Quantity (Units)	MU of A (Utils)	MU of B (Utils)
1	26	11
2	21	9
3	17	8
4	13	6
5	8	4
6	3	2

{Ms. Nidhi should purchase 5 units of good A and 3 units of good B; Total utility = 113 utils}

Practicals on Ordinal Utility Approach

9. Suppose a consumer can buy 5 units of good x and 4 units of good y, if he spends his entire income. The price of good x is ₹ 10 and that of y is ₹ 12. Calculate the income of the Consumer.

{₹ 98}

10. Amit wants to purchase two goods which are available in integer units only. If his income is ₹ 40 and both the goods are priced at ₹ 10 each, then write the bundles which cost exactly ₹ 40.

{(0, 4), (1, 3), (2, 2), (3, 1) and (4, 0)}

11. Suppose there are three bundles containing good 1 and good 2: Bundle (10, 10); Bundle (10, 9) and Bundle (7, 10). Which bundle will be preferred by the consumer, if he has monotonic preferences?

{Bundle (10, 10)}

12. Manish is indifferent to the bundles (4, 7) and (4, 8). Indicate, whether Manish has monotonic preference or not?

{No, if Manish had monotonic preference, then he would have preferred (4, 8) over (4, 7) as it contains more of one commodity and no less of the other.}

3

DEMAND

LEARNING OBJECTIVES

3.1 MEANING OF DEMAND

Goods are demanded because they have the capacity to satisfy our wants. But, every want of a consumer cannot be called a demand. Demand does not mean mere desire for a commodity.

Generally, desire, want and demand are interchangeably used in day-to-day life. But in economics, all these terms have different meanings.

Let us understand the 3 different terms:

- **Desire means a mere wish to have a commodity.** *For example,* desire of a poor person for a car with just ₹ 200 in his pocket. So, desire is just a wish to possess something.
- **Want is that desire which is backed by the ability and willingness to satisfy it.** Every desire is not a want. But, a desire can become a want, if the person is in a position to satisfy it. *For example,* in the above example, if the poor person wins a lottery and now he has enough money to buy a car, then his desire for car will now be termed as want.
- **Demand is an extension to want as it has two more characteristics:**
  1. *Demand is always defined with reference to price:* The demand for a commodity is always stated with reference to its price. With a change in price, quantity demanded may also change as more is demanded at lower price and less at higher price. Therefore, demand is meaningless without reference to price.

2. *Demand is always with respect to a period of time:* Demand is always expressed with reference to time. Even at the same price, demand may change, depending upon the time period under consideration. *For example,* demand for umbrellas is more in rainy season as compared to other seasons. The time frame might be of an hour, a day, a month or a year.

To sum up:

Demand is the quantity of a commodity that a consumer is willing and able to buy, at each possible price during a given period of time.

The definition of demand highlights four essential elements of demand:

(i) Quantity of the commodity
(ii) Willingness to buy
(iii) Price of the commodity
(iv) Period of time

Demand for a commodity may be either with respect to an individual or to the entire market.

1. **Individual demand** refers to the quantity of a commodity that a consumer is willing and able to buy, at each possible price during a given period of time.
2. **Market demand** refers to the quantity of a commodity that all consumers are willing and able to buy, at each possible price during a given period of time.

3.2 DETERMINANTS OF DEMAND (INDIVIDUAL DEMAND)

Demand for a commodity increases or decreases due to a number of factors. The various factors affecting demand are discussed below:

1. Price of the Given Commodity: It is the most important factor affecting demand for the given commodity. Generally, there exists an inverse relationship between price and quantity demanded. It means, as price increases, quantity demanded falls due to decrease in the satisfaction level of consumers.

   For example, If price of given commodity (say, tea) increases, its quantity demanded will fall as satisfaction derived from tea will fall due to rise in its price.

Demand (D) is a function of price (P) and can be expressed as: D = f (P). The inverse relationship between price and demand, known as 'Law of Demand', is discussed in Section 3.7.

The following determinants are termed as 'other factors' or 'factors other than price'.

2. Price of Related Goods: Demand for the given commodity is also affected by change in prices of the related goods. Related goods are of two types:

   (i) **Substitute Goods:** Substitute goods are those goods which can be used in place of one another for satisfaction of a particular want, like tea and coffee. ***An increase in the price of substitute leads to an increase in the demand for given commodity and vice-versa.*** *For example,* if price of a substitute good (say, coffee) increases, then demand for given commodity (say, tea) will rise as tea will become relatively cheaper in comparison to coffee. *So, demand for a given commodity is directly affected by change in price of substitute goods.*

(ii) **Complementary Goods:** Complementary goods are those goods which are used together to satisfy a particular want, like tea and sugar. ***An increase in the price of complementary good leads to a decrease in the demand for given commodity and vice-versa.*** *For example,* if price of a complementary good (say, sugar) increases, then demand for given commodity (say, tea) will fall as it will be relatively costlier to use both the goods together. *So, demand for a given commodity is inversely affected by change in price of complementary goods.*

Examples of Substitute and Complementary Goods

Substitute Goods

1. Tea and Coffee	2. Coke and Pepsi	3. Pen and Pencil
4. CD and DVD	5. Ink pen and Ball Pen	6. Rice and Wheat

Complementary Goods

1. Tea and Sugar	2. Pen and Ink	3. Car and Petrol
4. Bread and Butter	5. Pen and Refill	6. Brick and Cement

For detailed discussion on substitute goods and complementary goods, refer Section 3.11.

3. Income of the Consumer: Demand for a commodity is also affected by income of the consumer. However, the effect of change in income on demand depends on the nature of the commodity under consideration.
   - If the given commodity is a *normal good*, then an increase in income leads to rise in its demand, while a decrease in income reduces the demand.
   - If the given commodity is an *inferior good*, then an increase in income reduces the demand, while a decrease in income leads to rise in demand.

   Example: Suppose, income of a consumer increases. As a result, the consumer reduces consumption of toned milk and increases consumption of full cream milk. In this case, 'Toned Milk' is an inferior good for the consumer and 'Full Cream Milk' is a normal good.

For detailed discussion on normal goods and inferior goods, refer Section 3.12.

Logical Analysis — Inferior Goods

No commodity is inferior. If any commodity is purchased by a consumer just because of his low income level, then this commodity is termed as an inferior commodity for that person. For example, Bajra is a normal commodity for a rich person. But, if low income of a poor person forces him to consume bajra every day, then bajra will be an inferior commodity for him. It is not the consumer but the income level of the consumer which determines whether a good is normal or inferior. So, inferiority is a relative concept.

4. Tastes and Preferences: Tastes and preferences of the consumer directly influence the demand for a commodity. They include changes in fashion, customs, habits, etc. If a commodity is in fashion or is preferred by the consumers, then demand for such a commodity rises. On the other hand, demand for a commodity falls, if the consumers have no taste for that commodity.

5. Expectation of Change in the Price in Future: If the price of a certain commodity is expected to increase in near future, then people will buy more of that commodity than what they normally buy. There exists a direct relationship between expectation of change in the prices in future and change in demand in the current period. *For example,* if the price of petrol is expected to rise in future, its present demand will increase.

Change in Quantity Demanded Vs Change in Demand

1. Change in Quantity Demanded: Whenever demand for the given commodity changes due to change in its own price, then such change in demand is known as "Change in Quantity Demanded". *For example,* If demand for Pepsi changes due to change in its own price, then such change in demand for Pepsi is known as change in quantity demanded.
2. Change in Demand: Whenever demand for the given commodity changes due to factors other than price, then such change in demand is known as "Change in Demand". *For example,* If demand for Pepsi changes due to change in price of Coke or due to change in income or due to a change in taste, then such change in demand for Pepsi is known as change in demand.

Test Yourself

Identify the following as change in quantity demanded or change in demand:
1. People buy more ice-creams during summer than during winter.
2. Consumer income falls and the number of automobiles purchased declines.
3. LG reduces the price of its TV set by 10 percent and hence its sales increases.
4. A college raises its tuition fee and as a result, the number of student enrollment forms falls.

{Ans: Change in quantity demanded: 3; 4; Change in demand: 1; 2}

3.3 DETERMINANTS OF MARKET DEMAND

There are certain special features of market demand, which are not observed in case of individual demand. *Market demand is influenced by all the factors affecting individual demand for a commodity.* In addition, it is also affected by the following factors:

1. Size and Composition of Population: Market demand for a commodity is affected by size of population in the country. Increase in population raises the market demand, while decrease in population reduces the market demand.

   Composition of population, i.e. ratio of males, females, children and number of old people in the population also affects the demand for a commodity. *For example,* if a market has larger proportion of women, then there will be more demand for articles of their use such as lipstick, sarees, etc.
2. Season and Weather: The seasonal and weather conditions also affect the market demand for a commodity. *For example,* during winters, demand for woollen clothes and jackets increases, whereas, market demand for raincoat and umbrellas increases during the rainy season.
3. Distribution of Income: If income in the country is equitably distributed, then market demand for commodities will be more. However, if income distribution is uneven, i.e. people are either very rich or very poor, then market demand will remain at lower level.

