

MATHEMATICS

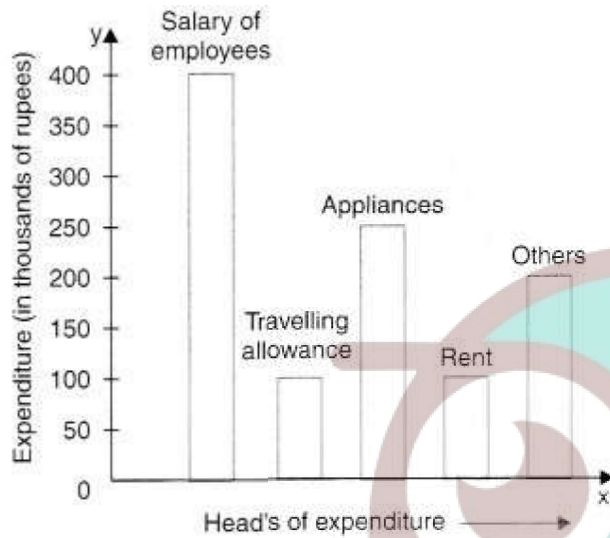
Chapter 15: Introduction to Graphs



Important Questions

Multiple Choice Questions-

Observe the following bar graph and answer the related questions:



Question 1. On which head, is the expenditure maximum?

- (a) Travelling allowance
- (b) Rent
- (c) Appliances
- (d) Salary of employees.

Question 2. On which head/heads, is the expenditure minimum?

- (a) Travelling allowance/rent
- (b) Appliances
- (c) Salary of employees
- (d) Others.

Question 3. On which two heads, is the expenditure same?

- (a) Salary of employees and others
- (b) Travelling allowance and rent
- (c) Appliances and rent
- (d) Appliances and others.

Question 4. What is the difference of expenditures (in thousands of rupees) on salary of employees and rent?

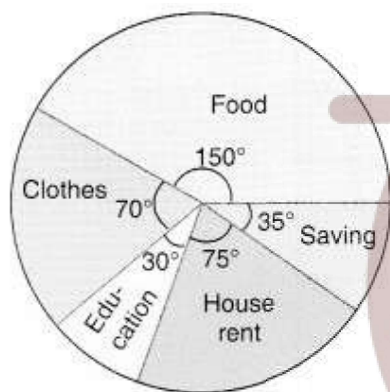
- (a) 100
- (b) 200
- (c) 300

(d) 400.

Question 5. What is the sum of the expenditures (in thousands of rupees) on travelling allowance and rent?

- (a) 100
- (b) 200
- (c) 300
- (d) 400.

Observe the following circle-graph and answer the related questions:



Question 6. On which head is the expenditure maximum?

- (a) Food
- (b) Clothes
- (c) House rent
- (d) Education.

Question 7. On which head is the expenditure minimum?

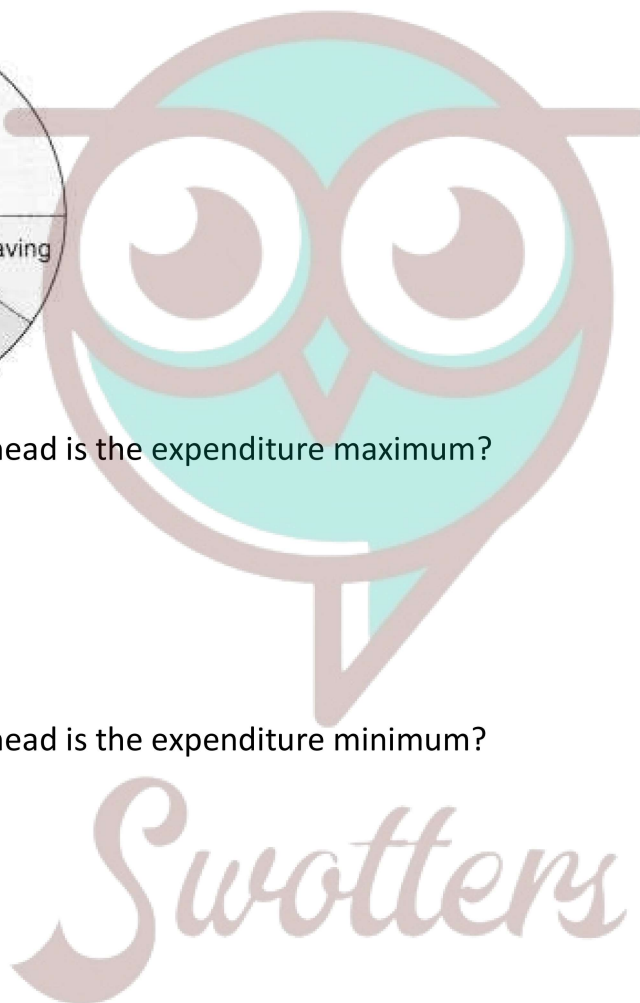
- (a) Education
- (b) House rent
- (c) Food
- (d) Clothes.

