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Practice Set 7.1 Geometry 9th Std Maths Part 2 Answers Chapter 7 Co-ordinate Geometry

Question 1.
State in which quadrant or on which axis do the following points lie.
i. A(-3, 2)
ii. B(-5, -2)
iii. K(3.5, 1.5)
iv. D(2, 10)
V. E(37, 35)
vi. F(15, -18)
vii. G(3, -7)
viii. H(0, -5)
ix. M(12, 0)
x. N(0, 9)
xi. P(0, 2.5)
xii. Q(-7, -3)
Solution:

Sr. No.	Point	*x* co-ordinate	*y* co-ordinate	Quadrant/Axis
i.	A(–3, 2)	Negative	Positive	Quadrant II
ii.	B(–5, –2)	Negative	Negative	Quadrant III
iii.	K(3.5, 1.5)	Positive	Positive	Quadrant I
iv.	D(2, 10)	Positive	Positive	Quadrant I
v.	E(37, 35)	Positive	Positive	Quadrant I
vi.	F(15, –18)	Positive	Negative	Quadrant IV
vii.	G(3, –7)	Positive	Negative	Quadrant IV
viii.	H(0, –5)	0	Negative	Y – axis
ix.	M(12, 0)	Positive	0	X – axis
x.	N(0, 9)	0	Positive	Y – axis
xi.	P(0, 2.5)	0	Positive	Y – axis
xii.	Q(–7, –3)	Negative	Negative	Quadrant III

Question 2.
In which quadrant are the following points?
i. whose both co-ordinates are positive.
ii. whose both co-ordinates are negative.
iii. whose x co-ordinate is positive and the y co-ordinate is negative.
iv. whose x co-ordinate is negative and y co-ordinate is positive.
Solution:
i. Quadrant I
ii. Quadrant III
iii. Quadrant IV
iv. Quadrant II

Question 3.
Draw the co-ordinate system on a plane and plot the following points.
L(-2, 4), M(5, 6), N(-3, -4), P(2, -3), Q(6, -5), S(7, 0), T(0, -5)

