

**Example 5 :**

State the quadrants to which the following points belong :

- (i)  $(7, -8)$       (ii)  $(-5, -9)$       (iii)  $(4, 12)$       (iv)  $(-6, 1)$

**Solution :**

- (i)  $(7, -8)$  is of the type  $(+, -)$ ; so,  $(7, -8)$  lies in the fourth quadrant.  
(ii)  $(-5, -9)$  is of the type  $(-, -)$ , so,  $(-5, -9)$  lies in the third quadrant.  
(iii)  $(4, 12)$  is of the type  $(+, +)$ , so,  $(4, 12)$  lies in the first quadrant.  
(iv)  $(-6, 1)$  is of the type  $(-, +)$ , so,  $(-6, 1)$  lies in the second quadrant.

**Example 6 :**

Which of the following points lie on the x-axis ?

- $A(5, 0)$ ,  $B(0, -9)$ ,  $C(3, 1)$ ,  $D(-3, 0)$ ,  $E(-11, 0)$

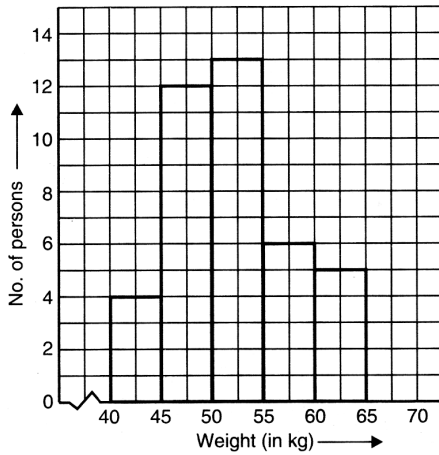
**Solution :**

A point lies on the x-axis if its y-coordinate (ordinate) is 0, i.e., points of the type  $(x, 0)$  lie on the x-axis.  
So, each of the points  $A(5, 0)$ ,  $D(-3, 0)$  and  $E(-11, 0)$  lies on the x-axis.

# CONCEPT APPLICATION LEVEL - I [NCERT Questions]

**Q.1** What is the information that you gather from given histogram ? Try to list them out.

**Sol.**

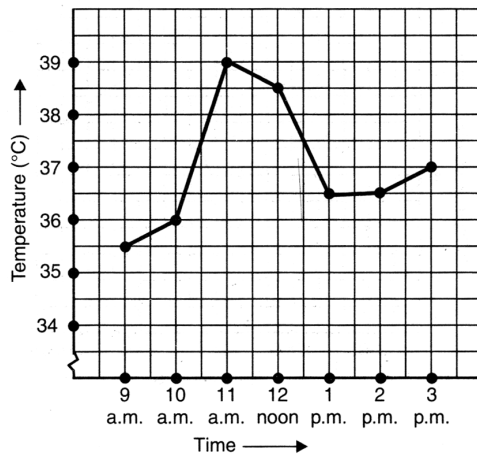


This histogram illustrates the distribution of weights (in kg) of 40 persons of a locality. The information that we gather from this histogram are as follows:

- (i) Maximum number of persons in the locality have their weights (in kg) in the interval 50–55.
- (ii) Minimum number of persons in the locality have their weights (in kg) in the interval 40–45.

**Q.2** The following graph shows the temperature of a patient in hospital, recorded every hour.

- (a) What was the patient's temperature at 1 p.m. ?
- (b) When was the patient's temperature 38.5°C?
- (c) The patient's temperature was the same two times during the period given. What were these two times ?
- (d) What was the temperature at 1.30 p.m.? How did you arrive at your answer ?
- (e) During which periods did the patient's temperature showed an upward trend?