Question 8. If the budget of the family is Rs 10800, what is the saving?

- (a) Rs 1050
- (b) Rs 1000
- (c) Rs 950
- (d) Rs 1200.

Question 9. What is the difference of expenditures on clothes and education if the budget of the family is Rs 10800?

- (a) Rs 1200



- (b) Rs 1000
- (c) Rs 800
- (d) Rs 1500.

Question 10. What is the sum of the expenditures on food and education if the budget of the family is Rs 10800?

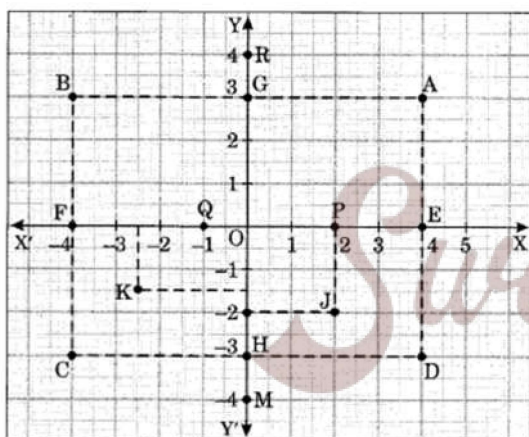
- (a) Rs 5000
- (b) Rs 8000
- (c) Rs 5400
- (d) Rs 6000.

Very Short Questions:

1. What is a pie graph?
2. What is The co-ordinates of origin?
3. What A pictorial representation of data in the form of rectangular bars to show comparison among categories called?
4. On which axis does the point $(0, -6)$ lie?
5. Give the name of the point where x- axis and y- axis is meet?

Short Questions:

1. Write the coordinates of each point shown is the graph.

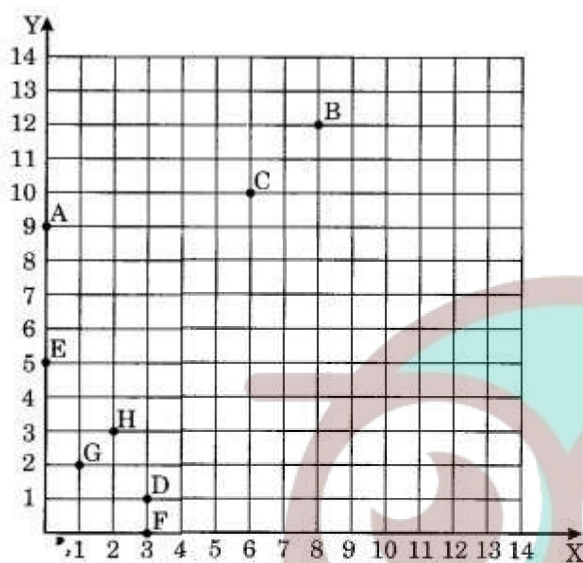


2. From the given figure, choose the letters indicate the location of the points.
 - (i) $(3, 1)$
 - (ii) $(0, 5)$
 - (iii) $(3, 0)$
 - (iv) $(1, 2)$
 - (v) $(2, 3)$

(vi) (8, 12)

(vii) (6, 10)

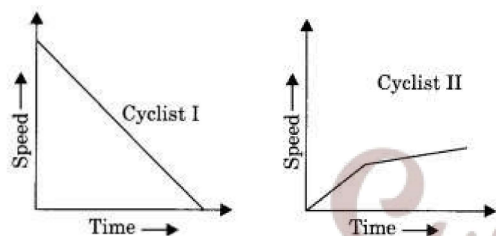
(viii) (0, 9)



