Mathematics

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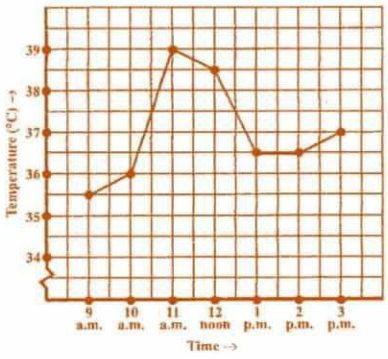
(Chapter – 15) (Introduction to Graphs)
(Class – VIII)

Exercise 15.1

Question 1:

The following graph shows the temperature of a patient in a hospital, recorded every hour:



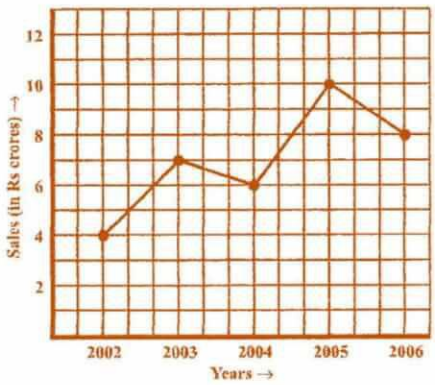
(a) What was the patient's temperature at 1 p.m.?
(b) When was the patient's temperature 38.5° C?
(c) The patient's temperature was the same two times during the period given. What were these two times?
(d) What was the temperature at 1.30 p.m.? How did you arrive at your answer?
(e) During which periods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

Answer 1:

(a) The patient's temperature was 36.5° C at 1 p.m.
(b) The patient's temperature was 38.5° C at 12 noon.
(c) The patient's temperature was same at 1 p.m. and 2 p.m.
(d) The temperature at 1.30 p.m. is 36.5° C. The point between 1 p.m. and 2 p.m., $x-$axis is equidistant from the two points showing 1 p.m. and 2 p.m. So it represents 1.30 p.m. Similarly the point on $y-$axis, between 36° C and 37° C will represent 36.5° C.
(e) The patient's temperature showed an upward trend from 9 a.m. to 11 a.m.

Question 2:

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 sales as compared to its previous year?

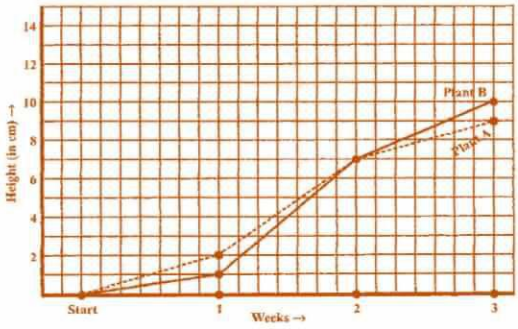
Answer 2:

(a) The sales in:
(i) 2002 was ₹ 4 crores and (ii) 2006 was ₹ 8 crores.
(b) The sales in:
(i) 2003 was ₹ 7 crores and (ii) 2005 was ₹10 crores.
(c) The difference of sales in 2002 and 2006 = ₹8 crores – ₹4 crores = ₹ 4 crores
(d) In the year 2005, there was the greatest difference between the sales as compared to its previous year, which is (₹10 crores – ₹ 6 crores) = ₹4 crores.

Question 3:

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 week?
(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.



Answer 3:

(a) (i) The plant A was 7 cm high after 2 weeks and
(ii) after 3 weeks it was 9 cm high.
(b) (i) Plant B was also 7 cm high after 2 weeks and
(ii) after 3 weeks it was 10 cm high.
(c) Plant A grew = 9 cm – 7 cm = 2 cm during 3rd week.
(d) Plant B grew during end of the 2nd week to the end of the 3rd week = 10 cm – 7 cm = 3 cm.
(e) Plant A grew the highest during second week.
(f) Plant B grew the least during first week.
(g) At the end of the second week, plant A and B were of the same height.

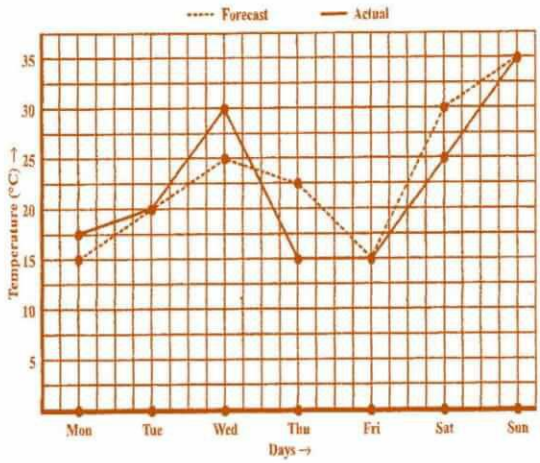
Question 4:

The following graph shows the temperature forecast and the actual temperature for each day 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?

