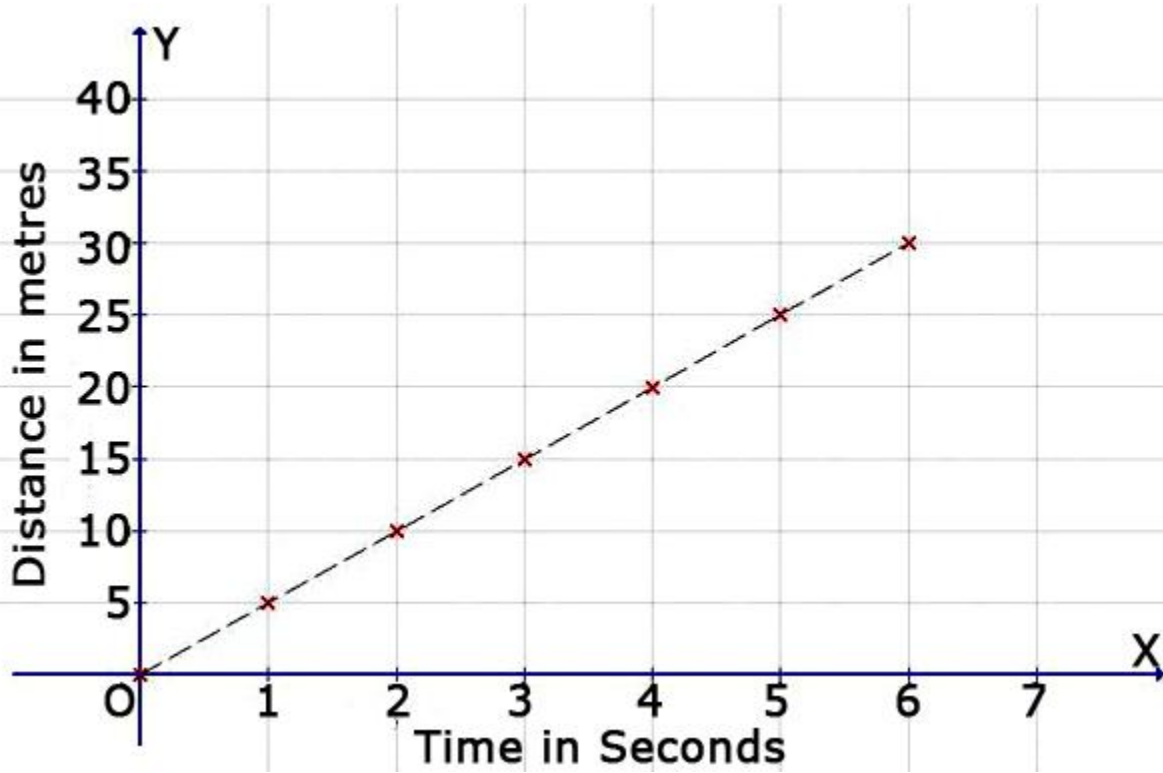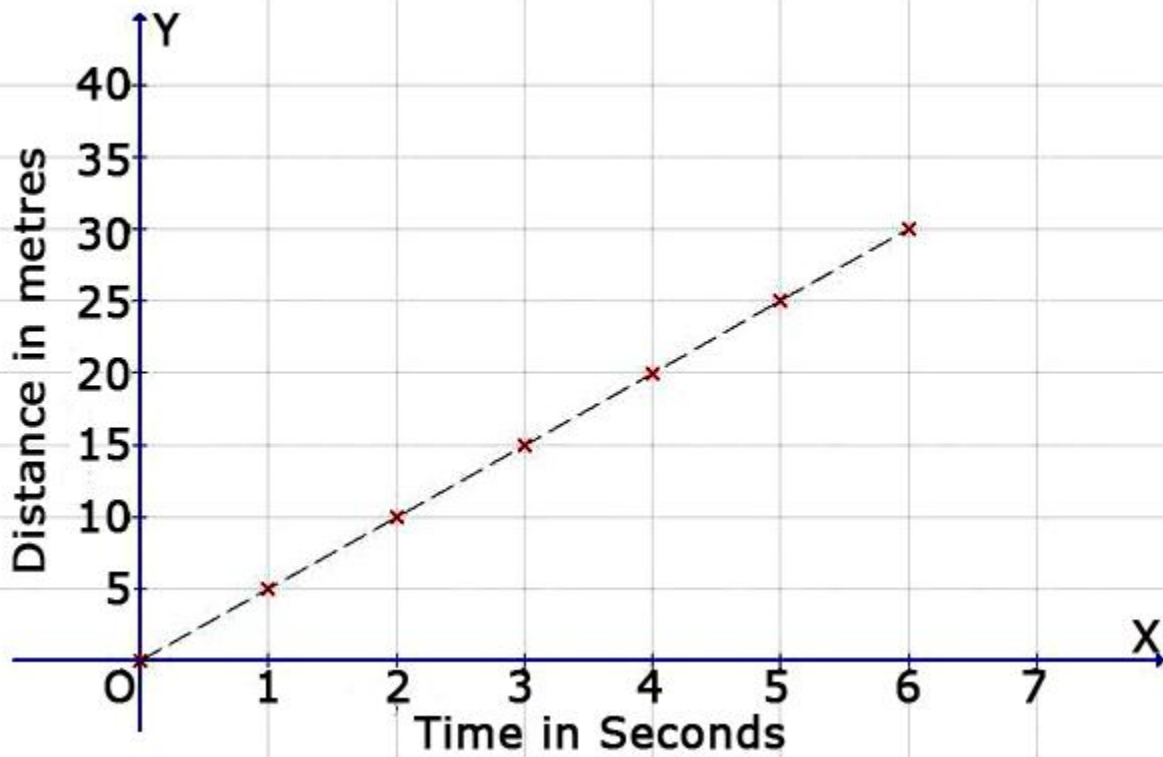## 15. Introduction to Graphs