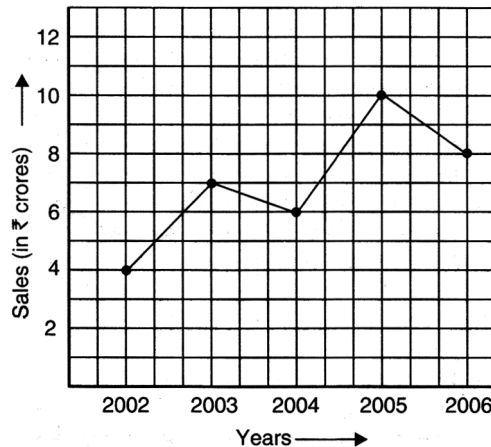
- Sol.**
- (a) The patient's temperature at 1 p.m. was 36.5°C.
  - (b) The patient's temperature was 38.5° at 12 noon.
  - (c) The two times when the patient's temperature was the same were 1 p.m. and 2 p.m.
  - (d) The temperature at 1.30 p.m. was 36.5°C.

The point between 1 p.m. and 2 p.m. on the x-axis is equidistant from the two points showing 1 p.m. and 2 p.m., so it will represent 1.30 p.m. Similarly, the point on the y-axis, between 36°C and 37°C will represent 36.5°C.

- (e) The patient's temperature showed an upward trend during the periods 9 a.m. to 10 a.m., 10 a.m. to 11 a.m. and 2 p.m. to 3 p.m.

**Q.3** The following line graph shows the yearly sales figures for a manufacturing company.

- (a) What were the sales in : (i) 2002 (ii) 2006  
 (b) What were the sales in : (i) 2003 (ii) 2005  
 (c) Compute the difference between the sales in 2002 and 2006.



- (d) In which year was there the greatest difference between the sale as compared to its pervious year?

- Sol.** (a) The sales in (i) 2002 were ₹ 4 crore and in (ii) 2006 were ₹ 8 crore  
 (b) The sales in (i) 2003 were ₹ 7 crore and in (ii) 2005 were ₹ 10 crore.  
 (c) The difference between the sales in 2002 and 2006

$$= ₹ 8 \text{ crore} - ₹ 4 \text{ crore} = ₹ 4 \text{ crore}$$

- (d) The difference between the sales in 2002 and 2003

$$= ₹ 7 \text{ crore} - ₹ 4 \text{ crore} = ₹ 3 \text{ crore}$$

The difference between the sales in 2003 and 2004

$$= ₹ 100 \text{ crore} - ₹ 6 \text{ crore} = ₹ 1 \text{ crore}$$

The difference between the sales in 2004 and 2005

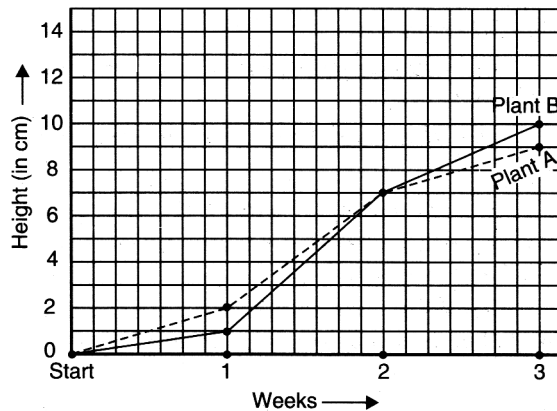
$$= ₹ 10 \text{ crore} - ₹ 6 \text{ crore} = ₹ 4 \text{ crore}$$

The difference between the sales in 2005 and 2006

$$= ₹ 10 \text{ crore} - ₹ 8 \text{ crore} = ₹ 2 \text{ crore}$$

Therefore in year 2005 the difference between the sales as compared to its previous year was the greatest.