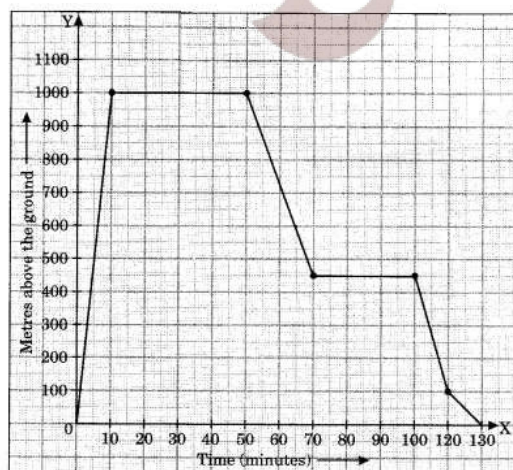
3. Draw the graph of the following table. Is it a linear graph?

x	3	4	5	6	7
y	12	16	20	24	28

4. The given graphs show the progress of two different cyclists during a ride. For each graph, describe the rider's progress over the period of time.



5. The given graph shows the flight of an aeroplane.



- (i) What are the scales taken on x-axis and y-axis?
- (ii) Upto what height the aeroplane rises?
- (iii) What was the speed of the aeroplane while rising?
- (iv) How long was the plane in level flight?
- (v) How long did the whole flight take?

Long Questions:

1. A bank gives 10% interest on the deposits by the Ladies. Draw a graph showing the relation between the amount deposited and the simple interest earned by the ladies and state following from the graph.

- (i) The annual interest earned for an investment of ₹ 250
- (ii) The investment one has to make to get an annual interest of ₹ 70.

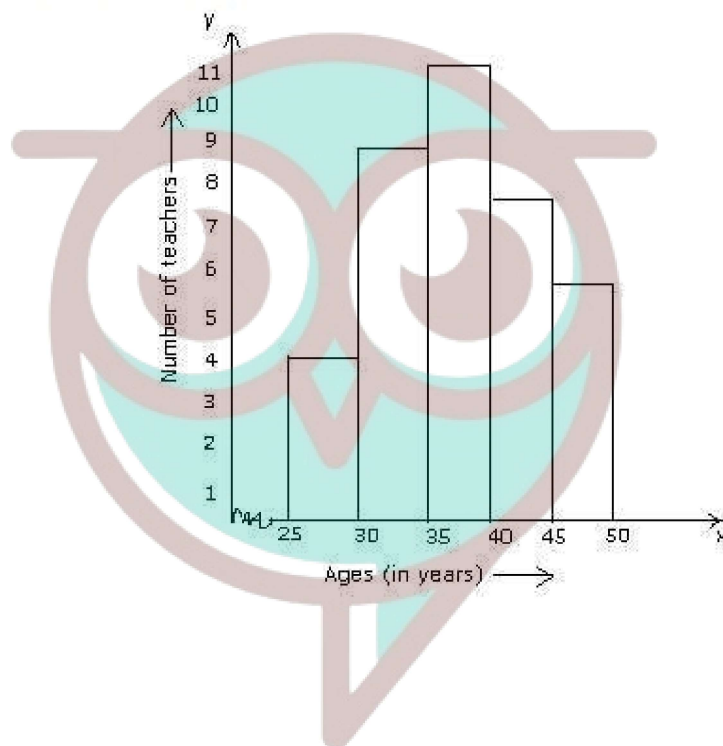
Sum deposited (in ₹)	100	200	300	500	1000
Simple interest (in ₹)	10	20	30	50	100

2. Draw the graphs for the following table of values, with suitable scales on the axes. Interest on deposits for a year.

Deposit (in Rs.)	1000	2000	3000	4000	5000
Simple interest (in Rs.)	80	160	240	320	400

- (i) Does the graph pass through the origin?
 - (ii) Use the graph to find the interest on Rs 2500 for a year.
 - (iii) To get an interest of Rs. 280 per year, how much money should be deposited.
3. Draw the line passing through (2,3) and (3,2). Find the coordinates of the points at which this line meets the x-axis and y-axis.
4. Plot the point (4, 3) on a graph sheet. Is it the same as the point (3, 4)?

5. The histogram given alongside shows the distribution of ages (in years) of 38 teachers in a school. Answer the following questions.
- What is the most common age group? How many teachers are there in this group?
 - What is number of teachers who are more than 25 years old but less than 30?
 - How many teachers are 40 or older?
 - What is the class size?