Answer 4:

(a) On Tuesday, Friday and Sunday, the forecast temperature was same as the actual temperature.
(b) The maximum forecast temperature was 35° C.
(c) The minimum actual temperature was 15° C.
(d) The actual temperature differed the most from the forecast temperature on Thursday.



Question 5:

Use the tables below to draw linear graphs.

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

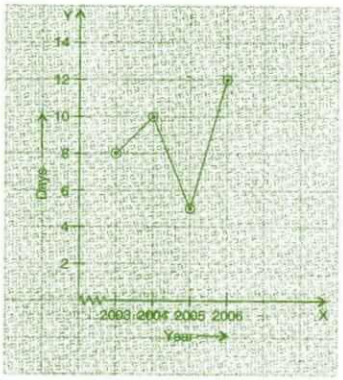
Year	2003	2004	2005	2006
Days	8	10	5	12

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

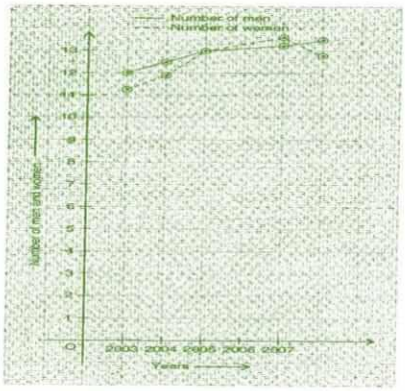
Year	2003	2004	2005	2006	2007
No. of Men	12	12.5	13	13.2	13.5
No. of Women	11.3	11.9	13	13.6	12.8

Answer 5:

(a)

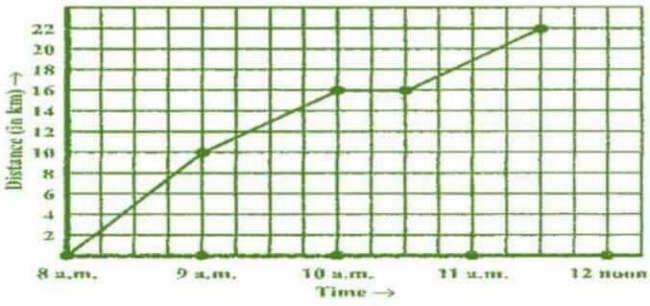


(b)



Question 6:

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? Explain.

(e) During which period did he ride fastest?

Answer 6:

(a) 4 units = 1 hour.

(b) The person took $3\frac{1}{2}$ hours for the travel.

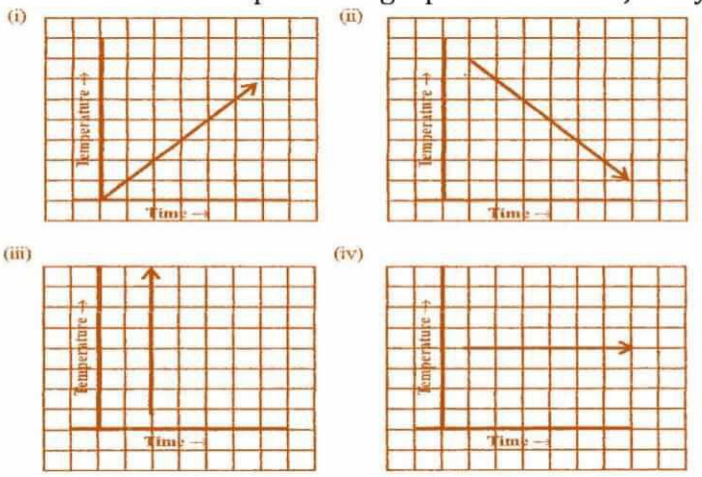
(c) It was 22 km far from the town.

(d) Yes, this has been indicated by the horizontal part of the graph. He stayed from 10 am to 10.30 am.

(e) He rode the fastest between 8 am and 9 am.

Question 7:

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



Answer 7:

(i) It is showing the increase in temperature.

(ii) It is showing the decrease in temperature.

(iii) The graph figure (iii) is not possible since temperature is increasing very rapidly which is not possible.

(iv) It is showing constant temperature.