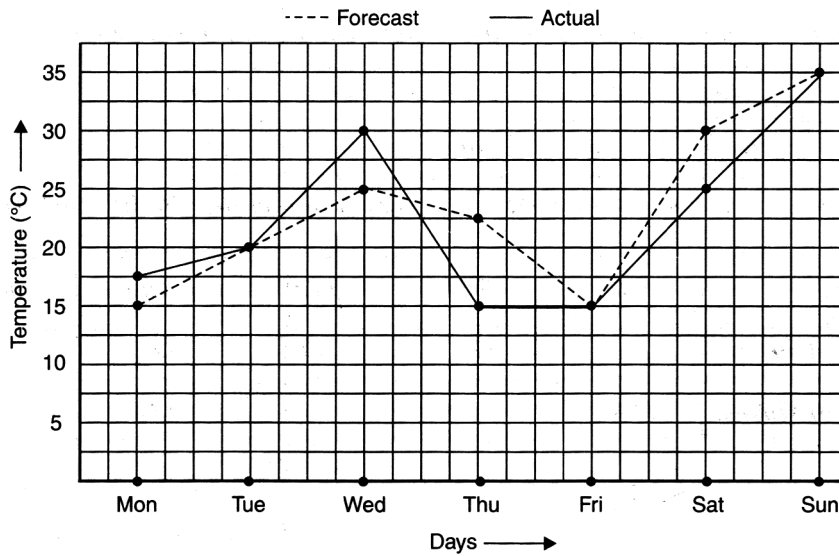
- Q.4** For an experiment in Botany, two different plants, plant A and plant B were grown under similar laboratory conditions. Their heights were measured at the end of each week for 3 weeks. The results are shown by the following graph.



- (a) How high was Plant A after (i) 2 weeks (ii) 3 weeks ?  
 (b) How high was Plant B after (i) 2 weeks (ii) 3 weeks ?  
 (c) How much did Plant A grow during the 3rd weeks ?  
 (d) How much did Plant B grow from the end of the 2nd week to the end of the 3rd week ?  
 (e) During which week did Plant A grow most ?  
 (f) During which week did Plant B grow least ?  
 (g) Were the two plants of the same height during any week shown here ? Specify.

- Sol.**
- (a) The Plant A after (i) 2 weeks was 7 cm high and after (ii) 3 weeks was 9 cm high.  
 (b) The Plant B after (i) 2 weeks was 7 cm high and after (ii) 3 weeks was 10 cm high.  
 (c) The Plant A grew  $9 \text{ cm} - 7 \text{ cm} = 2 \text{ cm}$  during the 3rd week.  
 (d) From the end of the 2nd week to the end of the 3rd week, the Plant B grew  
 $= 10 \text{ cm} - 7 \text{ cm} = 3 \text{ cm}$ .  
 (e) The Plant A grew in 1st week  
 $= 2 \text{ cm} - 0 \text{ cm} = 2 \text{ cm}$   
 The Plant A grew in 2nd week  
 $= 7 \text{ cm} - 2 \text{ cm} = 5 \text{ cm}$   
 The Plant A grew in 3rd week  
 $= 9 \text{ cm} - 7 \text{ cm} = 2 \text{ cm}$   
 Therefore, the Plant A grew mostly in second week.  
 (f) The Plant B grew in 1st week  
 $= 1 \text{ cm} - 0 \text{ cm} = 1 \text{ cm}$   
 The Plant B grew in 2nd week  
 $= 7 \text{ cm} - 1 \text{ cm} = 6 \text{ cm}$   
 The Plant B grew in 3rd week  
 $= 10 \text{ cm} - 7 \text{ cm} = 3 \text{ cm}$   
 Therefore, the plant B grew least in first week  
 (g) At the end of 2nd week, the two plants shown here were of the same height.

**Q.5** The following graph shown the temperature forecast and the actual temperature for each of a week.



- (a) On which days was the forecast temperature the same as the actual temperature ?
- (b) What was the maximum forecast temperature during the week ?
- (c) What was the minimum actual temperature during the week ?
- (d) On which day did the actual temperature differ the most from the forecast temperature?

**Sol.** (a) The forecast temperature was the same as the actual temperature on Tuesday, Friday and Sunday  
 (b) The maximum forecast temperature during the week was 35°C.  
 (c) The minimum actual temperature during the week was 15°C.