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Answer Key-

Multiple Choice questions-

1. (d) Salary of employees.
2. (a) Travelling allowance/rent
3. (b) Travelling allowance and rent
4. (c) 300
5. (b) 200
6. (a) Food
7. (a) Education
8. (a) Rs 1050
9. (a) Rs 1200
10. (c) Rs 5400

Very Short Answer :

1. Data can be represented by dividing a circle into sectors. This type of representation of data is called a pie graph. It shows us the relation of parts to the whole.
2. (0,0) is The co-ordinates of origin.
3. A pictorial representation of data in the form of rectangular bars to show comparison among categories is called is Bar graph.
4. y- axis does the point (0,-6) lie.
5. The point where x- axis and y- axis is meet is called origin.

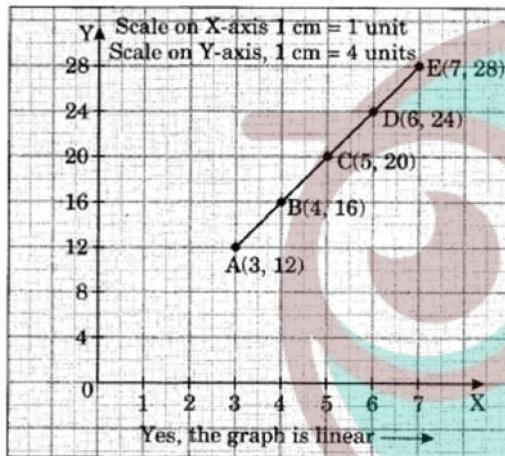
Short Answer :

1.

Point	Coordinate
A	(4, 3)
B	(-4, 3)
C	(-4, -3)
D	(4, -3)
E	(4, 0)
F	(-4, 0)
G	(0, 3)
H	(0, -3)
J	(2, -2)
K	(-2.5, -1.5)

M	(0, -4)
O	(0, 0)
P	(2, 0)
Q	(-1, 0)
R	(0, 4)

2. (i) D(3, 1), (ii) E(0, 5), (iii) F(3, 0), (iv) G(1, 2), (v) H(2, 3), (vi) B(8, 12), (vii) C(6, 10), (viii) A(0, 9)
- 3.

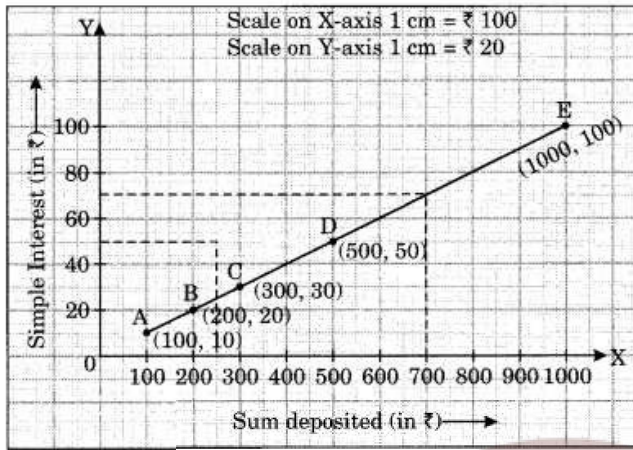


Yes, it is a linear graph.

4. (a) As time passes, the speed of cyclist I decreases steadily.
 (b) Speed of cyclist II increases for a short time period, and then increases very slowly..
5. (i) Scale on x-axis, 1 cm = 10 minutes
 Scale on y-axis, 1 cm = 100 metres
 (ii) The aeroplane rose upto 1000 metres.
 (iii) The speed of the aeroplane while rising was 100 m per minutes.
 (iv) The time taken by the aeroplane to be in level flight is $40 + 30 = 70$ minutes
 (v) Total flight time is 130 minutes.