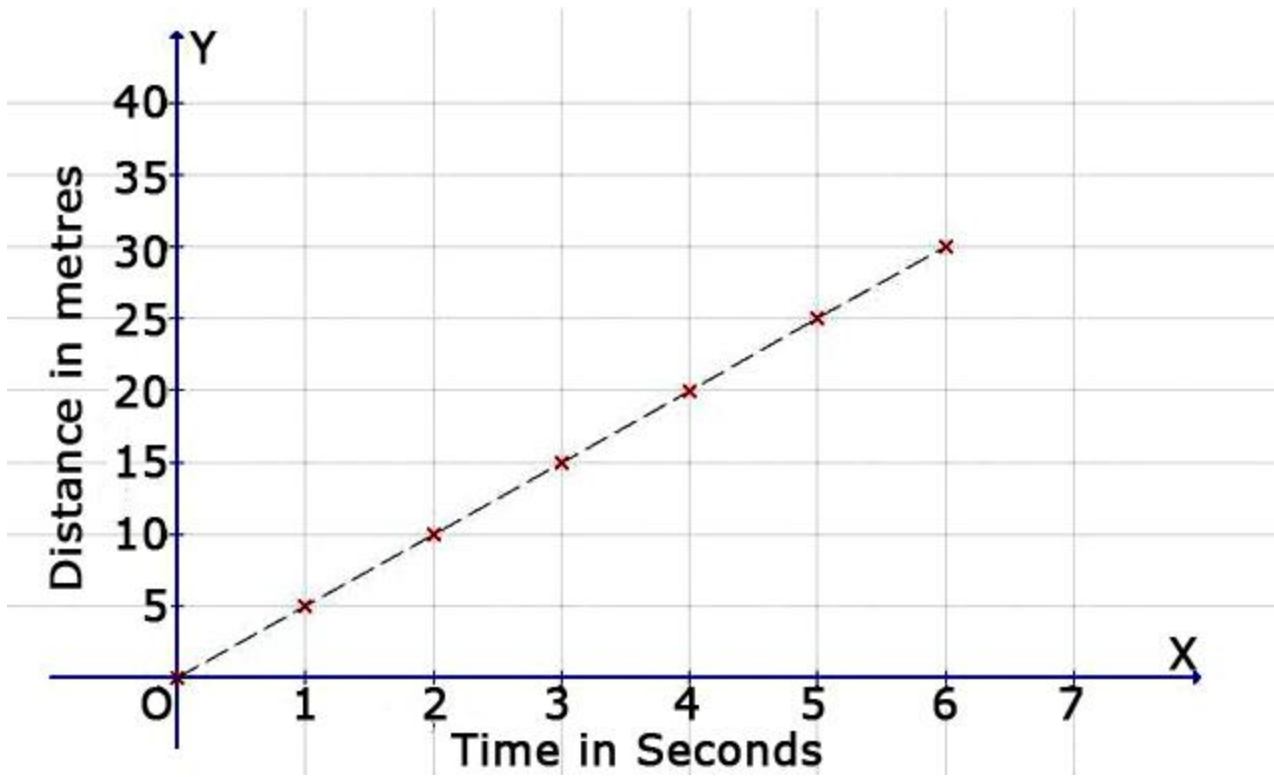Q 1 Find the distance covered in 3 seconds.



Mark (1)

Q 2 Find the distance covered in 5 seconds.



Mark (1)

Q 3 Find the time taken by a body to cover 30 metres.



Mark (1)

Q 4 In which quadrant does the point P(-4, 1) lie?

Mark (1)

Q 5 In which quadrant does the point Q(-2, -6) lie?
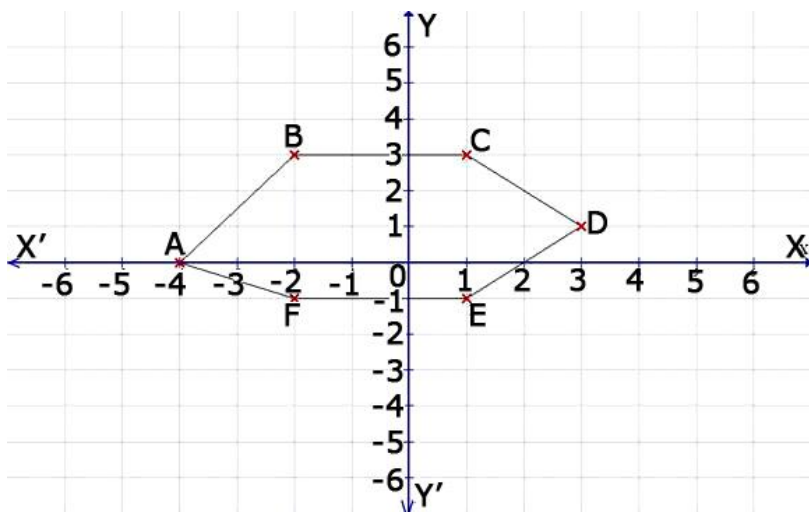
Mark (1)

Q 6 On which axis does the point (0, 5) lie?

