What is the slope of demand curve?

→ Demand function shows the relationship between demand for a commodity and its various determinants

The consumer's demand for commodity as a function of its price can be written as

$$Q = d(P), \text{ where } q = \text{quantity and } p = \text{price.}$$

A demand function can be represented graphically as shown in the following figure



A linear demand function can be written as —

$$Q = d(P)$$

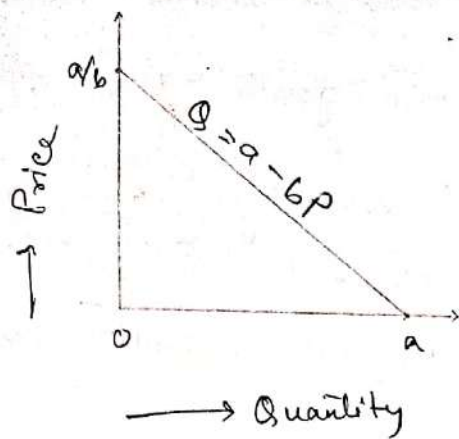
$$Q = d(P) = a - bP; \quad 0 \leq P \leq \frac{a}{b} \quad (\text{price restriction})$$

$$= 0; \quad P \geq \frac{a}{b} \quad \frac{b}{b} \frac{a}{b}$$

where, a is the vertical intercept and $-b$ is the slope of the demand curve. At price

0 the demand for the commodity is

a and at price $\frac{a}{b}$, the demand for the commodity is 0



$$Q = a - bP$$

$$\Rightarrow Q = a - bP$$

$$\Rightarrow bP = a$$

$$\Rightarrow P = \frac{a}{b}$$

The above figure depicts a linear demand curve. The slope of the demand curve is $-b$ which implies for 1 unit increase in the price of goods, the demand falls by b units.

7. How to add two linear demand functions?

→ Let us consider a market where there are two consumers and the demand curves of the two consumers are given as —

$$d_1(P) = 10 - P \quad \dots (i)$$

$$\& \quad d_2(P) = 15 - P \quad \dots (ii)$$

Further more, at any price greater than 10, consumer - 1 demands 0 unit of the good and similarly for any price greater than 15 consumer - 2 demands 0 unit of the good. The market demand can be derived by adding both eqⁿ (i) and (ii). At any price less than or equal to 10 market demand is given by $(25 - 2P)$; for any price

greater than 10 but less than 15 market demand is $(15 - P)$, and at any price greater than 15, market demand is 0. and increase

8. Point out the different determinants of demand.

→ Since there are two aspects of demand —

Individual demand and Market demand, the determinants of demand should be studied separately for the two cases —

Determinants of individual demand :

(i) Price of the commodity : Other things being equal, with a rise in the price of the commodity, its demand contracts and with a fall in price its demand extends.

(ii) Price of related good : Demand for a good not only depends on its own price but also on the prices of related goods. If a change in the price of one good affects the demand for another good, we say that these goods are related. [Substitute and Complimentary goods are called related goods.]

(iii) Income of the consumer : The demand for normal goods tends to increase with increase in income and vice versa. On the other hand, the

For demand for inferior goods tends to decrease with increase in income and vice versa.

(iv) Taste and preference : Individual's tastes and preferences also ^{effect} ~~affect~~ demand for a commodity. Demand is directly related with tastes and preferences.

Determinants of Market Demand :

(i) ~~Popatto~~ Population size : Demand increases with increase in population and decreases with decrease in population.

(ii) Distribution of income : If income is equally distributed, there will be more demand, But if income distribution is unequal, there will be less demand.

* (iii) Season and weather : Season and weather may influence market demand as during winter the demand for ~~wollen~~ ^{woolen} clothes increases where as the demand for cotton clothes decreases.

9. What are called related goods ?
→ Goods are said to be related when demand for 1 changes in response to change in the price of other. Eg : Increase in the price of coffee is expected to cause increase in demand for tea. So tea and coffee are related goods.

Related goods = Substitute and complementary goods.

10. Define ~~na~~ normal goods and inferior goods with example.

→ Normal goods are those in ~~case~~ case of

which there is positive relationship between income and demand. Other things remaining constant, demand increases in response to increase in consumer's income, and vice versa. Examples of normal goods are: Shirts, shoes, milk etc.

Inferior goods are those in case of which there is negative or inverse relationship between income and demand. Other things remaining constant, demand decreases in response to increase in income and vice versa. Examples of inferior goods are: Low quality food, coarse cloth etc.

11. Define substitute goods and complementary goods with examples.

→ Substitute goods are those goods which can be substituted for each other, such as Tea & coffee or ball pen and ink pen. In case of such goods, increase in the price of one causes increase in demand for the other and decrease in the price of one causes decrease in the demand for the other.

Complementary goods are those goods which complete demand for each other and are, therefore, demanded together. Fountain pen

ink or bread and butter may be cited as examples. In case of complimentary goods, a fall in the price of one causes increase in the demand for the other and rise in the price of one causes decrease in the demand for the other.