Determinants of Market Demand

The various factors affecting market demand of a commodity are:
1. Price of the given commodity
2. Price of Related goods
3. Income of the Consumers
4. Tastes and Preference
5. Expectation of Change in Price in Future
6. Size and Composition of population
7. Season and Weather
8. Distribution of Income

3.4 DEMAND FUNCTION

Demand function shows the relationship between quantity demanded for a particular commodity and the factors influencing it. It can be either with respect to one consumer (individual demand function) or to all the consumers in the market (market demand function).

Individual Demand Function

Individual demand function refers to the functional relationship between individual demand and the factors affecting individual demand.

It is expressed as: $\mathbf{D_x = f(P_x, P_r, Y, T, F)}$

Where,

D_x = Demand for Commodity x; P_x = Price of the given Commodity x;
P_r = Prices of Related Goods; Y = Income of the Consumer;
T = Tastes and Preferences; F = Expectation of Change in Price in future.

Demand function is just a short-hand way of saying that quantity demanded (D_x), which is on the left-hand side, is assumed to depend on the variables that are listed on the right-hand side.

Market Demand Function

Market demand function refers to the functional relationship between market demand and the factors affecting market demand.

As mentioned before, market demand is affected by all factors affecting individual demand. In addition, it is also affected by size and composition of population, season and weather and distribution of income.

So, market demand function can be expressed as: $\mathbf{D_x = f(P_x, P_r, Y, T, F, P_o, S, D)}$

Where,

D_x = Market demand of commodity x; P_x = Price of given commodity x;
P_r = Prices of Related Goods; Y = Income of the consumers;
T = Tastes and Preferences; F = Expectation of Change in Price in future;
P_o = Size and Composition of population; S = Season and Weather;
D = Distribution of Income.

3.5 DEMAND SCHEDULE

Demand schedule is a tabular statement showing various quantities of a commodity being demanded at various levels of price, during a given period of time. It shows the relationship between price of the commodity and its quantity demanded.

A demand schedule can be determined both for individual buyers and for the entire market. So, demand schedule is of two types:

1. Individual Demand Schedule
2. Market Demand Schedule

Individual Demand Schedule

Individual demand schedule refers to a tabular statement showing various quantities of a commodity that a consumer is willing to buy at various levels of price, during a given period of time. Table 3.1 shows a hypothetical demand schedule for commodity 'x'.

Table 3.1: Individual Demand Schedule

Price (in ₹)	Quantity Demanded of commodity x (in units)
5	1
4	2
3	3
2	4
1	5

As seen in the schedule, quantity demanded of 'x' increases with decrease in its price. The consumer is willing to buy 1 unit at ₹ 5. When price falls to ₹ 4, demand rises to 2 units.

A 'Demand Schedule' states the relationship between two variables: price and quantity. It shows that more is demanded at lower prices than at higher prices–just as you will probably buy more DVD's when they are offered at a price less than the normal price.

Market Demand Schedule

Market demand schedule refers to a tabular statement showing various quantities of a commodity that all the consumers are willing to buy at various levels of price, during a given period of time. It is the sum of all individual demand schedules at each and every price.

Market demand schedule can be expressed as: $D_m = D_A + D_B + ...$

Where D_m is the market demand and $D_A + D_B + ...$ are the individual demands of Household A, Household B and so on.

Let us assume that A and B are two consumers for commodity x in the market. Table 3.2 shows that market demand schedule is obtained by horizontally summing the individual demands:

Table 3.2: Market Demand Schedule

Price (₹)	Individual Demand (in units)		Market Demand (in units)
	Household A (D_A)	Household B (D_B)	$\{D_A + D_B\}$
5	1	2	1 + 2 = **3**
4	2	3	2 + 3 = **5**
3	3	4	3 + 4 = **7**
2	4	5	4 + 5 = **9**
1	5	6	5 + 6 = **11**

As seen in Table 3.2, market demand is obtained by adding demand of households A and B at different prices. At ₹ 5 per unit, market demand is 3 units. When price falls to ₹ 4, market demand rises to 5 units. So, market demand schedule also shows the inverse relationship between price and quantity demanded.

Demand Vs Quantity Demanded

Before we proceed further, it is important to understand the following observations:

Demand

- *Demand is not a particular quantity.* It describes the behaviour of buyers at every possible price. *For example*, there is a demand of 5 units at ₹ 1 per unit; demand is 4 units at ₹ 2 per unit and so on. It means:
- *Demand is not a fixed quantity,* rather it changes with change in price. *For example,* there will be more demand for movie tickets at a price of ₹ 50 per ticket than at ₹ 150 per ticket.

Quantity Demanded

- *It refers to specific quantity* of the demand schedule that is demanded against a specific price, i.e. it makes sense only in relation to a particular price. *For example*, 2 units are demanded at ₹ 4 per unit.
- *It is not the actual quantity purchased.* Rather, it is the desired quantity which the consumers wish to purchase and not necessarily how much they actually succeed in purchasing.

3.6 DEMAND CURVE

Demand curve is a graphical representation of demand schedule. It is the locus of all the points showing various quantities of a commodity that a consumer is willing to buy at various levels of price, during a given period of time, assuming no change in other factors.

- It shows the **inverse relationship** between the quantity demanded of a commodity with its price, *keeping other factor constant.*
- It can be drawn for any commodity by plotting each combination of demand schedule on a graph.
- Like demand schedules, demand curves can also be drawn both for individual buyers and for the entire market. So, demand curve is of two types:
  (i) Individual Demand Curve (ii) Market Demand Curve

Individual Demand Curve

Individual demand curve refers to a graphical representation of individual demand schedule.

With the help of Table 3.1 (Individual demand schedule), the individual demand curve can be drawn as shown in Fig. 3.1.

As seen in the diagram, price *(independent variable)* is taken on the vertical axis (Y-axis) and quantity demanded *(dependent variable)* on the horizontal axis (X-axis). At each possible price, there is a quantity, which the consumer is willing to buy. By joining all the points (P to T), we get a demand curve 'DD'.

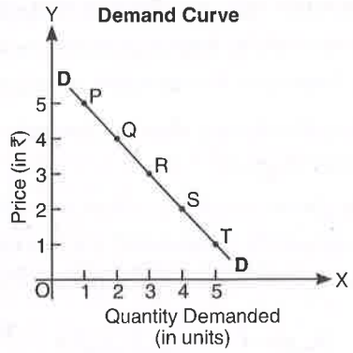


Fig. 3.1

The demand curve 'DD' slopes downwards due to inverse relationship between price and quantity demanded.

Market Demand Curve

Market demand curve refers to a graphical representation of market demand schedule. It is obtained by horizontal summation of individual demand curves.

The points shown in **Table 3.2** are graphically represented in **Fig. 3.2.** D_A and D_B are the individual demand curves. ***Market demand curve (D_M) is obtained by horizontal summation of the individual demand curves (D_A and D_B).***

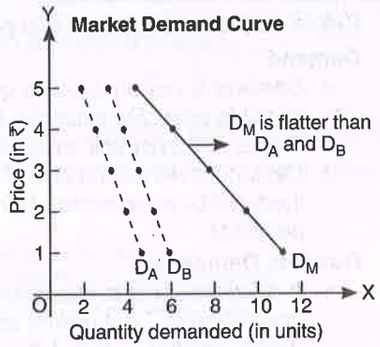


Fig. 3.2

Market demand curve 'D_M' also slope downwards due to inverse relationship between price and quantity demanded.

Market Demand Curve is Flatter

Market demand curve is flatter than the individual demand curves. It happens because as price changes, proportionate change in market demand is more than proportionate change in individual demand.

Slope of Demand Curve

Slope of a curve is defined as the change in the variable on the Y-axis divided by the change in the variable on the X-axis. So, the slope of the Demand Curve equals the Change in Price divided by the Change in Quantity.

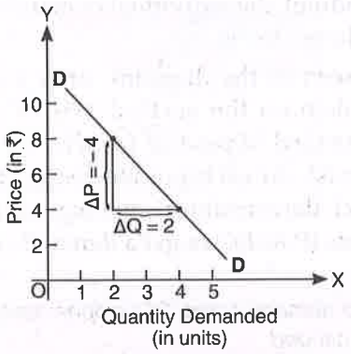
$$\text{i.e. Slope of Demand Curve} = \frac{\text{Change in Price } (\Delta P)}{\text{Change in Quantity } (\Delta Q)}$$

- Due to inverse relationship between price and demand, the demand curve slopes downwards. So, slope is Negative.
- Slope of the demand curve measures the flatness or steepness of the demand curve. So, it is based on the absolute change in price and quantity.

Let us calculate the slope of demand curve with the help of following diagram:

In the given diagram, when price falls from ₹ 8 to ₹ 4, then quantity demanded increases from 2 units to 4 units. In such a case, the slope of demand curve will be:

$$\text{Slope of Demand Curve} = \frac{\Delta P}{\Delta Q} = \frac{4-8}{4-2} = -2$$



3.7 LAW OF DEMAND

In our daily life, it is normally observed that decrease in price of a commodity leads to increase in its demand. Such behaviour of consumers has been formulated as 'Law of Demand'.

Law of demand states the inverse relationship between price and quantity demanded, keeping other factors constant (ceteris paribus). This law is also known as the 'First Law of Purchase'.