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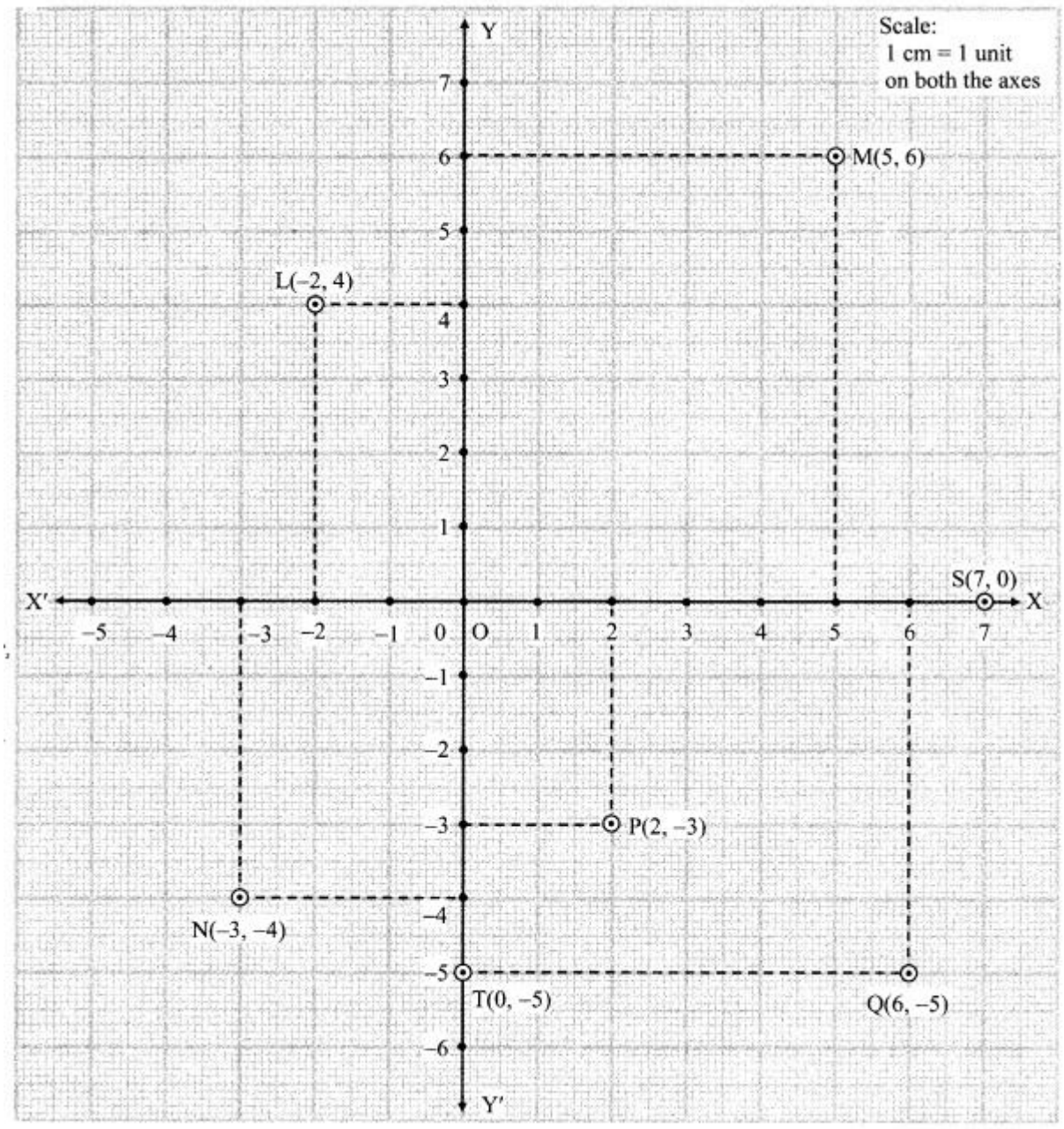
Solution:



Maharashtra Board Class 9 Maths Chapter 7 Co-ordinate Geometry Practice Set 7.1 Intext Questions and Activities

Question 1.

Plot the points R(-3,-4), S(3,-l) on the same co-ordinate system. (Textbook pg. no. 93)

Steps for plotting the points:

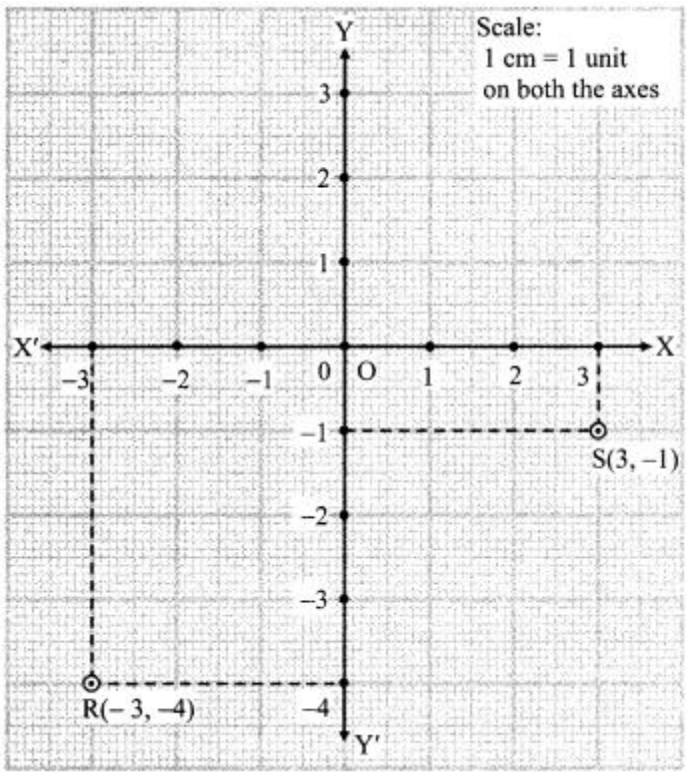
i. Draw X-axis and Y-axis on the plane. Show the origin.

ii. Draw a line parallel to Y-axis at a distance of 3 units in the -ve direction of X-axis.

iii. Draw another line parallel to X-axis at a distance of 4 units in the -ve direction of Y-axis.

iv. Intersection of these lines is the point R (-3, -4).

v. The point S can be plotted in the same manner.