Mark (1)

Q 7 Write the coordinate of point shown in cartesian plane.
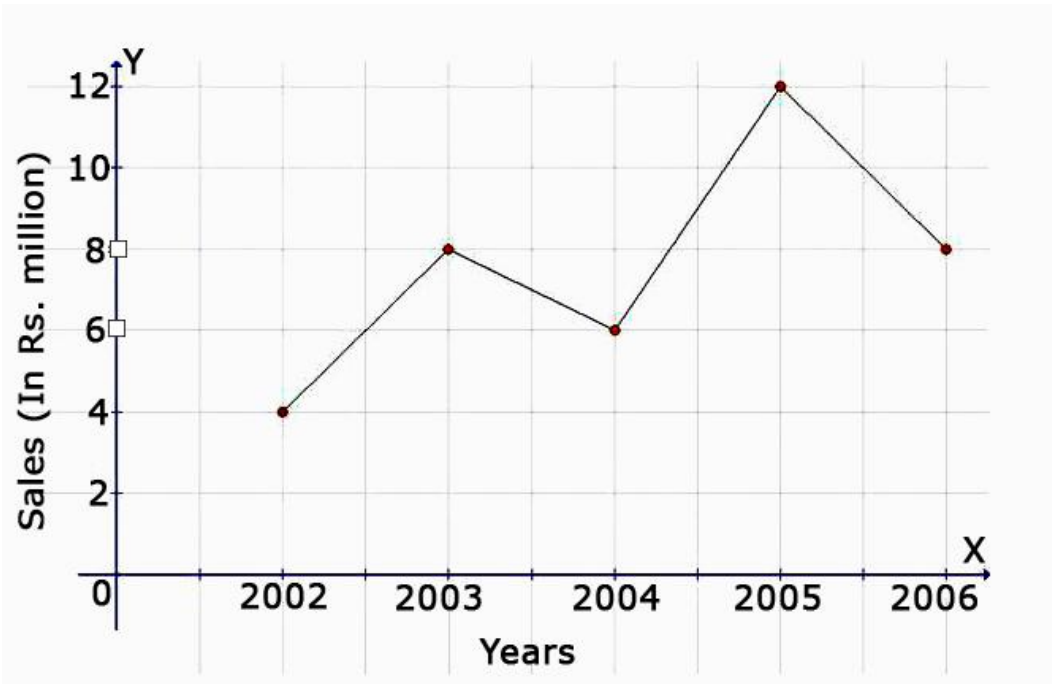
Mark (1)

Q 8 Find the coordinates of the points A, B, C, D, E and F from the graph.



Marks (2)