Assumptions of Law of demand

While stating the law of demand, we use the phrase *'keeping other factors constant* or *ceteris paribus'*. This phrase is used to cover the following assumptions on which the law is based:

1. Prices of substitute goods do not change.
2. Prices of complementary goods remain constant.
3. Income of the consumer remains the same.
4. There is no expectation of change in price in the future.
5. Tastes and preferences of the consumer remain the same.

Law of demand can be better understood with the help of **Table 3.3** and **Fig. 3.3**:

Table 3.3: Demand Schedule

Price (in ₹)	*Quantity demanded (in units)*
5	1
4	2
3	3
2	4
1	5

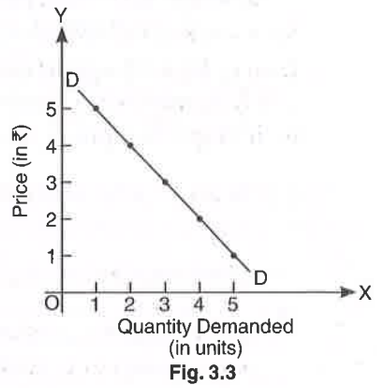


Fig. 3.3

Table 3.3 clearly shows that more and more units of commodity are demanded, when price of the commodity falls. As seen in **Fig. 3.3,** *demand curve DD slopes downwards from left to right, indicating an inverse relationship between price and quantity demanded.*

Why Other Factors are kept Constant?

The quantity demanded of a commodity depends on many factors, besides price of the given commodity. If we want to understand the separate influence of one factor, it is necessary, that all other factors are kept constant. Therefore, while discussing the 'Law of Demand', it is assumed that there is no change in the other factors.

Important Facts about Law of Demand

1. *Inverse Relationship:* It states the inverse relationship between price and quantity demanded. It simply affirms that an increase in price will tend to reduce the quantity demanded and a fall in price will lead to an increase in the quantity demanded.
2. *Qualitative, not Quantitative:* It makes a qualitative statement only, i.e. it indicates the direction of change in the amount demanded and does not indicate the magnitude of change.
3. *No Proportional Relationship:* It does not establish any proportional relationship between change in price and the resultant change in demand. If the price rises by 10%, quantity demanded may fall by any proportion.
4. *One-Sided:* Law of demand is one sided as it only explains the effect of change in price on the quantity demanded. It states nothing about the effect of change in quantity demanded on the price of the commodity.

Derivation of 'Law of Demand'

According to the law of demand, demand for a commodity rises with fall in its price and vice-versa, keeping other factors constant. This inverse relationship between price and demand as given by Law of demand, can be derived by: (i) 'Marginal Utility' = Price' Condition; and (ii) Law of Equi-Marginal Utility. *Let us discuss the two in detail:*

(i) ***Marginal utility = Price*** *(Single commodity Equilibrium Condition):* According to single commodity equilibrium condition, consumer purchases that much quantity of a good at which marginal utility (MU) is equal to price.

- *When MU is more than Price*: If price of the good falls, it makes MU greater than price. It encourages the consumer to buy more. It shows that when price of a good falls, its demand rises. The consumer will continue to buy more until MU falls enough to be equal to price again. It shows that when price falls demand rises.
- *When MU is less than Price*: If price of the good rises, it makes MU less than price. Now consumer will reduce the demand until MU rises till it again becomes equal to price. It means that when price rises demand falls.

So, it can be concluded that there exists an inverse relationship between price and demand.

(ii) ***Law of Equi-Marginal Utility:*** According to this law, a consumer will be at equilibrium when he spends his limited income in such a way that the ratios of marginal utilities and their respective prices are equal and MU falls as consumption increases. In case of two goods (say, X and Y), equilibrium condition will be stated as: $\frac{MU_X}{P_X} = \frac{MU_Y}{P_Y}$

- In this equilibrium condition, if the price of commodity X (P_X) falls, then $\frac{MU_X}{P_X} > \frac{MU_Y}{P_Y}$.

  In this case, the consumer is getting more marginal utility per rupee in case of good X as compared to Y. Therefore, he will buy more of X and less of Y. This shows that when price of a good falls, more of it is demanded. The consumer will continue to buy more of X till $\frac{MU_X}{P_X} = \frac{MU_Y}{P_Y}$

- Similarly, if price of commodity X (P_X) rises, then $\frac{MU_X}{P_X} < \frac{MU_Y}{P_Y}$. Now, consumer is getting more marginal utility per rupee in case of good Y as compared to X. So, he will buy less of X and more of Y. It means, demand of a commodity varies inversely with its price.

  It shows that there exists an inverse relationship between price and demand.

Reasons for Law of Demand

Let us now try to understand, why does the law of demand operate, i.e. why does a consumer buy more at lower price than at a higher price.

The various reasons for operation of Law of Demand are:

1. Law of Diminishing Marginal Utility: *Law of diminishing marginal utility states that as we consume more and more units of a commodity, the utility derived from each successive unit goes on decreasing.* So, demand for a commodity depends on its utility. If the consumer gets more satisfaction, he will pay more. As a result, consumer will not be prepared to pay the same price for additional units of the commodity. The consumer will buy more units of the commodity only when the price falls.

   Law of diminishing marginal utility is considered as the basic reason for operation of 'Law of Demand'. {Refer Section 2.4 of 2nd chapter for its detailed explanation}.

2. Substitution Effect: *Substitution effect refers to substituting one commodity in place of other when it becomes relatively cheaper.* When price of the given commodity falls, it becomes relatively cheaper as compared to its substitute (assuming no change in price of substitute). As a result, demand for the given commodity rises.
   For example, if price of given commodity (say, Pepsi) falls, with no change in price of its substitute (say, Coke), then Pepsi will become relatively cheaper and will be substituted for coke, i.e. demand for Pepsi will rise.

3. Income Effect: *Income effect refers to effect on demand when real income of the consumer changes due to change in price of the given commodity.* When price of the given commodity falls, it increases the purchasing power (real income) of the consumer. As a result, he can purchase more of the given commodity with the same money income.
   For example, suppose Isha buys 4 chocolates @ ₹ 10 each with her pocket money of ₹ 40. If price of chocolate falls to ₹ 8 each, then with the same money income, Isha can buy 5 chocolates due to an increase in her real income.

   'Price Effect' is the combined effect of Income Effect and Substitution Effect. Symbolically: Price Effect = Income Effect + Substitution Effect. For a detailed discussion on Income Effect and Substitution Effect, refer Power Booster.

4. Additional Customers: When price of a commodity falls, many new consumers, who were not in a position to buy it earlier due to its high price, starts purchasing it. In addition to new customers, old consumers of the commodity start demanding more due to its reduced price.
   For example, if price of ice-cream family pack falls from ₹ 100 to ₹ 50 per pack, then many consumers who were not in a position to afford the ice-cream earlier can now buy it with decrease in its price. Moreover, the old customers of ice-cream can now consume more. As a result, its total demand increases.

5. Different Uses: Some commodities like milk, electricity, etc. have several uses, some of which are more important than the others. When price of such a good (say, milk) increases, its uses get restricted to the most important purpose (say, drinking) and demand for less important uses (like cheese, butter, etc.) gets reduced. However, when the price of such a commodity decreases, the commodity is put to all its uses, whether important or not.

Exceptions to Law of Demand

As a general rule, demand curve slopes downwards, showing the inverse relationship between price and quantity demanded. However, in certain special circumstances, the reverse may occur, i.e. a rise in price may increase the demand. These circumstances are known as *'Exceptions to the Law of Demand'.*

Some of the Important Exceptions are:

1. Giffen Goods: *These are special kind of inferior goods on which the consumer spends a large part of his income and their demand rises with an increase in price and demand falls with decrease in*

price. For example, in our country, it is often seen that when price of coarse cereals like jowar and bajra falls, the consumers have a tendency to spend less on them and shift over to superior cereals like wheat and rice. This phenomenon, popularly known as *'Giffen's Paradox'* was first observed by Sir Robert Giffen.

Giffen's Paradox

In the early 19th century, Sir Robert Giffen observed that when price of bread increased, then the low-paid British wage earners bought more of bread, and not less. These wage earners used to live mainly on the diet of bread. With rise in its price, they were forced to cut down their consumption of meat and other expensive food items. To maintain their intake of food, they bought more bread at higher prices. This phenomenon was referred to as 'Giffen's Paradox' as it went against the law of demand. For a detailed discussion on Giffen Goods, refer Power Booster.