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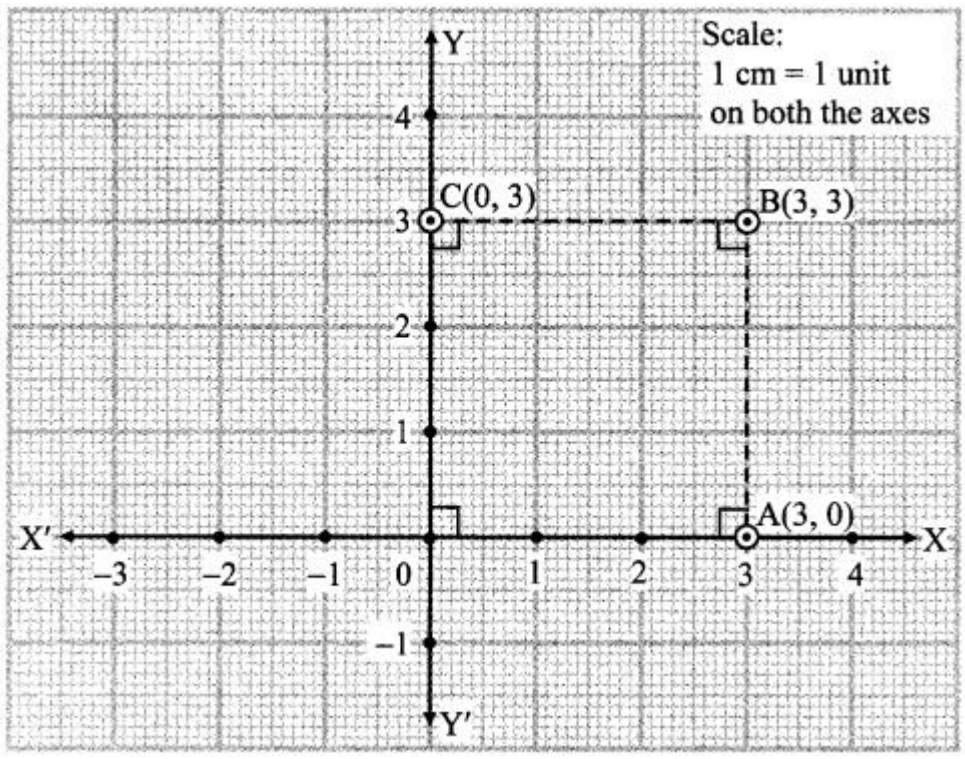
Practice Set 7.2 Geometry 9th Std Maths Part 2 Answers Chapter 7 Co-ordinate Geometry

Question 1.
On a graph paper plot the points A(3, 0), B(3, 3), C(0, 3). Join A, B and B, C. What is the figure formed?
Soiution:



d(O, A) = 3 cm, d(A, B) = 3 cm, d(B, C) = 3 cm, d(O, C) = 3 cm and each angle of □ OABC is 90°
∴ □ OABC is a square.

Question 2.
Write the equation of the line parallel to the Y-axis at a distance of 7 units from it to its left.
Solution:
The equation of a line parallel to the Y-axis is x = a.
Since, the line is at a distance of 7 units to the left of Y-axis,
∴ a = -7
∴ x = -1 is the equation of the required line.

Question 3.
Write the equation of the line parallel to the X-axis at a distance of 5 units from it and below the X-axis.
Solution:
The equation of a line parallel to the X-axis is y = b.
Since, the line is at a distance of 5 units below the X-axis.
∴ b = -5
∴ y = -5 is the equation of the required line.