12. Define Giffen goods.

→ Giffen goods (named after Sir Robert Giffen) refer to those goods on which consumer spends a large part of his income. Price effect in case of Giffen goods is positive i.e., demand for Giffen goods fall with a fall in its price, and vice versa. But income effect for Giffen good is negative.

13. Explain the law of demand with the help of a diagram. Point out few exceptions for the law of demand.

→ The law of demand states that, other things remaining constant, quantity demanded of a commodity increases with a fall in price and diminishes when price increases. In other words, the law of demand highlights the inverse relationship between price and quantity. For instance

E.g. % More of a commodity is purchased at a lower price because of substitution and income effect. As price of a commodity falls consumer normally buys more of a commodity because they would like

to substitute it for other goods whose prices have changed. This is substitution effect. Again, the when price of a commodity falls it would tend to make the consumer more richer (i.e. his income will increase) and thus he will buy a larger quantity of the commodity with his given income. This is known as income effect. The law of demand can be explained with the help of the following diagram:

Same as Market demand diagram

Exceptions: Law of demand has some exceptions as well. There are some commodities whose demand increases when their price rises and decreases when price falls. In this case the demand curve slopes upward from left to right. It means a positive slope of the demand curve.

First of all, this fact was analysed by Sir Robert Giffen and so it is called Giffen's paradox. The other exceptions to the law are —

Why mark? (i) Articles of distinction — According to Prof. Veblen. articles of distinction have more demand only if their prices are sufficiently high. Diamond, jewellery, costly carpets, etc have more demand because their prices are abnormally high.

* This law also does not apply to conspicuous goods (prestige goods) such as diamonds etc. Due to status symbol attached to such goods their demand increases as price increases.

(ii) Ignorance — Sometimes out of ignorance, the consumers feel that a good is worthless if its price is low. Accordingly, they buy less of it at a low price.

14. Why does Demand curve slope downwards?

OR.

Why does the law of demand operate?

OR

Why more of a good is purchased when its price falls?

→ Following are the reasons for downward slope of the demand curve —

(i) Law of Diminishing Marginal Utility: According to this law as consumption of a commodity increases the utility from every successive units goes on diminishing to a consumer. consumer. Accordingly, for every additional unit he is willing to pay less and less price.

(ii) Income effect: It refers to change in quantity demanded when real income of the

buyer changes as a result of change in the price of commodity. - With a fall in price real income increases and accordingly demand for the commodity expands.

(iii) Substitution effect : It refers to substitution of one commodity for the other when it becomes relatively cheaper. Thus when price of commodity X falls it becomes cheaper in relation to commodity Y. Accordingly X is substituted for Y.

15. Distinguish between change in quantity demanded and change in demand.

OR.

Distinguish between movement along a demand curve and shift in demand curve.

→ Change in quantity demanded refers to increase or decrease in quantity purchased of a commodity in response to decrease or increase in its price, other things remaining constant. It is expressed through movement along the demand curve. Change in demand, on the other hand refers to increase or decrease in quantity demanded of a commodity in

response to change in other determinants of demand, other than price of the same commodity. It is expressed through shifts in demand curve — rightward or forward shift and backward or leftward shift.

Movement along a demand curve: When due to change in its own price, quantity demanded of a commodity changes, it is expressed by different points on the same demand curve. It is called movement along a demand curve. Increase in quantity demanded of a commodity due to fall in its price is called extension of demand, and decrease in quantity demanded due to rise in its price is called contraction of demand.

Shift in demand curve: It takes place when quantity demanded changes due to change in factors other than own price of the commodity, such as change in income, taste and habit etc. When due to change in these other factors, demand falls, it is called decrease in demand and when demand rises, it is called increase in demand.

Point
(6)

Thus, from the above discussion the following distinctions are observed from a movement along the demand curve (change in quantity demanded) and shift in demand (change in demand) —

Movement along the same demand curve

(i) It implies a change in the demand for a commodity, due to change in its own price.

(ii) The position of the curve does not change.

(iii) There are two types of movements along a demand curve —

a downward movement is called extension of demand while an upward movement is called contraction of demand.

Shifts in the demand curve.

(i) It implies a change in the whole demand schedule due to change in factors other than commodity's own price.

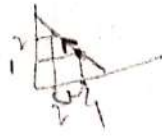
(ii) The demand curve shifts to a new position, rightward or leftward.

(iii) There are two types of shifts in demand curve — a rightward shift is called increase in demand while a leftward shift is called decrease in demand.

Point out two distinctions between (a) Contraction of demand and decrease in demand.

(b) Extension of demand and increase in demand.

→ (a) $\frac{T}{P} \downarrow$ C



Contraction of demand

Decrease in demand.

(i) Increase in own price of the commodity is the only cause.



(i) It is caused by several factors like decrease in income, decrease in the price of substitute good etc.

(ii) Diagrammatically this is shown as an upward movement on the same demand curve.

(ii) Diagrammatically this is shown as a backward shift in demand curve.

(b)

Extension of demand

(i) Decrease in own price of the commodity is the only cause.

Increase in demand.

(i) It is caused by several factors like increase in income, increase in the price of substitute good etc.