Q 9 The line graph shows the yearly sales figure for a manufacturing company. From the graph, what were the sales in 2004 and 2006?
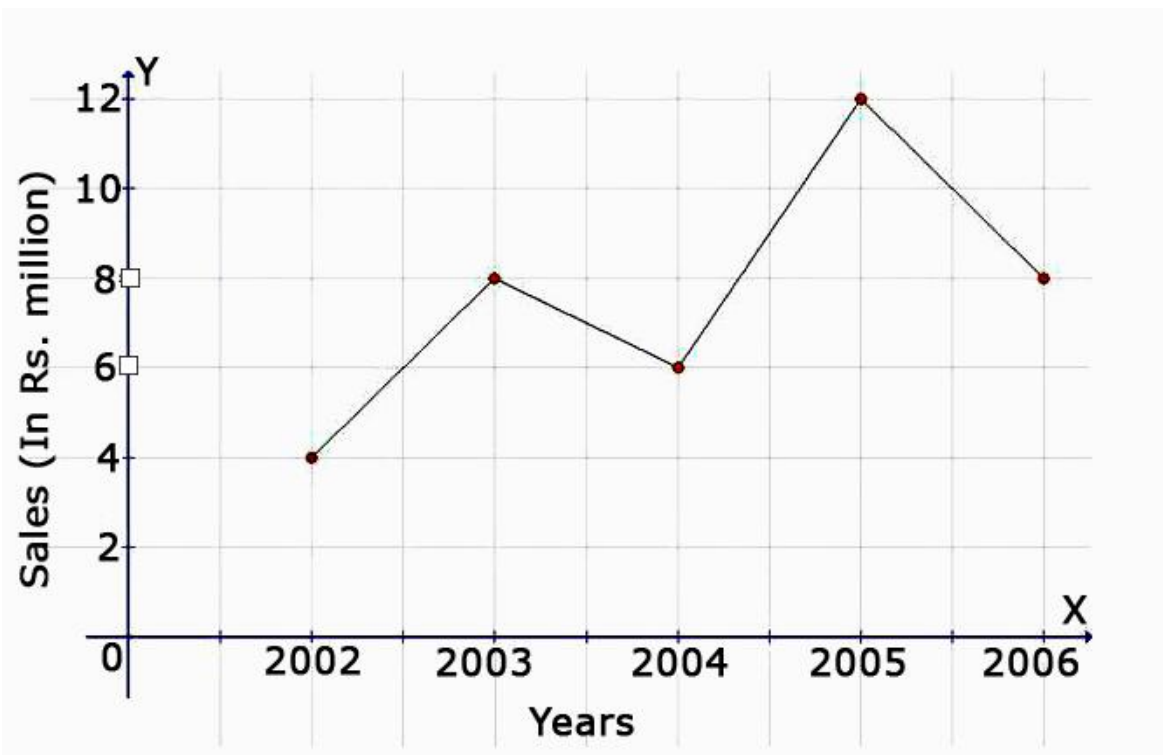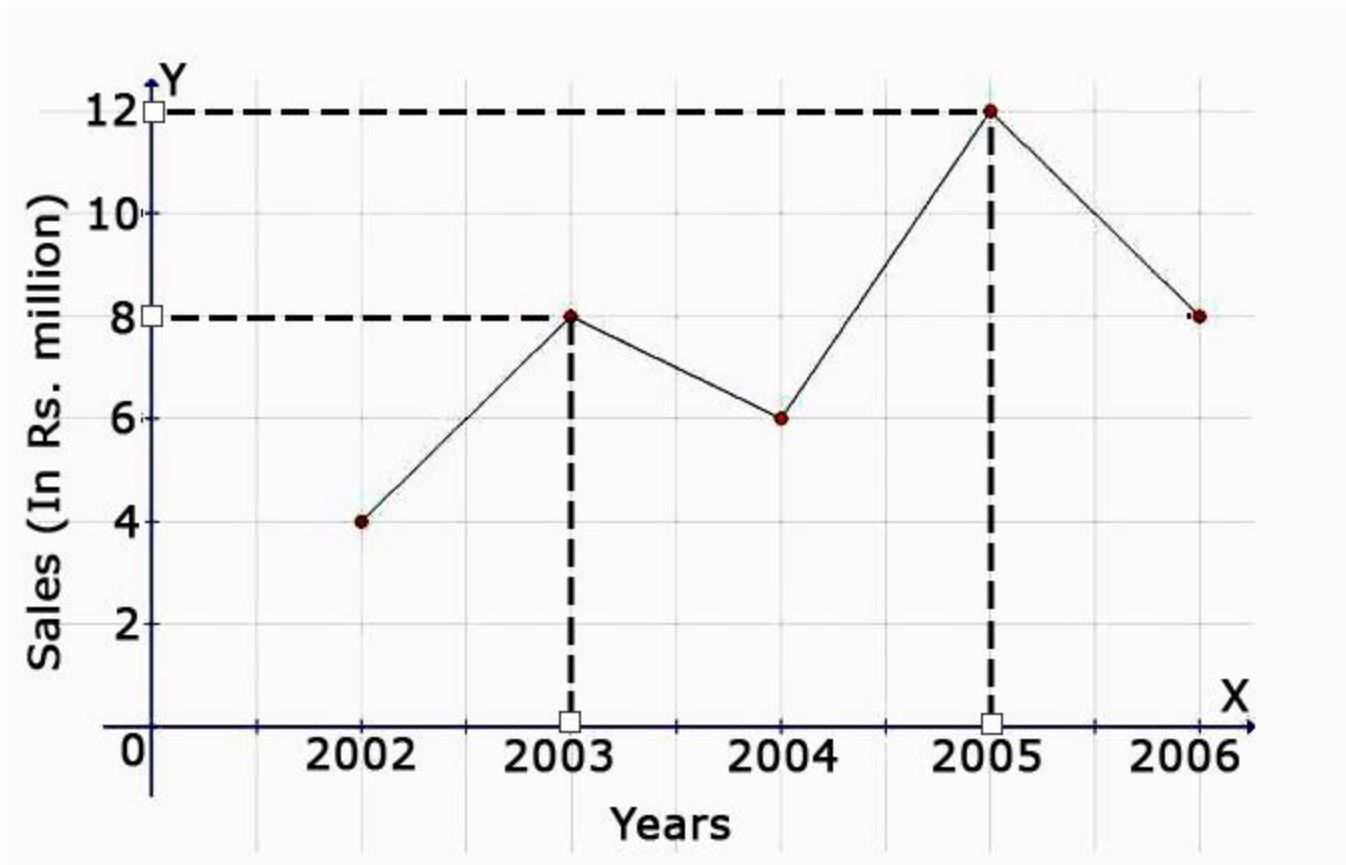


Marks (2)