Question 4.
The point Q(-3, -2) lies on a line parallel to the Y-axis. Write the equation of the line and draw its graph.
Solution:
The equation of a line parallel to the Y-axis is x = a.
Here, a = -3

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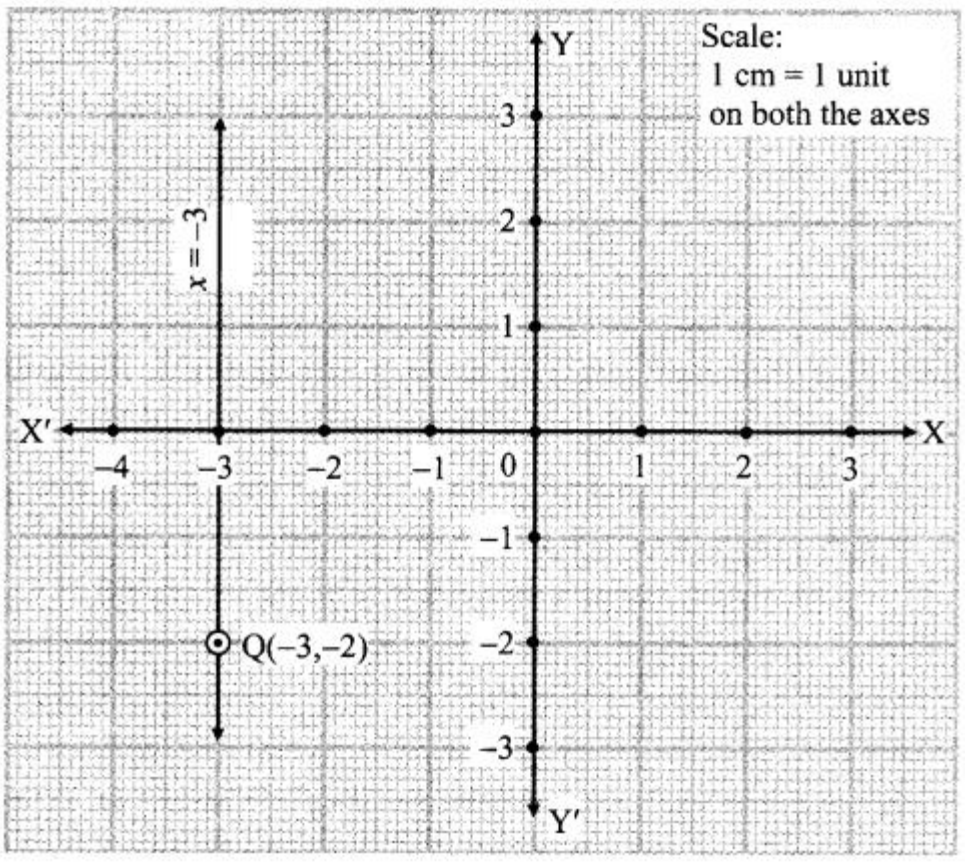
∴ x = -3 is the equation of the required line.



Question 5.
Y-axis and line x = – 4 are parallel lines. What is the distance between them?
Solution:
Equation of Y-axis is x = 0.
Equation of the line parallel to the Y-axis is x = – 4. … [Given]
∴ Distance between the Y-axis and the line x = – 4 is 0 – (- 4) … [0 > -4]
= 0 + 4 = 4 units
∴ The distance between the Y-axis and the line x = – 4 is 4 units.
[Note: The question is modified as X-axis cannot be parallel to the line x = – 4.]

Question 6.
Which of the equations given below have graphs parallel to the X-axis, and which ones have graphs parallel to the Y-axis? [1 Mark each]
i. x = 3
ii. y – 2 = 0
iii. x + 6 = 0
iv. y = -5
Solution:
i. The equation of a line parallel to the Y-axis is x = a.
∴ The line x = 3 is parallel to the Y-axis.

ii. y – 2 = 0
∴ y = 2
The equation of a line parallel to the X-axis is y = b.
∴ The line y – 2 = 0 is parallel to the X-axis.

iii. x + 6 = 0
∴ x = -6
The equation of a line parallel to the Y-axis is x = a.
∴ The line x + 6 = 0 is parallel to the Y-axis.

iv. The equation of a line parallel to the X-axis is y = b.
∴ The line y = – 5 is parallel to the X-axis.