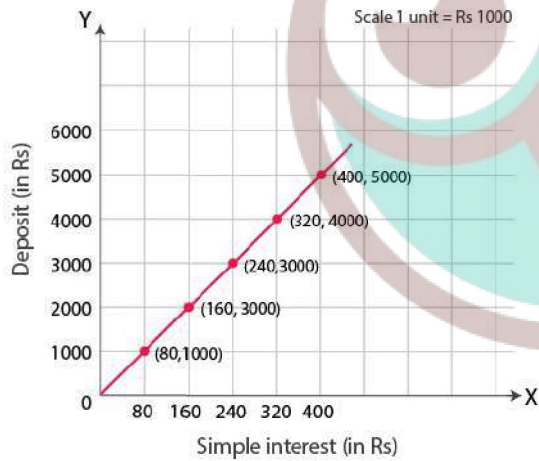
Long Answer:

1. Required Graph is as under:



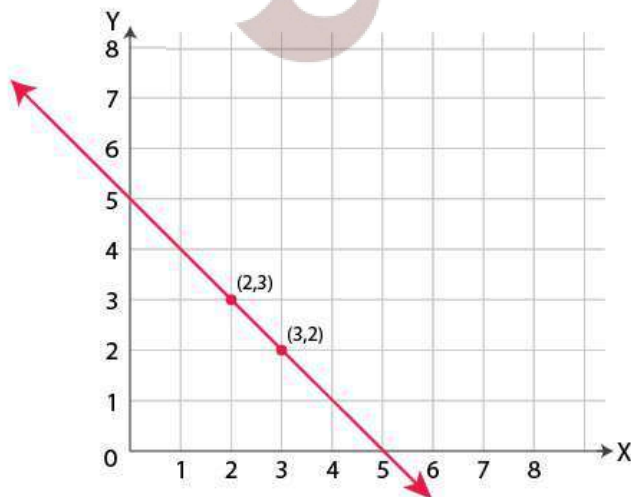
- (i) ₹ 25 is Earned as annual interest for an investment of ₹ 250
- (ii) ₹ 700 is to be invested to get an annual interest of ₹ 70.

2. Represent “Deposit” on y-axis and “simple interest” on x-axis.



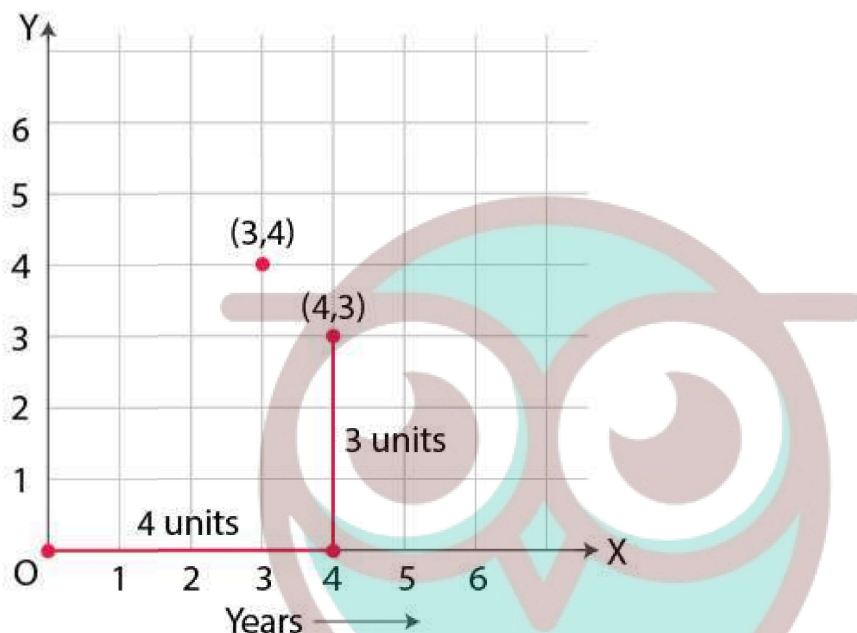
- (i) Yes, the graph passes through the origin.
- (ii) Interest on Rs. 2500 is Rs. 200 for a year.
- (iii) Rs. 3500 should be deposited for the interest of Rs. 280

3. Graph for the Line passes through points (2, 3) and (3, 2) is:



The coordinates of the points at which this line meets the x-axis at (5, 0) and Y axis at (0, 5).

4. Locate the x, y axes, (they are actually number lines!). Start at O (0, 0). Move 4 units to the right; then move 3 units up, you reach the point (4, 3). From Fig 15.13, you can see that the points (3, 4) and (4, 3) are two different points.



5. i. The most common age group 35 – 40. Number of teachers = 11
 ii. 4 teachers
 iii. $8 + 6 = 14$ teachers
 iv. 5 years.

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