(ii) Diagrammatically this is shown as a downward movement on the same demand curve.

(ii) Diagrammatically this is shown as a forward shift in demand curve.

17. What are the causes behind shift in demand curve / change in demand?

→ The demand curve is drawn under the assumption that the consumer's income, prices of related goods and preferences of the consumer are given and constant. ^{But} When anyone of these things changes, the demand curve shifts / change its position.

Given the prices of other goods and preferences of a consumer, if income increases, the demand for the good at every price changes and hence there is a shift in the demand curve. For normal goods the demand curve shifts rightward and, for inferior goods, the demand curve shifts leftward.

Again, given the consumer's income and preferences, if the price of a related good changes, the demand for a good at each level of its price changes and hence there is a shift in the demand curve. If there is an increase in the price of substitute goods, the demand curve shifts rightward. On the other hand if there is an increase in the price of complementary good, the demand curve shifts leftward.

Moreover, the demand ~~curve~~ ^{curve} also shifts due to change in taste and preference of the consumer. If consumers preferences change in favour of a good, the demand curve for such a good shifts rightward and vice versa. Shifts in demand curve can be shown with the help of the following two diagrams.

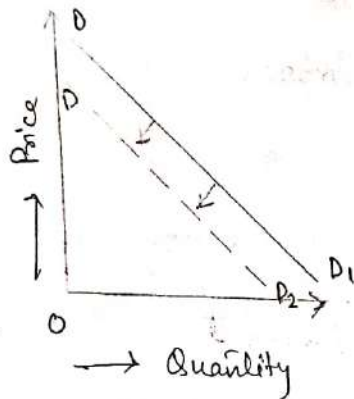


Fig.1: Decrease in Demand.

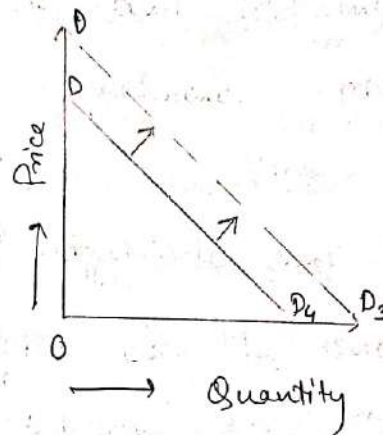


Fig.2: Increase in Demand.

18. Point out the relationship between income and demand.

→ Increase of normal goods income effect is positive. It implies more is purchased, when income rises and less is purchased when income falls, even when price of the commodity is constant.

But in case of inferior goods, income effect is negative. It implies less is purchased when income rises and more is purchased when income falls, even when price of the commodity remains constant.

19. Define price effect. What are the two components of price effect.

→ Price effect refers to change in quantity demanded of a commodity owing to change in its price, other things remaining constant.
~~The two components~~

The two components of price effect are—

- (i) Income effect
- (ii) Substitution effect.

Income effect refers to change in quantity demanded of a commodity when real income of the consumer changes owing to change in own price of the commodity.

Substitution effect refers to change in quantity demanded of commodity-X when relative price of the commodity ($\frac{P_x}{P_y}$) changes owing to change in P_x . Eg: If P_x falls and P_y is constant, then $\frac{P_x}{P_y}$ falls.

It implies that commodity x is cheaper in relation to commodity y. Accordingly, more of x is purchased in place of y.

What is cross price effect ?

OR.

How does price of related good ^{affect} demand for a commodity ?

→ Effect of change in price of a related good on the demand ~~of~~ for a commodity is called cross price effect.

We know that related goods are of two types — (a) Substitute goods and (b) Complementary goods.

Accordingly we can split our discussion into two parts as under :

(i) Demand for a commodity in relation to price of the substitute good : Let us consider tea and coffee as two substitute goods. Now, suppose the price of tea remains constant but price of coffee increases. At this situation as a rational consumer, we may decide to substitute some tea in place of coffee. OR we are expected to buy more of tea even when its price is constant.

Thus greater purchase of a commodity at its constant price refers to a situation of increase in demand or forward shift in demand curve.

On the other hand, if the price of coffee decreases, we will tend to substitute some coffee in place of tea or we will ~~to~~ demand

less than even when its price is constant. This is a situation of decrease in demand or backward shift in the demand curve.

(ii) Demand for a commodity in relation to price of the complementary good :- Let us consider, car and petrol as complementary goods. Again, let car's price remain constant but the price of petrol increases. As a result, the consumers would tend to buy less cars even when price of cars is constant. This is a situation of decrease in demand or backward shift in demand curve.

On the other hand if price of petrol decreases, people will have the tendency to buy more cars, even when price of cars is constant. This is a situation of increase in demand or forward shift in demand curve.

21. Point out the relationship between income and demand, (for normal good)

→ Generally with an increase in income the demand curve of a commodity shifts rightward showing that more of the commodity is demanded at every price. Similarly, a decrease in income will generate a leftward shift of demand curve showing that less of a commodity will be demanded at every price. In case of inferior good the condition will be reversed. (i.e. $\Delta Y \uparrow$ = leftward shift in demand curve and vice versa.)