Q 10 The line graph given shows the yearly sales figure for a manufacturing company. From the graph, what were the sales in 2003 and 2005?
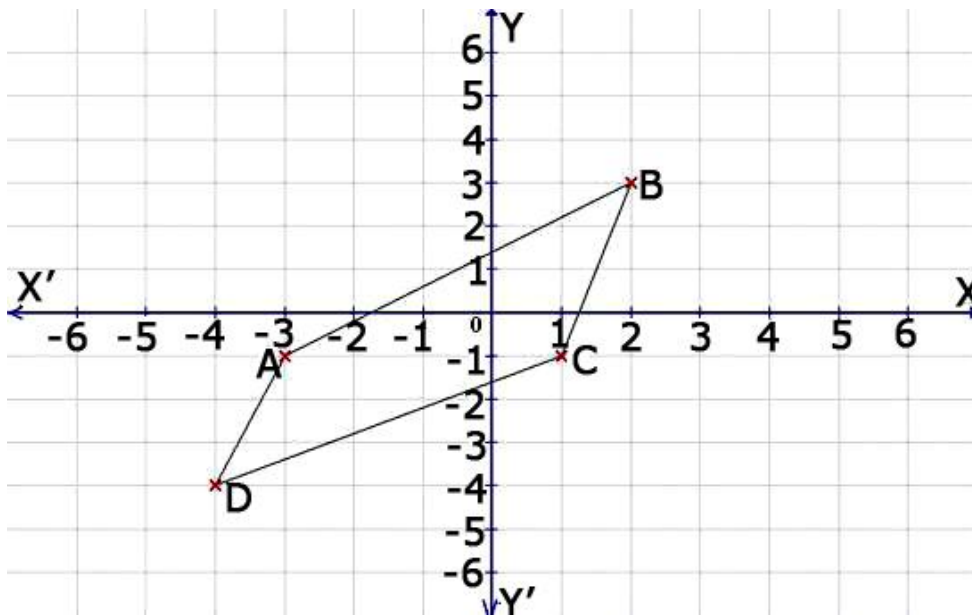


Marks (2)

Q 11 From the given graph, compute the difference between the sales 2003 and 2005.



Marks (2)

Q 12 From the graph write the coordinates of the A, B, C and D.



Marks (2)

Q 13 Plot the following points on a graph.
A(4, 3), B(2, 6) C(-2, -3), D (-3, 5)

Marks (2)

Q 14 Draw a graph for the following.

| Distance in metres | 5 | 10 | 15 | 20 | 25 | 30 |
|---|---|---|---|---|---|---|
| Time in seconds | 1 | 2 | 3 | 4 | 5 | 6 |

Is it a linear graph?

Marks (2)

Q 15 Make a table of values for the function P = 4a, where P is the perimeter and a is side of the square.

Marks (2)

Q 16 Plot the following points. Verify if they lie on a line.
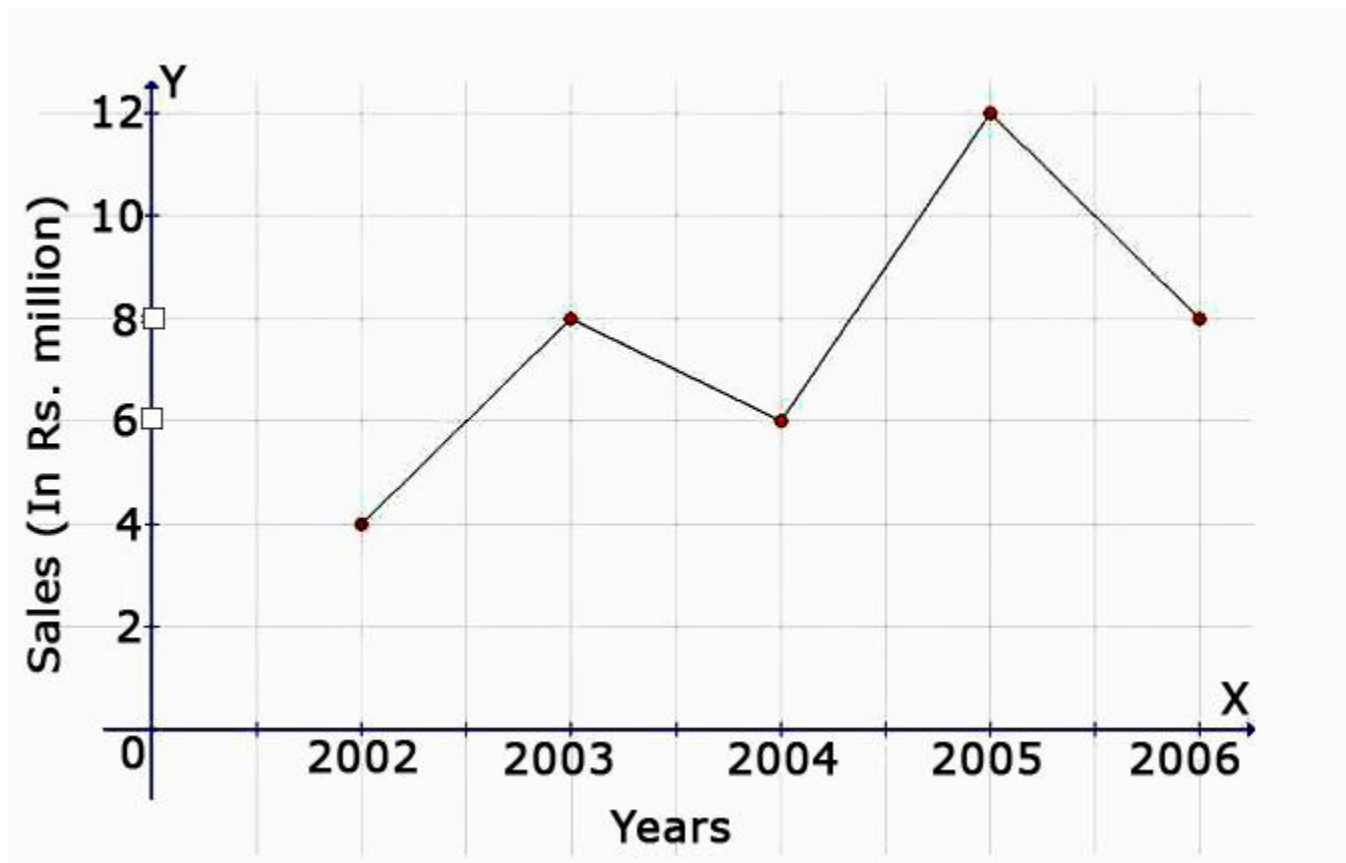(1, 3), (2, 3), (3, 3), (4, 3)

Marks (2)

Q 17 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.