2. Status Symbol Goods or Goods of Ostentation: The exception relates to certain prestige goods which are used as status symbols. *For example,* diamonds, gold, antique paintings, etc. are bought due to the prestige they confer upon the possessor. Such goods are demanded only because their prices are very high. If their prices fall, they will no longer be considered as status symbol goods and their demand will decrease.
3. Fear of Shortage: If the consumers expect a shortage or scarcity of a particular commodity in the near future, then they would start buying more and more of that commodity in the current period even if their prices are rising. The consumers demand more due to fear of further rise in prices. *For example,* during emergencies like war, famines, etc., consumers demand goods even at higher prices due to fear of shortage and general insecurity.
4. Ignorance: Consumers may buy more of a commodity at a higher price when they are ignorant of the prevailing prices of the commodity in the market.
5. Fashion related goods: Goods related to fashion do not follow the law of demand and their demand increases even with a rise in their prices. *For example,* if any particular type of dress is in fashion, then demand for such dress will increase even if its price is rising.
6. Necessities of Life: Another exception occurs in the use of such commodities, which become necessities of life due to their constant use. *For example,* commodities like rice, wheat, salt, medicines, etc. are purchased even if their prices increase.
7. Change in Weather: With change in season/weather, demand for certain commodities also changes, irrespective of any change in their prices. *For example,* demand for umbrellas increases in rainy season even with an increase in their prices.

It must be noted that in normal conditions and considering the given assumptions, 'Law of Demand' is universally applicable.

Individual Demand Vs Market Demand

Individual Demand	Market Demand
It is the quantity demanded of a commodity by an individual consumer at a given price during a given period of time.	It is the quantity demanded of a commodity by all the consumers at a given price during a given period of time.
It may or may not follow the Law of Demand, i.e. it is possible that an individual consumer may demand more even at higher price.	It always follows the Law of Demand, i.e. market demand always falls with rise in price and vice-versa.
Individual demand is not affected by all the factors affecting market demand.	Market demand is affected by all the factors affecting individual demand.

3.8 MOVEMENT ALONG THE DEMAND CURVE (CHANGE IN QUANTITY DEMANDED)

When quantity demanded of a commodity changes due to a change in its price, keeping other factors constant, it is known as change in quantity demanded. **It is graphically expressed as a movement along the same demand curve.**

There can be either a downward movement (Expansion in demand) or an upward movement (Contraction in demand) along the same demand curve. Let us understand the movement along the demand curve with the help of Fig. 3.4:

In Fig. 3.4, OQ quantity is demanded at a price of OP. Change in price leads to an upward or downward movement along the same demand curve:

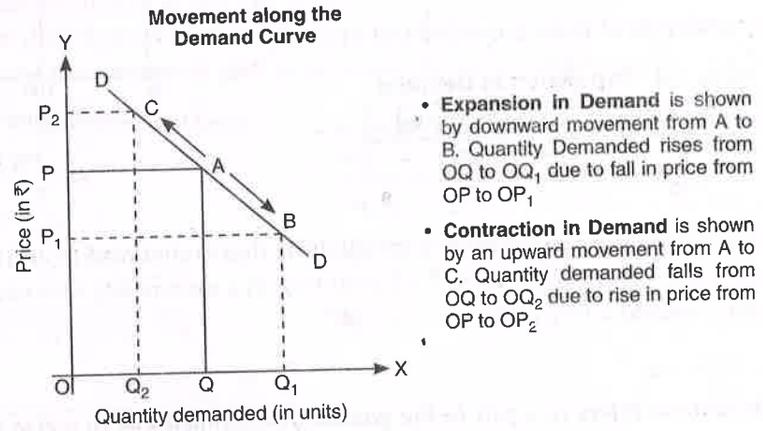
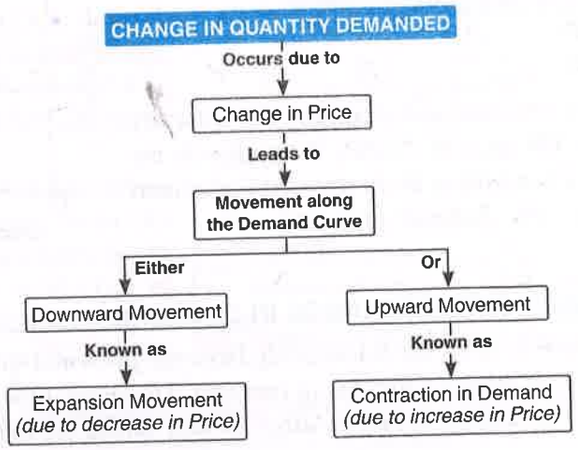


Fig. 3.4

- **Expansion in Demand** is shown by downward movement from A to B. Quantity Demanded rises from OQ to OQ_1 due to fall in price from OP to OP_1
- **Contraction in Demand** is shown by an upward movement from A to C. Quantity demanded falls from OQ to OQ_2 due to rise in price from OP to OP_2

- *Upward Movement:* When price rises to OP_2, quantity demanded falls to OQ_2 (known as contraction in demand) leading to an upward movement from A to C along the same demand curve DD.
- *Downward Movement:* On the other hand, fall in price from OP to OP_1 leads to an increase in quantity demanded from OQ to OQ_1 (known as expansion in demand), resulting in a downward movement from A to B along the same demand curve DD.



Let us now understand the meaning of Expansion and Contraction in demand.

Expansion in Demand

Expansion in demand refers to a rise in the quantity demanded due to a fall in the price of commodity, other factors remaining constant.

- It leads to a downward movement along the same demand curve.
- It is also known as *'Extension in Demand'* or *'Increase in Quantity Demanded'*.

It can be better understood from **Table 3.4** and **Fig. 3.5.**

Table 3.4: Expansion in Demand

Price (₹)	Demand (units)
20	100
15	150

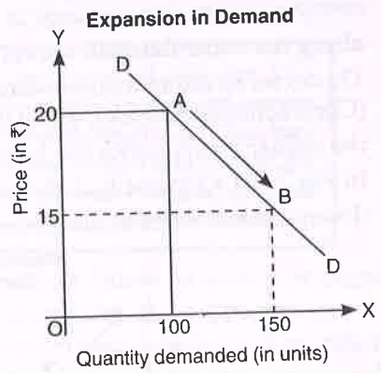


Fig. 3.5

As seen in the given schedule and diagram, the quantity demanded rises from 100 units to 150 units with a fall in the price from ₹ 20 to ₹ 15, resulting in a downward movement from A to B along the same demand curve DD.

Contraction in Demand

Contraction in demand refers to a fall in the quantity demanded due to a rise in the price of commodity, other factors remaining constant.

- It leads to an upward movement along the same demand curve.
- It is also known as *'Decrease in Quantity Demanded'*.

It can be better understood from **Table 3.5** and **Fig. 3.6.**

Table 3.5: Contraction in Demand

Price (₹)	Demand (units)
20	100
25	70

As seen in the given schedule and diagram, the quantity demanded falls from 100 units to 70 units with a rise in the price from ₹ 20 to ₹ 25, resulting in an upward movement from A to B along the same demand curve DD.

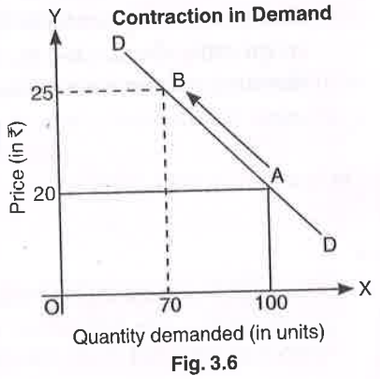


Fig. 3.6

3.9 SHIFT IN DEMAND CURVE (CHANGE IN DEMAND)

Demand curve is drawn to show the relationship between price and quantity demanded of a commodity, assuming all other factors being constant. However, other factors are bound to change sooner or later. **A change in one of 'other factors' shifts the demand curve.**

For example, suppose income of a consumer increases. Now, the consumer may increase the demand for the product, even though the price has not changed. Such increase in demand of any product, whose price has not changed, cannot be represented by the original demand curve. It will shift the demand curve.

When the demand of a commodity changes due to change in any factor other than the own price of the commodity, it is known as change in demand. *It is expressed as a shift in the demand curve.*

Various Reasons for Shift in Demand Curve:

(i) Change in price of substitute goods;
(ii) Change in price of complementary goods;
(iii) Change in income of consumers;
(iv) Change in tastes and preferences;
(v) Expectation of change in price in future;
(vi) Change in population;
(vii) Change in distribution of income;
(viii) Change in season and weather.

Let us understand the concept of shift in demand curve with the help of a diagram.