Day	Difference in the actual temperature and the forecast temperature
Mon	$17.5^{\circ}\text{C} - 15^{\circ}\text{C} = 2.5^{\circ}\text{C}$
Tue	$20^{\circ}\text{C} - 20^{\circ}\text{C} = 0^{\circ}\text{C}$
Wed	$30^{\circ}\text{C} - 25^{\circ}\text{C} = 5^{\circ}\text{C}$
Thu	$22.5^{\circ}\text{C} - 15^{\circ}\text{C} = 7.5^{\circ}\text{C}$
Fri	$15^{\circ}\text{C} - 15^{\circ}\text{C} = 0^{\circ}\text{C}$
Sat	$30^{\circ}\text{C} - 25^{\circ}\text{C} = 5^{\circ}\text{C}$
Sun	$35^{\circ}\text{C} - 35^{\circ}\text{C} = 0^{\circ}\text{C}$

Therefore, the actual temperature differed the most from the forecast temperature on Thursday

**Q.6** Use the tables below to draw linear graphs.

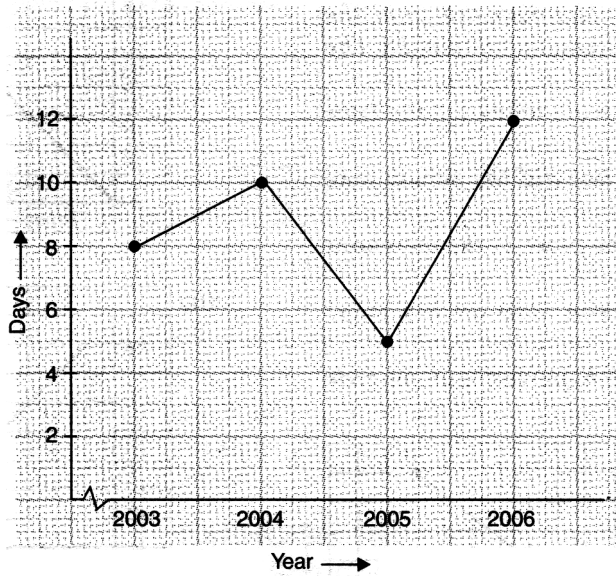
(a) The number of days a hill side city received show in different years.

Year	2003	2004	2005	2006
Days	8	10	5	12

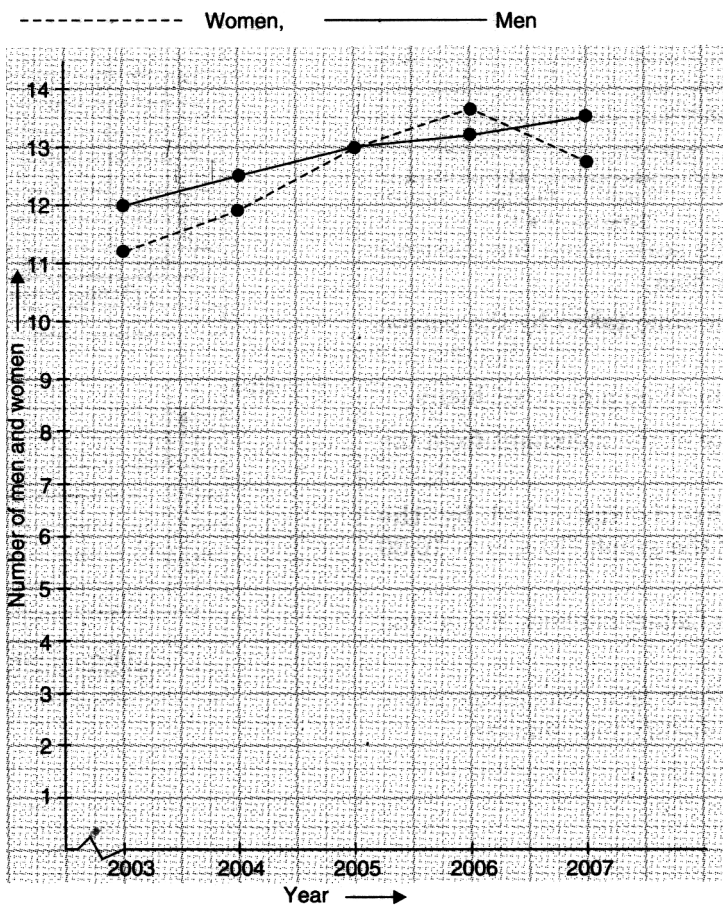
(b) Population (in thousands) of men and women in a village in different years.