Marks (2)

Q 18 In which year was there the greatest difference between the sales as compared to its previous year?



Marks (3)

Q 19 Make a table of values for the function y = 3x. From the table find the values of y when x = 4 and x = 5.

Marks (3)

Q 20 Reena deposited Rs. 12000 in a bank at the rate of 10% per annum. Draw a linear graph showing the relationship between the time and simple interest. Also, find the simple interest for 4 years.

Marks (4)

Q 21

A train is moving at a constant speed of 75 km/h. Draw a distance – time graph.
(i) How far will it travel in 2 hours 30 minutes?
(ii) Find the time required to cover a distance of 300 km.

Marks (4)

Q 22

A bank gives 10% simple interest on savings account. Draw a linear graph to show the relationship between the sum deposited and simple interest earned. Also, answer the following questions:

(a) Find the interest earned on an investment of Rs. 300.

(b) What investment should be made to earn Rs.70 as interest?

Marks (4)

Q 23 Mayank deposited Rs. 1400 in a bank at the rate of 10% per annum. Draw a linear graph which shows the relationship between time and the interest earned by Mayank.

Marks (4)

Q 24 If $y = x^2$, then draw a graph.

Marks (4)

Q 25 Parul is driving a car constantly at a speed of 30 km/h. Draw a distance-time graph in this case. Also, find the time taken by Parul to cover a distance of 120 km.

Marks (4)

Q 26 Draw the graph for the following table of values.

Interest on deposits for a year.

| Deposit in Rs | 1000 | 2000 | 3000 | 4000 | 5000 |
|---|---|---|---|---|---|
| Interest in Rs | 60 | 120 | 180 | 240 | 300 |

(1) Use the graph to find the interest on a deposit of Rs 4500 for a year.
(2) To get an interest of Rs 420, how much money should be deposited?
(3) Does the graph pass through origin?

Marks (5)

Q 27 Draw the graph for a function A = x$^2$ (Area of a square = side$^2$). Make a table when the side of a square is 2 cm, 3 cm, 4 cm, 5 cm, 6 cm and 7 cm. Is it a linear graph?

Marks (5)

Q 1 State true or false 1) A point whose x coordinate is zero and y coordinate is non-zero will lie on the y-axis. 2) The coordinates of the origin are (0,0). 3) A point whose y coordinate is zero and x coordinate is 4 will lie on y axis.

Q 2 The approximate speeds of some objects are given below. Draw a bar graph to represent them.

| Name of objects | Bicycle | Scooter | Car | Bus | Train |
|---|---|---|---|---|---|
| Speed (in km/hr) | 10 | 40 | 60 | 50 | 80 |

Q 3 Hundred students from a certain locality use different modes of traveling to school as given below. Draw a bar graph.

| Bus | Car | Rickshaw | Bicycle | Walk |
|---|---|---|---|---|
| 32 | 16 | 24 | 20 | 8 |

Q 4 The approximate speeds of some objects are given below. Draw a pie-chart.

| Name of objects | Bicycle | Scooter | Car | Bus | Train |
|---|---|---|---|---|---|
| Speed (in km/hr) | 10 | 40 | 60 | 50 | 80 |

Q 5 Mr. Mirza's monthly income is Rs 7,200. He spends Rs 1,800 on rent, Rs. 2,700 on food, Rs 900 on education of his children, Rs 1,200 on others and saves the rest.
Draw a pie-chart to represent it.

Q 6 In a class of 40 students, the marks obtained (out of 50) are as given below:

| Marks | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 |
|---|---|---|---|---|---|
| No. of students (frequency) | 5 | 10 | 12 | 8 | 5 |

Draw a histogram to represent the given data.

Q 7 Draw the histogram to represent the following data:

| Class-Interval | 50-60 | 60-70 | 70-80 | 80-90 |
|---|---|---|---|---|
| Frequency | 20 | 30 | 25 | 10 |

Q 8 The following table gives the marks scored by 100 students in an entrance examination.

| Mark | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 |
|---|---|---|---|---|---|---|---|---|
| No. of students (frequency) | 4 | 10 | 16 | 22 | 20 | 18 | 8 | 2 |

Represent this data in the form of a histogram.