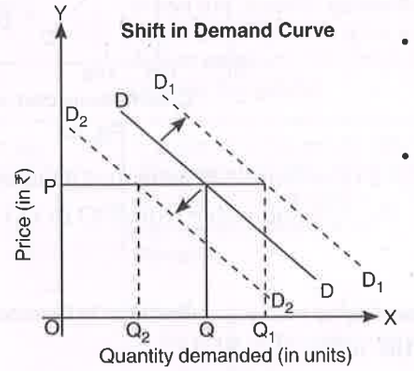
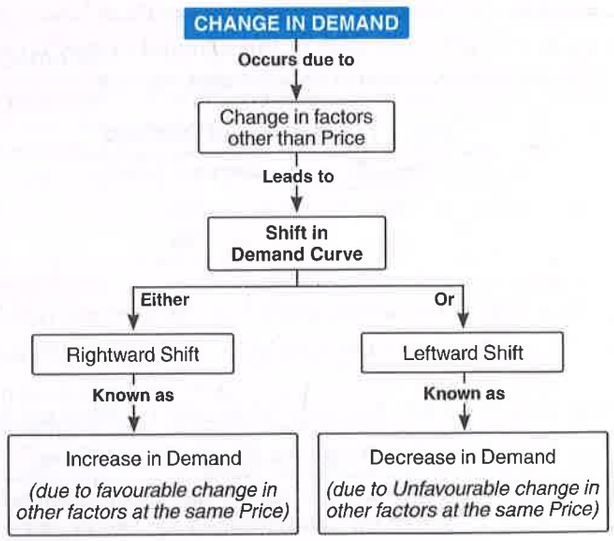


Fig. 3.7

- **Increase in Demand** is shown by rightward shift in demand curve from DD to D_1D_1. Demand rises from OQ to OQ_1 due to favourable change in other factors at the same price OP
- **Decrease in Demand** is shown by leftward shift in demand curve from DD to D_2D_2. Demand falls from OQ to OQ_2 due to unfavourable change in other factors at the same price OP

In **Fig. 3.7,** demand for the commodity is OQ at a price of OP. Change in other factors leads to a rightward or leftward shift in the demand curve:

- **Rightward Shift:* When demand rises from OQ to OQ_1 (known as increase in demand) at the same price of OP, it leads to a rightward shift in demand curve from DD to D_1D_1.
- *#Leftward Shift:* On the other hand, fall in demand from OQ to OQ_2 (known as decrease in demand) at the same price of OP, leads to a leftward shift in demand curve from DD to D_2D_2.



**Rightward Shift can also be termed as "Outward Shift" or "Forward Shift" or "Upward Shift".*
#Leftward Shift can also be termed as "Inward Shift" or "Backward Shift" or "Downward Shift".

Let us now understand the meaning of Increase and Decrease in demand.

Increase in Demand

Increase in Demand refers to a rise in the demand of a commodity caused due to any factor other than the own price of the commodity. In this case, demand rises at the same price or demand remains same even at higher price.

For example, suppose a research reveals that people who regularly eat green vegetables live longer. This will raise the demand for green vegetables even at the same price and it will shift the demand curve of vegetables towards right.

Increase in demand leads to a *rightward shift* in the demand curve as seen in Fig. 3.8.

Table 3.6: Increase in Demand

Price (₹)	*Demand (units)*
20	100
20	150

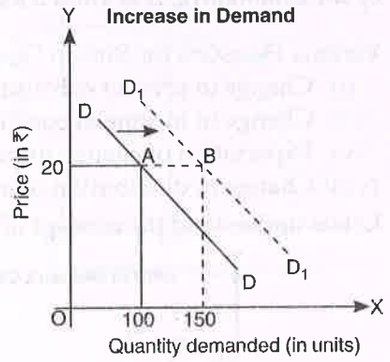


Fig. 3.8

As seen in the given schedule and diagram, demand rises from 100 units to 150 units at the same price of ₹ 20, resulting in a rightward shift in the demand curve from DD to D_1D_1.

Decrease in Demand

Decrease in Demand refers to a fall in the demand of a commodity caused due to any factor other than the own price of the commodity. In this case, demand falls at the same price or demand remains same even at lower price. It leads to a leftward shift in the demand curve. It can be better understood from Table 3.7 **and** Fig. 3.9.

Table 3.7: Decrease in Demand

Price (₹)	*Demand (units)*
20	100
20	70

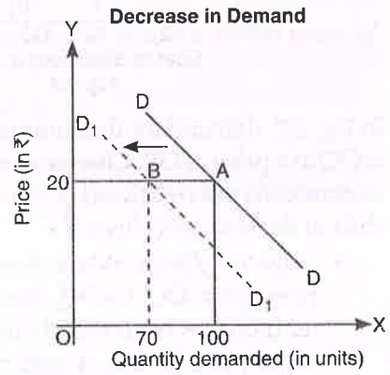


Fig. 3.9

As seen in given schedule and diagram, demand falls from 100 units to 70 units at same price of ₹ 20, resulting in a leftward shift in the demand curve from DD to D_1D_1.

3.10 MOVEMENT ALONG DEMAND CURVE VS SHIFT IN DEMAND CURVE

Basis	Movement along Demand Curve	Shift in Demand Curve
Meaning	When the quantity demanded changes due to a change in the price, keeping other factors constant, it leads to a movement along the same demand curve.	When the demand changes due to change in any factor other than the own price of the commodity, it leads to a shift in the demand curve.

Basis	Movement along Demand Curve	Shift in Demand Curve
Effect on Demand Curve	The movement along the same demand curve (Fig. 3.4) is either upwards (known as Contraction in demand) or downwards (known as Expansion in demand).	Shift in the demand curve(Fig. 3.7) is either rightwards (known as Increase in demand) or leftwards (known as decrease in demand).
Reason	It occurs due to an increase or a decrease in the price of the given commodity.	It occurs due to change in other factors, like change in prices of substitutes, change in prices of complementary goods, change in income, etc.

Change in Quantity Demanded Vs Change in Demand

Basis	Change in Quantity Demanded	Change in Demand
Meaning	When the quantity demanded changes due to a change in the price, keeping other factors constant, it is known as change in quantity demanded.	When the demand changes due to change in any factor other than the own price of the commodity, it is termed as change in demand.
Effect on Demand Curve	It leads to a movement along the same demand curve (Fig. 3.4), either upwards (known as Contraction in demand) or downwards (known as Expansion in demand).	It leads to a shift in the demand curve (Fig. 3.7), either rightwards (known as Increase in demand) or leftwards (known as Decrease in demand).
Reason	It occurs due to an increase or a decrease in the price of the given commodity.	It occurs due to change in other factors, like change in prices of substitutes, change in prices of complementary goods, change in income, etc.

Expansion in Demand Vs Increase in Demand

Basis	Expansion in Demand	Increase in Demand
Meaning	When the quantity demanded rises due to a decrease in the price, keeping other factors constant, it is known as expansion in demand.	Increase in Demand refers to a rise in the demand of a commodity caused due to any factor other than the own price of the commodity.
Tabular Presentation	Price (₹) / Demand (Units): 12 / 100; 10 / 150	Price (₹) / Demand (Units): 12 / 100; 12 / 150
Effect on Demand Curve	There is a downward movement (Fig. 3.5) along the same demand curve.	There is a rightward shift (Fig. 3.8) in demand curve.
Reason	It occurs due to a decrease in the price of the given commodity.	It occurs due to favourable change in the other factors like increase in the prices of substitutes, decrease in the prices of complementary goods, increase in income in case of normal goods, etc.

Contraction in Demand Vs Decrease in Demand

Basis	Contraction in Demand	Decrease in Demand
Meaning	When the quantity demanded falls due to an increase in the price, keeping other factors constant, it is known as contraction in demand.	Decrease in Demand refers to a fall in the demand of a commodity caused due to any factor other than the own price of the commodity.
Tabular Presentation	Price (₹) Demand (Units) 10 150 12 100	Price (₹) Demand (Units) 10 150 10 100
Effect on Demand Curve	There is an upward movement (Fig. 3.6) along the same demand curve.	There is a leftward shift (Fig. 3.9) in the demand curve.
Reason	It occurs due to an increase in the price of the given commodity.	It occurs due to an unfavourable change in the other factors like decrease in the prices of substitutes, increase in the prices of complementary goods, decrease in income in case of normal goods, etc.

Test Yourself

Identify the following as expansion, contraction, decrease or increase in demand.

(a)	Price (₹)	Demand (units)	(b)	Price (₹)	Demand (units)
	10	100		5	20
	8	140		5	24
(c)	Price (₹)	Demand (units)	(d)	Price (₹)	Demand (units)
	10	100		10	100
	12	60		10	80
(e)	Price (₹)	Demand (units)	(f)	Price (₹)	Demand (units)
	5	100		5	100
	4	120		5	120

Expansion: (a), (e); Contraction: (c); Decrease: (d); Increase: (b), (f)

3.11 SUBSTITUTE GOODS AND COMPLEMENTARY GOODS

Substitute Goods

Substitute goods are those goods which can be used in place of one another for satisfaction of a particular want, like tea and coffee.

Demand for a given commodity varies directly with the price of a substitute good. *For example,* if price of a substitute good (say, coffee) increases, then demand for given commodity (say, tea) will rise as tea will become relatively cheaper in comparison to coffee.

Let us clear this with the help of ***Fig. 3.10:***

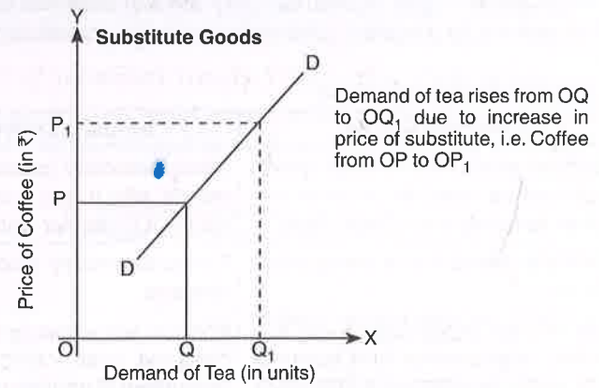


Fig. 3.10

As seen in the given diagram, price of coffee (substitute good) is shown on the Y-axis and demand for tea (given commodity) on the X-axis. When price of coffee rises from OP to OP_1, demand for tea also rises from OQ to OQ_1.