Year	2003	2004	2005	2006	2007
Number of Men	12	12.5	13	13.2	13.5
Number of Women	11.3	11.9	13	13.6	12.8

Sol. (a)

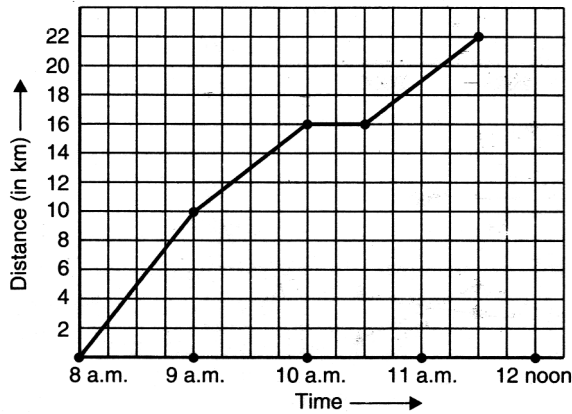


(b)



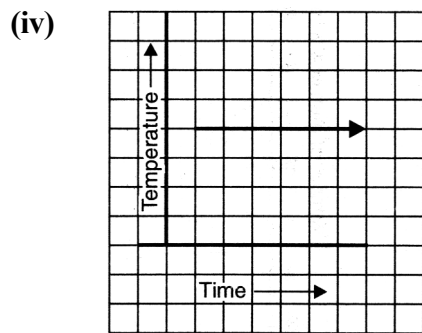
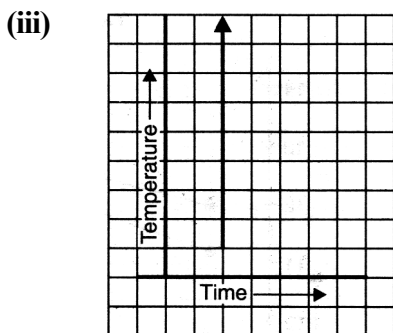
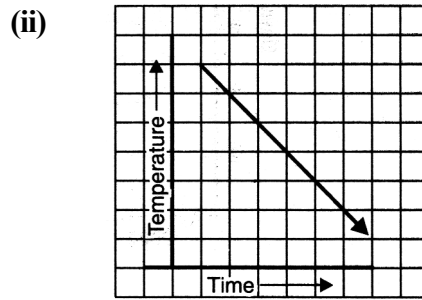
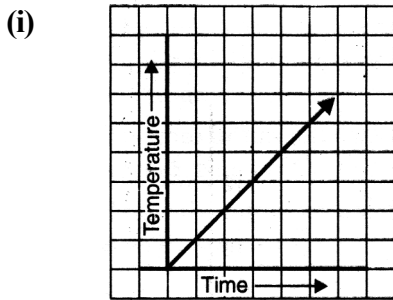
**Q.7** A courier-person cycles from a town to a neighbouring suburban area to deliver a parcel to a merchant. His distance from the town at different times is shown by the following graph

- (a) What is the scale taken for the time axis ?
- (b) How much time did the person take for the travel ?
- (c) How far is the place of the merchant from the town ?
- (d) Did the person stop on his way ?
- (e) During which period did he ride fastest ?



- Sol.**
- (a) The scale taken for the time axis is 4 units = 1 hour.
  - (b) The time taken by the person for the travel  
8 a.m. to 11.30 a.m. =  $3\frac{1}{2}$  hours.
  - (c) The place of the merchant from the town is 22 km.
  - (d) Yes. This is indicated by the horizontal part of the graph (10 a.m. – 10.30 a.m.)
  - (e) He rides fastest between 8 a.m. and 9 a.m.

**Q.8** Can there be a time-temperature graph as follows? Justify your answer.



- Sol.**
- (i) It shows a time-temperature graph. It shows an increase in temperature with an increase in time.
  - (ii) It shows a time-temperature graph. It shows a decrease in temperature with an increase in time.
  - (iii) It cannot be a time-temperature graph because it shows many-many different temperatures at one particular time.
  - (iv) It shows a time-temperature graph. It shows a fixed temperature at different times.