Q 9 The percentage of marks obtained, in different subjects by Ashok Sharma (in an examination) are given below. Draw a bar graph to represent it.

| English | Hindi | Maths | Science | Social Science |
|---|---|---|---|---|
| 85 | 60 | 35 | 50 | 70 |

Q 10 The following table shows the market position of different brand of tea-leaves.
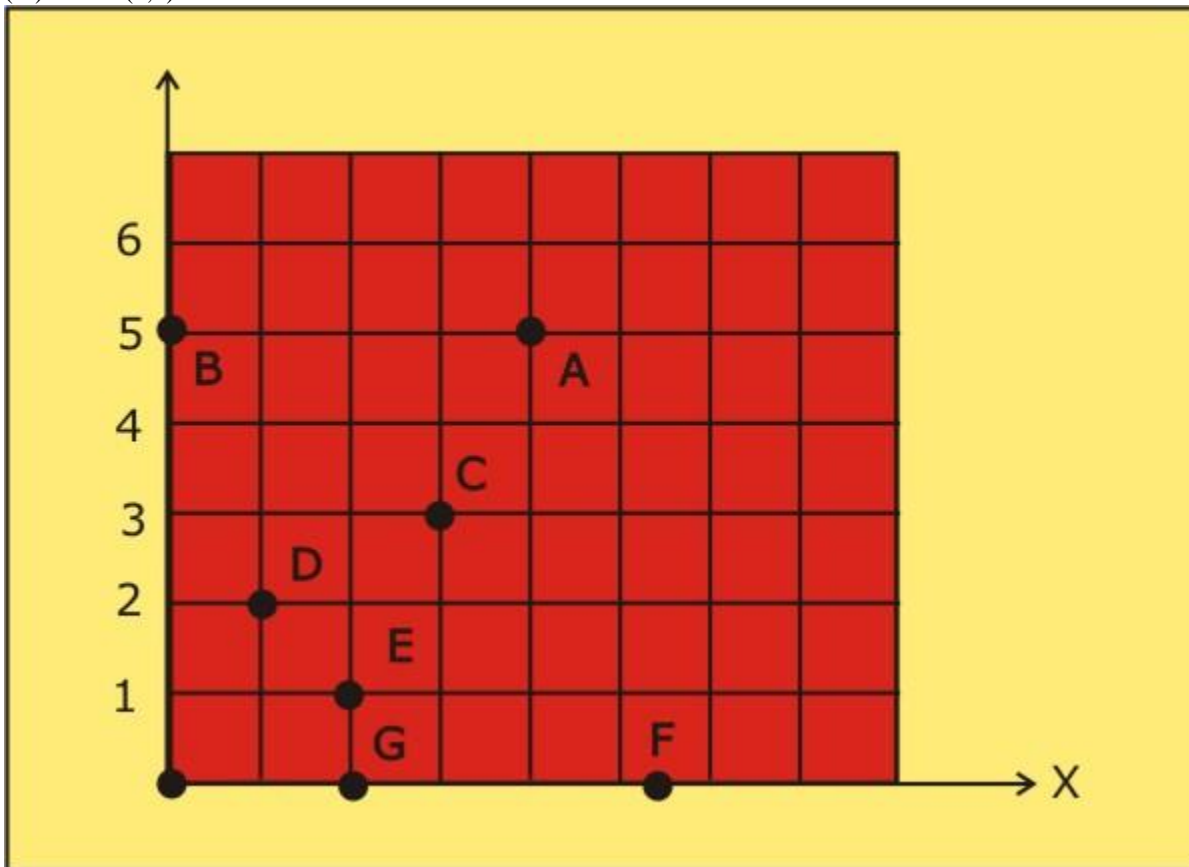Draw a pie-chart to represent this information.

| Brand | A | B | C | D | E |
|---|---|---|---|---|---|
| % Buyers | 35 | 20 | 20 | 15 | 10 |

Q 11 Draw a histogram to represent:

| Age (in years) | 20-28 | 28-36 | 36-44 | 44-52 | 52-60 | 60-68 |
|---|---|---|---|---|---|---|
| No. of pupils | 14 | 18 | 16 | 24 | 10 | 20 |

Q 12 Choose the letters that indicate the location of the points given below:
(i)       (4,5)
(ii)      (3,3)
(iii)     (2,1)



Q 13 Plot the following points and verify if they lie on a line. If they lie on a line,Name it.
(i)        (0,2), (0,5), (0,6) (0,3.5)
(ii)       W(2,6), X(3,5), Y(5,3), Z(6,2)

Q 14 State whether true or false. Correct the ones that are false.
(i)        A point whose x co-ordinate is 1 and y co-ordinate is 10 will lie on the y-axis.
(ii)       A point whose y co-ordinate is -2  and x co-ordinate is - 5 will lie in the third quadrant .
(iii)      The co-ordinates of the origin are (0,0).

Q 15 The following table gives the quantity of diesel and its cost. Plot a graph to show the data.

| No. of liters of diesel | 10 | 15 | 20 | 25 |
|---|---|---|---|---|
| Cost of diesel in Rs | 500 | 750 | 1000 | 1250 |

Q 16 Ajit can ride a scooter constantly at a speed of 30 km/hr. Draw a distance-time graph for this situation. Use this information to find:
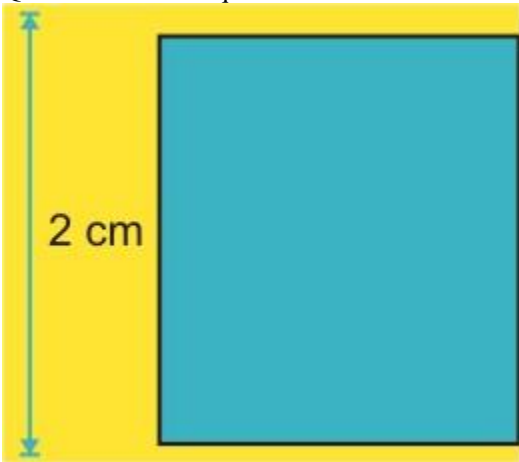(i)  The time taken by Ajit to ride 75 km.
(ii) The distance covered by Ajit in 3 ½  hours.