Complementary Goods

Complementary goods are those goods which are used together to satisfy a particular want. Demand for a given commodity varies inversely with the price of a complementary good. *For example,* if price of a complementary good (say, sugar) increases, then demand for given commodity (say, tea) will fall as it will be relatively costlier to use both the goods together. Let us understand this through **Fig. 3.11:**

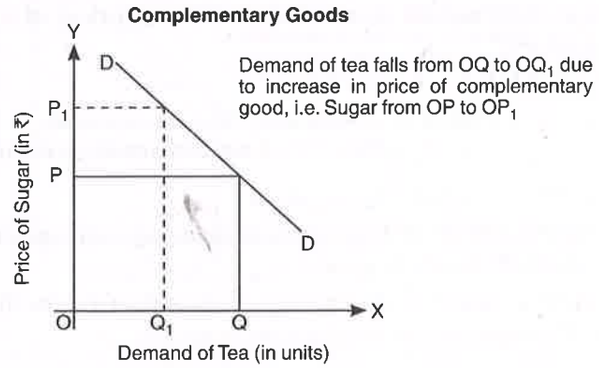


Fig. 3.11

As seen in the given diagram, price of sugar (complementary good) is shown on the Y-axis and demand for tea (given commodity) on the X-axis. When the price of sugar rises from OP to OP_1, demand for tea falls from OQ to OQ_1.

It must be noted that a demand curve shows the relationship between the quantity demanded of a given commodity and its price. ***So,*** *Fig. 3.10* ***and*** *Fig. 3.11* ***are not demand curves*** *as they show the relationship between demand for the given commodity and price of a related good.*

Substitute Goods Vs Complementary Goods

Basis	Substitute Goods	Complementary Goods
Meaning	Substitute goods refer to those goods which can be used in place of one another to satisfy a particular want.	Complementary goods refer to those goods which are used together to satisfy a particular want.
Nature of Demand	Substitute goods have competitive demand.	Complementary goods have joint demand.
Relation	Price of one substitute good has positive relationship with quantity demanded of another substitute good.	Price of a complementary good has negative relationship with quantity demanded of another complementary good.
Examples	(i) Tea and Coffee (ii) Coke and Pepsi.	(i) Tea and Sugar (ii) Car and Petrol.

Demand is not affected by Change in Price of Unrelated Goods

Demand for a commodity is affected by change in price of only related goods (substitute goods and complementary goods). Any change in the price of unrelated goods do not affect the demand for a given commodity. *Unrelated goods refer to those goods which are not linked with the demand for a given commodity. For example,* there will be no change in the demand for tea with a change in the price of Pen.

Cross Demand

Cross demand refers to the relationship between the demand of a given commodity and the price of related commodities, other things remaining the same. Cross demand indicates how much quantity of a given commodity will be demanded at different prices of a related commodity (substitute or complementary).
It can be expressed as: $D_x = f(P_y)$

{Where: D_x = Demand for the given commodity; f = Functional relationship; P_y = Price of the related commodity (substitute or complementary).}

Cross Demand can be either Positive Or Negative

- *Cross demand is positive in case of substitute goods* as demand for the given commodity varies directly with the prices of substitute goods.
- *Cross demand is negative in case of complementary goods* as demand for the given commodity varies inversely with the prices of complementary goods.

Cross Price Effect on Demand Curve

Cross Price Effect refers to effect on the demand for a given commodity due to a change in the price of a related commodity. It means, cross price effect originates from substitute goods and complementary goods. Let us understand the effect on the demand curve of a given commodity when there is change in the prices of substitute and complementary goods.

Change in Prices of Substitute Goods

A change (increase or decrease) in the price of substitutes directly affects the demand for a given commodity.

(i) ***Increase in Price of Substitute Goods:*** When price of substitute goods (say, coffee) rises, demand for the given commodity (say, tea) also rises from OQ to OQ_1 at its same price of OP. It leads to a *rightward shift in the demand curve* of the given commodity from DD to D_1D_1.

Effect on Demand Curve due to increase in price of substitute Goods

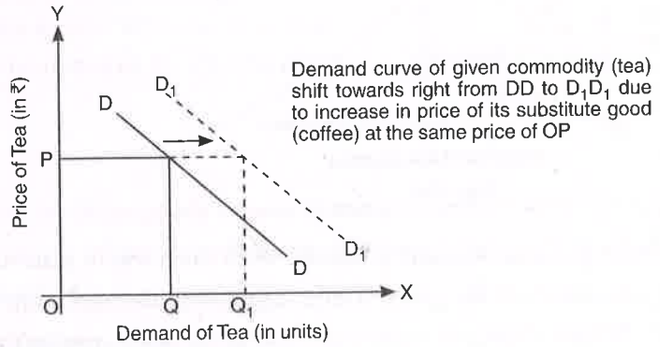


Fig. 3.12

(ii) ***Decrease in Price of Substitute Goods:*** With decrease in price of substitute goods (coffee), demand for the given commodity (tea) also decreases from OQ to OQ_1 at the same price of OP. It shifts the *demand curve of the given commodity towards left* from DD to D_1D_1.

Effect on Demand Curve due to decrease in price of Substitute Goods

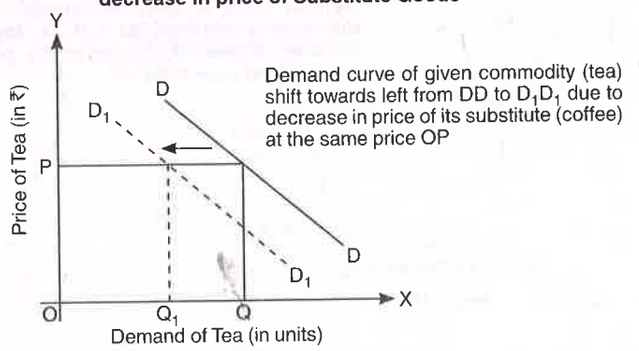


Fig. 3.13

Change in Price of Complementary Goods

An increase or decrease in the prices of complementary goods inversely affects the demand for the given commodity.

(i) ***Increase in Price of Complementary Goods:*** When price of complementary goods (say, sugar) rises, demand for the given commodity (say, tea) falls from OQ to OQ_1 at the

same price of OP. As a result, *the demand curve of the given commodity shifts to the left* from DD to D_1D_1.

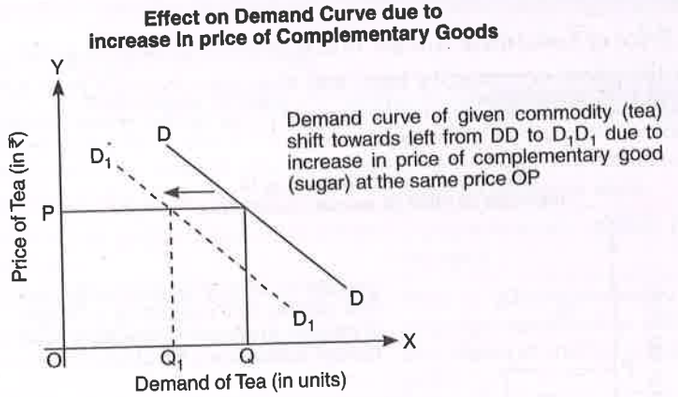


Fig. 3.14

(ii) ***Decrease in Price of Complementary Goods:*** With decrease in price of complementary goods (sugar), demand for the given commodity (tea) increases from OQ to OQ_1 at the same price of OP. As a result, *the demand curve of the given commodity shifts to the right* from DD to D_1D_1.

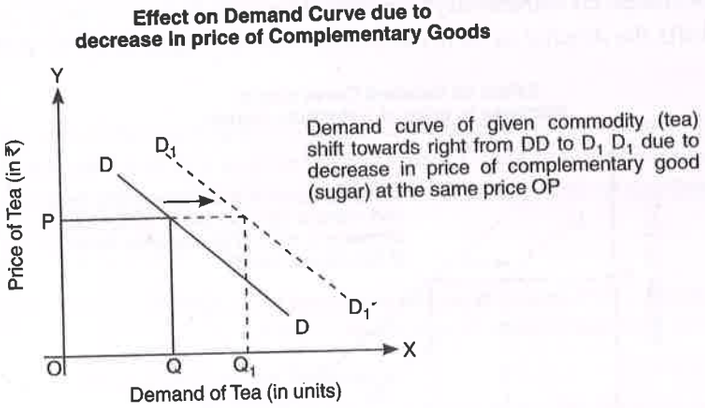


Fig. 3.15

3.12 NORMAL GOODS AND INFERIOR GOODS

Normal Goods

Most of the commodities that we usually buy are normal (superior) goods. As a general practice, a consumer buys more of such goods, when his income rises and less of it when his income falls. The commodities that follow this rule are called 'Normal Goods'.

Normal goods refer to those goods whose demand increases with an increase in income.

For example, If the demand for TV increases with a rise in income, then TV will be called a normal good. *Income effect is positive in case of normal goods.*

In Fig. 3.16, income of the consumer is shown on the Y-axis and demand for a normal good (say, TV) is shown on the X-axis. When income rises from OY to OY_1, the demand for TV also rises from OQ to OQ_1.