Question 7.
On a graph paper, plot the points A(2, 3), B(6, -1) and C(0, 5). If these points are collinear, then draw the line which includes them. Write the co-ordinates of the points at which the line intersects the X-axis and the Y-axis.
Solution:

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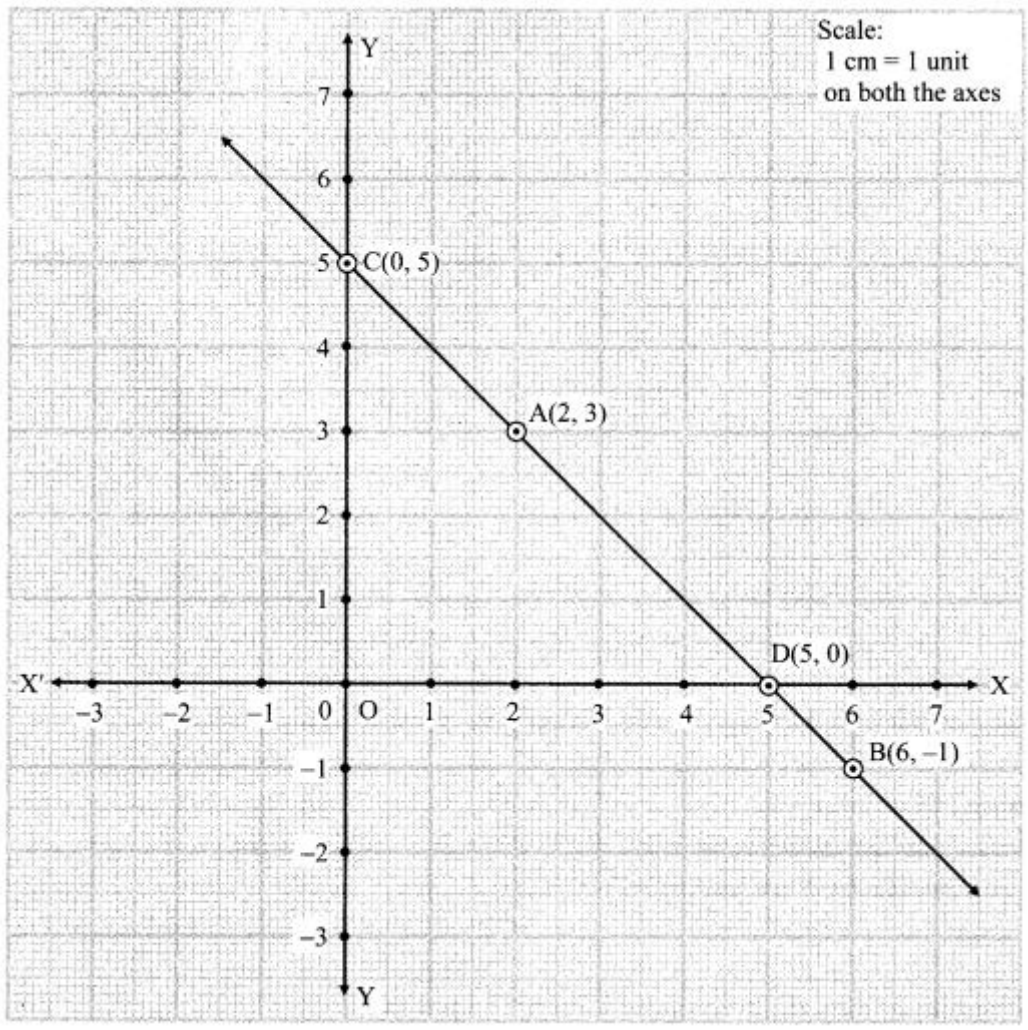
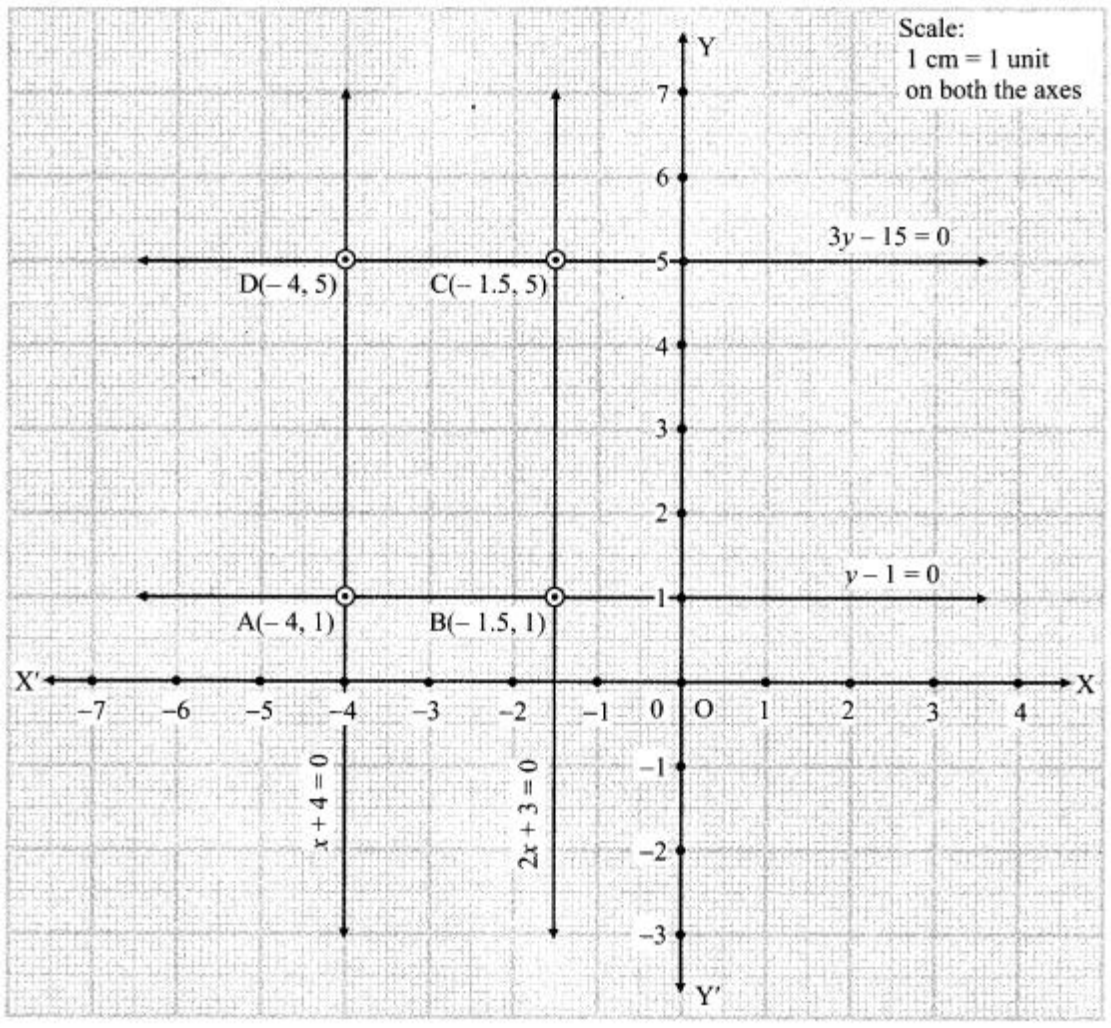


From the graph, the line drawn intersects the X-axis at D(5, 0) and the Y-axis at C(0, 5).