Q 17 On a set of co-ordinate axes, plot the points
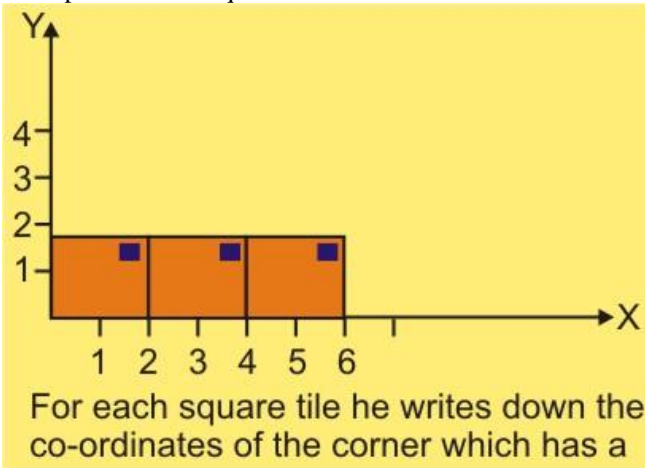A(2,3), B(0,4), C(-2,3), D(-1, -2), E(-3,0), F(2,-4)

Q 18 Identify the coordinates of the points A, B, C, D, E, F, G  shown on the following grid:
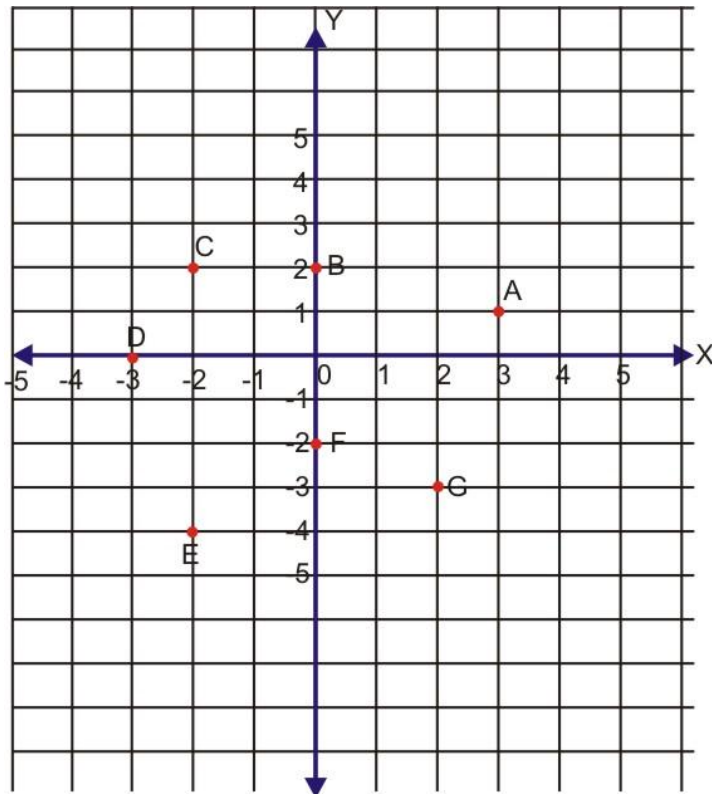
Q 19 Marc has ten square tiles this:



Marc places all the square tiles in a row. He starts his row like this:



For each square tile he writes down the co-ordinates of the corner which has a

The co-ordinates of the first corner are (2,2).
(a)  Write down the co-ordinates of the next five corners which have a*
(b)  Look at the numbers in the co-ordinates. Describe two things you notice.
(c)  Marc thinks that (17,2) are the coordinates of one of the corners which have a*. Explain why he is wrong.
(d)  Sam has some bigger square tiles, like this:
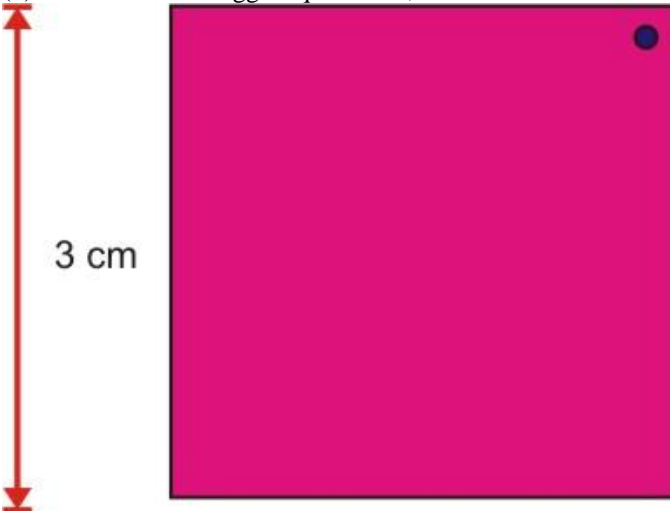


She places them next to each other in a row, like Marc's tiles.
Write down the coordinates of the first two corners which have a*.

Q 20 A bank gives 10% Simple Interest (S.I.) on deposits by senior citizens. Draw a graph to illustrate the relation between the sum deposited and simple interest earned. Find from
your graph
(a) The annual interest obtainable for an investment of Rs 250.
(b) the investment one has to make to get an annual simple interest of Rs 70.