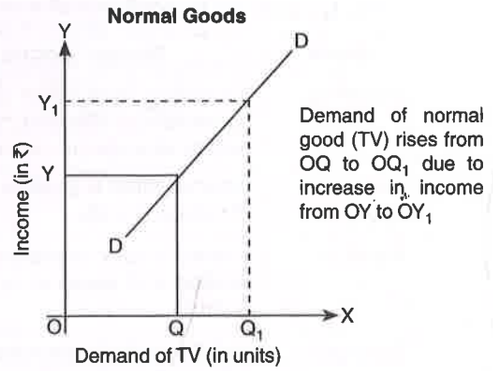


Fig. 3.16

Inferior Goods

Inferior goods refer to those goods whose demand decreases with an increase in income. It means, that there exists an inverse relationship between income and the demand for inferior goods. So, income effect is negative in case of inferior goods.

For example, if the income of a consumer rises and he prefers to replace his black-and-white (B/W) TV with a coloured one, then demand for B/W TV will fall. In such case, B/W TV is an inferior good.

In Fig. 3.17, income of the consumer is shown on the Y-axis and demand for an inferior good (B/W TV) is shown on the X-axis. When income rises from OY to OY_1, the demand for B/W TV falls from OQ to OQ_1 as the consumer shifts to Colour TV.

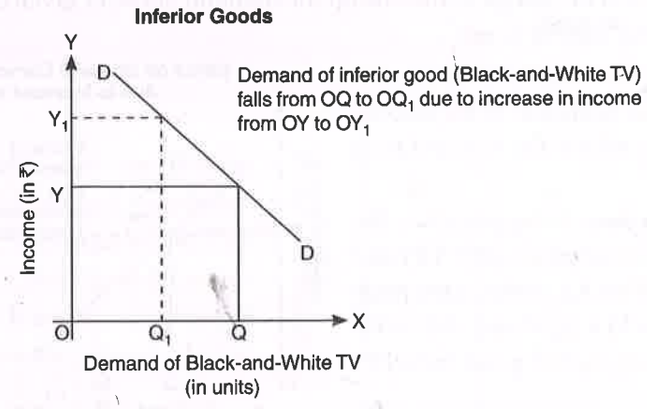


Fig. 3.17

Like Fig. 3.10 and Fig. 3.11, Fig. 3.16 and Fig. 3.17 are also not demand curves as they show the relationship between demand for the given commodity and income of the consumer.

Normal Goods Vs Inferior Goods

Basis	Normal Goods	Inferior Goods
Meaning	Normal goods refer to those goods whose demand increases with an increase in income.	Inferior goods refer to those goods whose demand decreases with an increase in income.
Income Effect	Income effect is positive in case of normal goods.	Income effect is negative in case of inferior goods.
Relation	There is a direct relation between income and demand for normal goods.	There is an inverse relation between income and demand for inferior goods.
Example	'Full Cream Milk' is a normal good if its demand increases with an increase in income.	'Toned Milk' is an inferior good if its demand decreases with an increase in income.

What are Necessity Goods?

- Necessity goods refer to those goods for which there is no change in demand with a change in the income of consumer.
- Example: Salt, wheat flour, medicines, etc.
- These goods are essential for human existence and, therefore, they occupy a higher place in the consumers' order of preference.

Effect on Demand Curve (with change in Income)

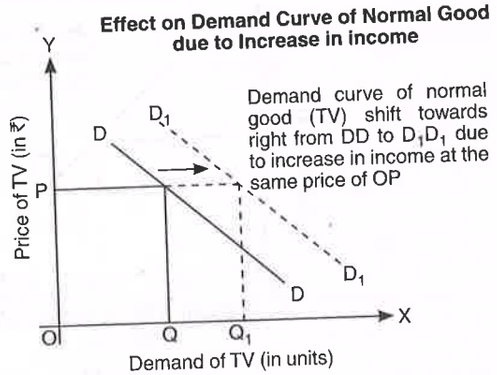
A change in income causes a positive change in demand for normal goods, whereas, a negative change occurs in the case of inferior goods. So, the demand curve of a given commodity is affected by change in income in case of normal goods and inferior goods. *It must be noted that there is no change in demand for the necessity goods with increase or decrease in income.*

Let us discuss the effect of change in income on the demand curve of given commodity in case of *'Normal Goods'* and *'Inferior Goods'*.

Change in Income (Normal Goods)

A change (increase or decrease) in the income of consumer directly affects the demand for a given commodity.

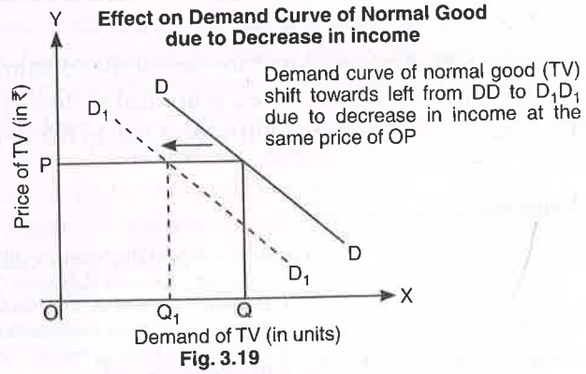
(i) ***Increase in Income:*** As income rises, the demand for normal goods (say, TV) also rises from OQ to OQ_1 at the same price of OP. It leads to a *rightward shift in the demand curve* of normal good from DD to D_1D_1.



Effect on Demand Curve of Normal Good due to Increase in income

Fig. 3.18

(ii) ***Decrease in Income:*** With fall in income, the demand for normal goods (TV) falls from OQ to OQ_1 at the same price of OP. It shifts the *demand curve* of normal good *towards left* from DD to D_1D_1.



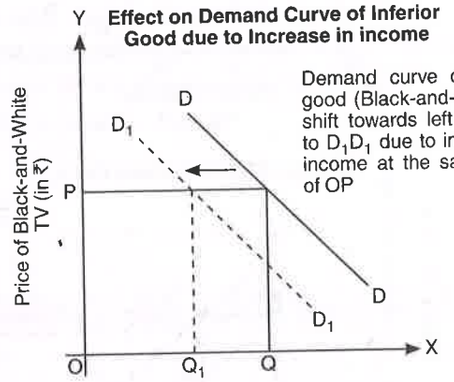
Effect on Demand Curve of Normal Good due to Decrease in income

Fig. 3.19

Change in Income (Inferior Goods)

An increase or decrease in income affects the demand inversely, if the given commodity is an inferior good.

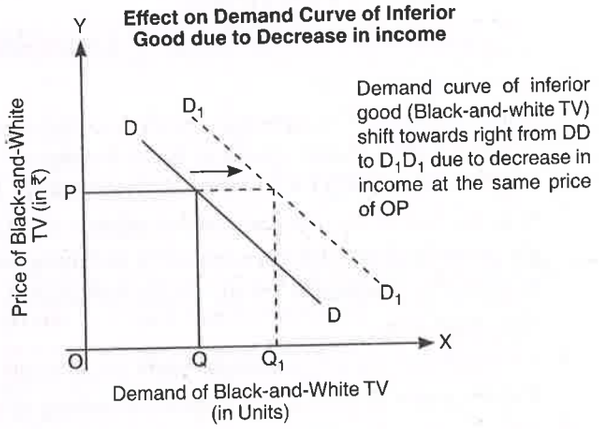
(i) ***Increase in Income:*** As income increases, the demand for inferior goods (say, black-and-white TV) falls from OQ to OQ_1 at the same price of OP. It leads to a *leftward shift in the demand curve* of inferior good from DD to D_1D_1.



Effect on Demand Curve of Inferior Good due to Increase in income

Fig. 3.20

(ii) ***Decrease in Income:*** As income decreases, the demand for inferior goods (say, black-and-white TV) rises from OQ to OQ_1 at the same price of OP. It leads to a *rightward shift in the demand curve* of inferior good from DD to D_1D_1.

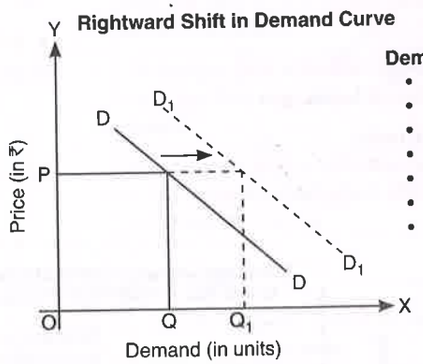


Effect on Demand Curve of Inferior Good due to Decrease in income

Fig. 3.21

Rightward and Leftward Shift in Demand Curve

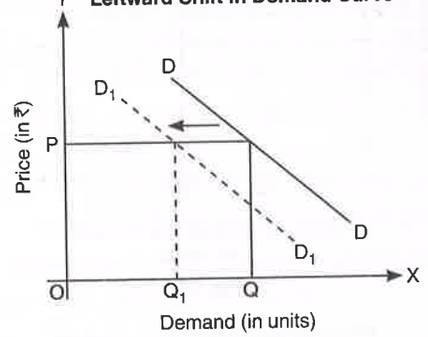
In addition to change in prices of related goods and income of the consumer, the demand curve also shifts due to various other factors. Let us have a graphical review of all the factors, which lead to a rightward shift **(Fig. 3.22)** or leftward shift **(Fig. 3.23)**, in the demand curve.