Question 8.
Draw the graphs of the following equations on the same system of co-ordinates. Write the co-ordinates of their points of intersection.
x + 4 = 0,
y – 1 = 0,
2x + 3 = 0,
3y – 15 = 0
Solution:
i. x + 4 = 0
∴ x = – 4

ii. y – 1 = 0
∴ y = 1

iii. 2x + 3 = 0
∴2x = -3
∴ x = −32
∴ x = -1.5
iv. 3y- 15 = 0
3y = 15
y = 153
∴ y = 5



The co-ordinates of the point of intersection of x + 4 = 0 and y – 1 = 0 are A(-4, 1).
The co-ordinates of the point of intersection ofy – 1 = 0 and 2x + 3 = 0 are B(-1.5, 1).
The co-ordinates of the point of intersection of 3y – 15 = 0 and 2x + 3 = 0 are C(-1.5, 5).
The co-ordinates of the point of intersection of x + 4 = 0 and 3y – 15 = 0 are D(-4, 5).

Question 9.
Draw the graphs of the equations given below.
i. x + y = 2
ii. 3x – y = 0
iii. 2x + y = 1

Solution:
i. x + y = 2
∴ y = 2 – x
When x = 0,
y = 2 – x
= 2 – 0
= 2
When x = 1,
y = 2 – x
= 2 – 1
= 1
When x = 2,
y = 2 – x
= 0

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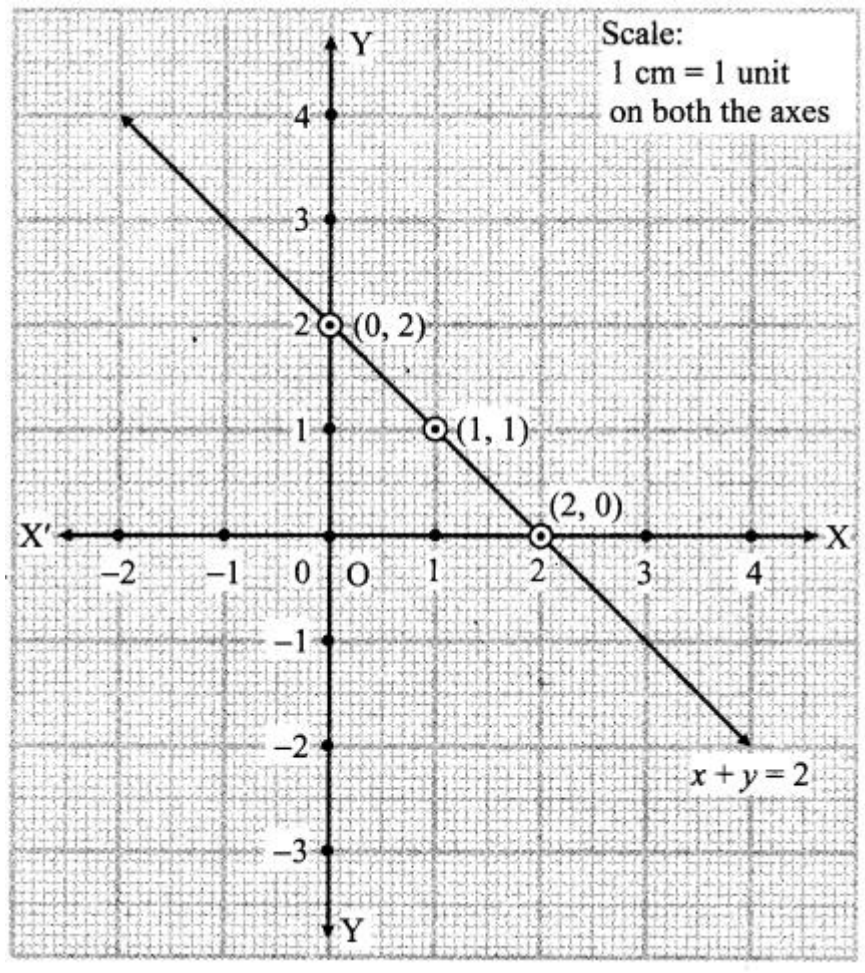
x	0	1	2
y	2	1	0
(x, y)	(0, 2)	(1, 1)	(2, 0)

