CHAPTER 15

Introduction to Graphs

Some Applications:

i. Nowadays everyone wants to live comfortable life and they have to pay more for this. For example, if you use more appliances in your home then the electricity bill is also high. Here we can say that electricity is an "INDEPENDENT VARIABLE" and electric bill is "DEPENDENT VARIABLE".

ii. The cost of an item increases with the quantity bought and

iii. The distance travelled depends on the time.

iv. In order to understand these variables more clearly, we use graph to represent it.

Draw a graph to represent the relationship between quantity of petrol and its corresponding cost given in the following data.

Quantity of petrol (In litres)	5	10	15	20	25
Cost (in ₹)	350	700	1050	1400	1750

By graph, Find

(i) The cost of 12.5 litres of petrol and

(ii) The amount of petrol that can be bought for ₹ 437.50

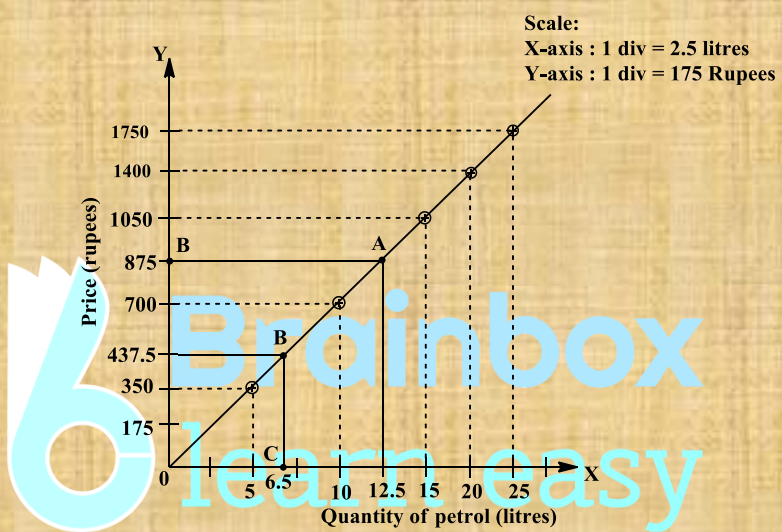
Sol.

Step-1: On a graph sheet, take quantity on the X-axis and cost on the Y-axis.

Step-2: Choose the scale on X-axis: 1 div = 2.5 litres and Y-axis: 1 div = ₹ 175.

Step-3: Plot the ordered pairs (5, 350), (10, 700), (15, 1050), (20, 1400) and (25, 1750).

Step-4: Join the points using a ruler to get a straight line which is the required linear graph.



(I A) Locate 1.25 litres on the X-axis and draw a perpendicular line from that point to intersect the graph at A. From A draw a horizontal line perpendicular to Y-axis to meet it at 'B'. Read the value at B. It is ₹ 875. Which is the required cost of 12.5 litres of petrol.

(II A) Locate the point corresponding to ₹ 437.50 on the Y-axis. Draw a horizontal line from the point to meet the graph at 'B'. From 'B' drop a vertical line perpendicular to the X-axis to meet it at 'C'. Read the value at 'C', which is 6.25 litres. It gives the quantity of petrol that can be bought for ₹ 437.50.