Rightward Shift in Demand Curve

Demand curve shifts towards right because of:
- Increase in price of Substitute Goods
- Decrease in price of Complementary Goods
- Increase in income (Normal Goods)
- Decrease in income (Inferior Goods)
- Increase in Population
- Tastes in favour of commodity
- Expectation of future increase in price

Fig. 3.22



Leftward Shift in Demand Curve

Demand curve shifts towards left because of:
- Decrease in price of Substitute Goods
- Increase in price of Complementary Goods
- Decrease in income (Normal Goods)
- Increase in income (Inferior Goods)
- Decrease in Population
- Tastes not in favour of commodity
- Expectation of future decrease in price

Fig. 3.23

Kinds of Demand

1. Price Demand: *Price demand refers to a relationship between the price and demand of a commodity, assuming other factors constant.* It can be shown as $D_x = f(P_x)$, Where: D_x = Demand for the given commodity; f = functional relationship; P_x = Price of the given commodity.
2. Income Demand: *Income demand refers to a relationship between the income of consumer and the quantity demanded of a commodity, assuming other factors constant.* Symbolically: $D_x = f(Y)$; Where: D_x = Demand for the given commodity; f = functional relationship; Y = Income of the consumer.
3. Cross Demand: *Cross demand refers to a relationship between the demand of a given commodity and the prices of related commodities, assuming other things remaining the same.*
4. Joint Demand: *When two or more goods are demanded simultaneously to satisfy a particular want, then such a demand is called joint demand. For example,* demand for sugar, milk, and tea leaves is a joint demand, as they are demanded together to prepare tea.

5. Composite Demand: *When a commodity can be put to several uses, its demand is known as composite demand. For example,* demand for electricity is a composite demand as it can be used for various purposes like lighting rooms, running the refrigerator, TV, AC, etc.
6. Derived Demand: *Demand for a commodity, which depends on the demand for other goods, is known as derived demand. For example,* demand for labour producing cloth is a derived demand as it depends on the demand for cloth.
7. Direct Demand: *When a commodity satisfies the wants directly, its demand is termed as direct demand. For example,* demand for clothes, books, food is a direct demand as these items satisfy the wants directly.
8. Alternative Demand: *Demand is known as alternative demand, when it can be satisfied by different alternatives. For example,* there are number of options (alternatives) to satisfy the demand for food like chapatti, rice, salad, fruits, burger, pizza, etc.
9. Competitive Demand: *When two goods are close substitutes of each other and increase in demand for one of them will decrease the demand for the other, then the demand for any one of them is known as competitive demand. For example,* increase in demand for coffee might reduce the demand for tea. It happens because purchase of more of one commodity (say, coffee) leads to a lesser requirement for the other commodity (say, tea).

3.13 SOLVED PRACTICALS

Example 1. There are 3 households: A, B and C in a market. From the following table, calculate demand for household B at various levels of price;

Price (₹)	Household A	Household B	Household C	Market Demand
14	12	–	22	52
12	16	–	32	72
10	24	–	44	102
8	34	–	60	142
6	48	–	84	198

Solution:

Price (₹)	Household A	**Household B**	Household C	Market Demand
14	12	**18**	22	52
12	16	**24**	32	72
10	24	**34**	44	102
8	34	**48**	60	142
6	48	**66**	84	198

Demand for Household B = Market Demand – A's demand – C's demand

Example 2. Prepare the market demand schedule from the given demands of individuals. (Assuming that there are only three individuals X, Y and Z in the market)

Price (₹)	Demand (X)	Demand (Y)	Demand (Z)
4	10	5	4
5	8	4	3
6	6	3	2
7	4	2	1

Solution:

Price (₹)	Demand (X)	Demand (Y)	Demand (Z)	**Market Demand (X + Y + Z)**
4	10	5	4	**19**
5	8	4	3	**15**
6	6	3	2	**11**
7	4	2	1	**7**

Example 3. The following table shows the expenditure, which Amit is willing to spend on commodity 'x' at various levels of price. Prepare demand schedule of Amit.

Price (₹)	5	6	7	8	9
Expenditure (₹)	100	96	84	80	72

Solution:

Price (₹)	Expenditure (₹)	**Demand in units** (Expenditure ÷ Price)
5	100	100 ÷ 5 = 20
6	96	96 ÷ 6 = 16
7	84	84 ÷ 7 = 12
8	80	80 ÷ 8 = 10
9	72	72 ÷ 9 = 8

Example 4. The demand function of a commodity x is given by $Q_x = 12 - 2P_x$. Prepare the demand schedule, if its price varies from ₹ 6 to Re. 1:

Solution:

Price in ₹ (P_x)	6	5	4	3	2	1
Demand in units (Q_x)	0	2	4	6	8	10

Values of *demand* (Q_x) are calculated after putting the values of *price* (P) in the demand function:

$Q_x = 12 - 2P_x$

Example 5. There are only 3 consumers (X, Y and Z) in a market and there demand functions are given as: $Q_X = 30 - 2P$; $Q_Y = 40 - 3P$; $Q_Z = 50 - 4P$.

From the given individual demand functions, determine the market demand function. Also, calculate the market demand at a price of ₹ 10 per unit.

Solution:

Market demand function can be determined through summation of individual demand function, i.e.

$$Q_{MD} = Q_X + Q_Y + Q_Z = (30 - 2P) + (40 - 3P) + (50 - 4P) = 120 - 9P$$

Market Demand at a price of ₹ 10 per unit: $Q_{MD} = 120 - 9P = 120 - 9 \times 10 = 30$ units.

Example 6. With the help of demand function: $Q_d = 40 - 5p$, answer the following questions: (i) Calculate demand at price of ₹ 2; (ii) Calculate price, when demand will be 0; (iii) Calculate demand, when price will be 0.

Solution:

(i) $Q_d = 40 - 5p$. Putting the value of price (i.e. ₹ 2), we get: $Q_d = 40 - 5 \times 2 =$ **30 units**

(ii) Putting the value of demand (0), we get: $0 = 40 - 5p$. It means, $p =$ **₹ 8.** At price of ₹ 8, demand will be zero.

(iii) Putting the value of price (0), we get:
$Q_d = 40 - 5 \times 0 =$ **40 units.** At demand of 40 units, price will be zero.

REVISION OF KEY POINTS

- **Individual Demand** refers to the quantity of a commodity that a consumer is willing and able to buy, at each possible price during a given period of time.
- **Market Demand** refers to the quantity of a commodity that all the consumers are willing and able to buy, at each possible price during a given period of time.
- **Determinants of Individual Demand:** (a) Price of the given commodity; (b) Prices of related goods; (c) Income of the consumer; (d) Tastes and preferences of the consumer; (e) Expectation of change in the price in future.
- **Determinants of Market Demand:** In addition to factors affecting individual demand, market demand is also influenced by: (a) Size and composition of population; (b) Distribution of income; (c) Season and weather.
- **Demand Function** is a statement, which exhibits the relationship between quantity demanded for a particular commodity and factors influencing it.
- **Law of Demand** states the inverse relationship between price and quantity demanded, keeping other factors constant (ceteris paribus).
- **Reasons of the Law of Demand:** (a) Law of Diminishing Marginal Utility; (b) Substitution Effect; (c) Income Effect; (d) Additional Customers; (e) Different Uses.
- **Exceptions to the Law of Demand:** (a) Giffen Goods; (b) Status Symbol Goods; (c) Fear of Shortage; (d) Ignorance; (e) Fashion-related goods; (f) Necessities of Life; (g) Change in Weather.
- **Demand Schedule** is a tabular presentation of various quantities of a commodity, that a consumer is willing to purchase at different prices, during a given period of time.
- **Demand Curve** is a graphical representation of demand schedule.
- **Movement along Demand Curve** occurs, when the quantity demanded changes due to a change in the price, keeping other factors constant.
  - (i) ***Expansion in Demand*** means a rise in the quantity demanded due to a fall in price, keeping other factors constant.
  - (ii) ***Contraction in Demand*** means a fall in the quantity demanded due to a rise in price, keeping other factors constant.
- **Shift in Demand Curve** occurs,when the demand changes due to change in any factor other than the own price of the commodity,
  - (i) ***Increase in Demand*** refers to a rise in the demand of a commodity caused due to any factor other than the own price of the commodity.
  - (ii) ***Decrease in Demand*** refers to a fall in the demand of a commodity caused due to any factor other than the own price of the commodity.
- **Substitute Goods** are those goods which can be used in place of one another for satisfaction of a particular want. *For example,* Tea and Coffee.
- **Complementary Goods** are those goods which are used together to satisfy a particular want. *For example,* Tea and Sugar.
- **Cross Demand** shows a relationship between the demand for a given commodity and the price of related commodities, assuming no change in other factors.
- **Normal Goods** refer to those goods whose demand rises with a rise in the income of consumer.
- **Inferior Goods** refer to those goods whose demand falls with a rise in the income of consumer.