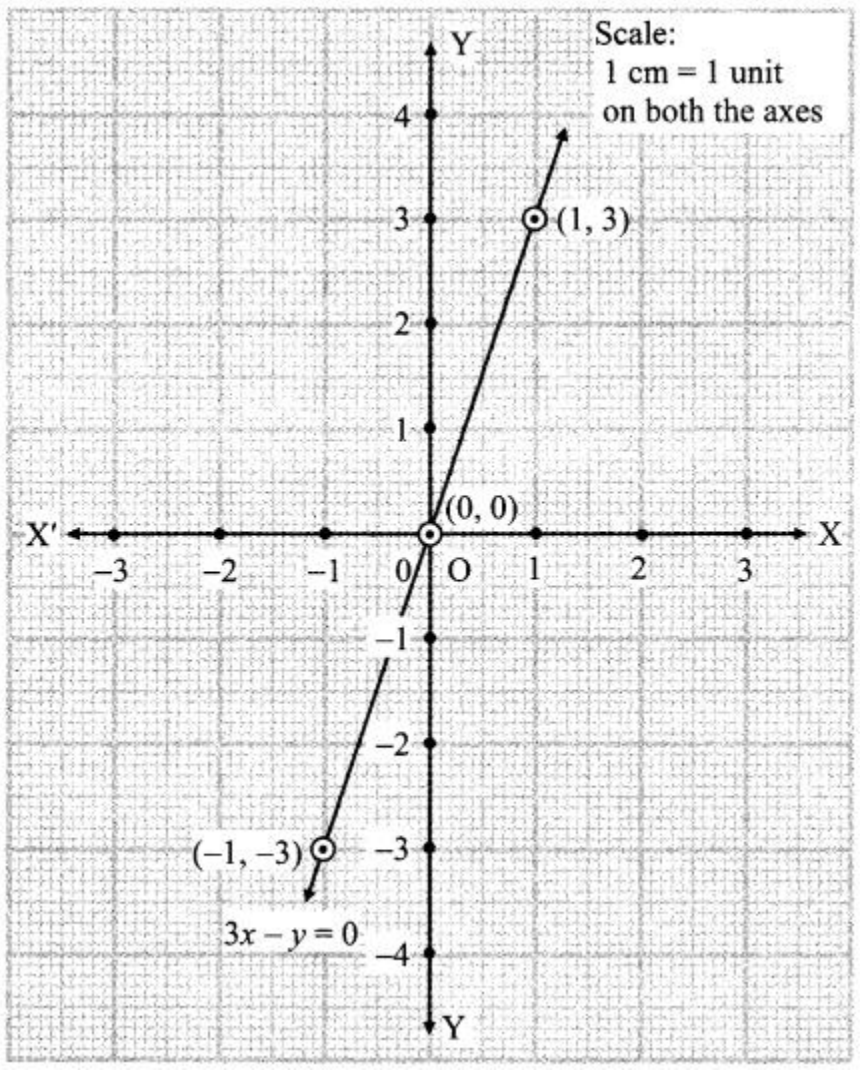


ii. 3x – y = 0
∴ y = 3x
When x = 0,
y = 3x
= 3(0)
= 0

When x = 1,
y = 3x
= 3(1)
= 3

When x = -1,
y = 3x
= 3(-1)
= -3

x	0	1	−1
y	0	3	−3
(x, y)	(0, 0)	(1, 3)	(−1, −3)



iii. 2x + y = 1
∴ y = 1 – 2x
When x = 0,
y = 1 – 2x
= 1 – 2(0)
= 1 – o
When x = 1,
y = 1 – 2x
= 1- 2(1)
= 1 – 2
= -1
When x = -1,
y = 1 – 2x
= 1 – 2(-1)
= 1 + 2
= 3

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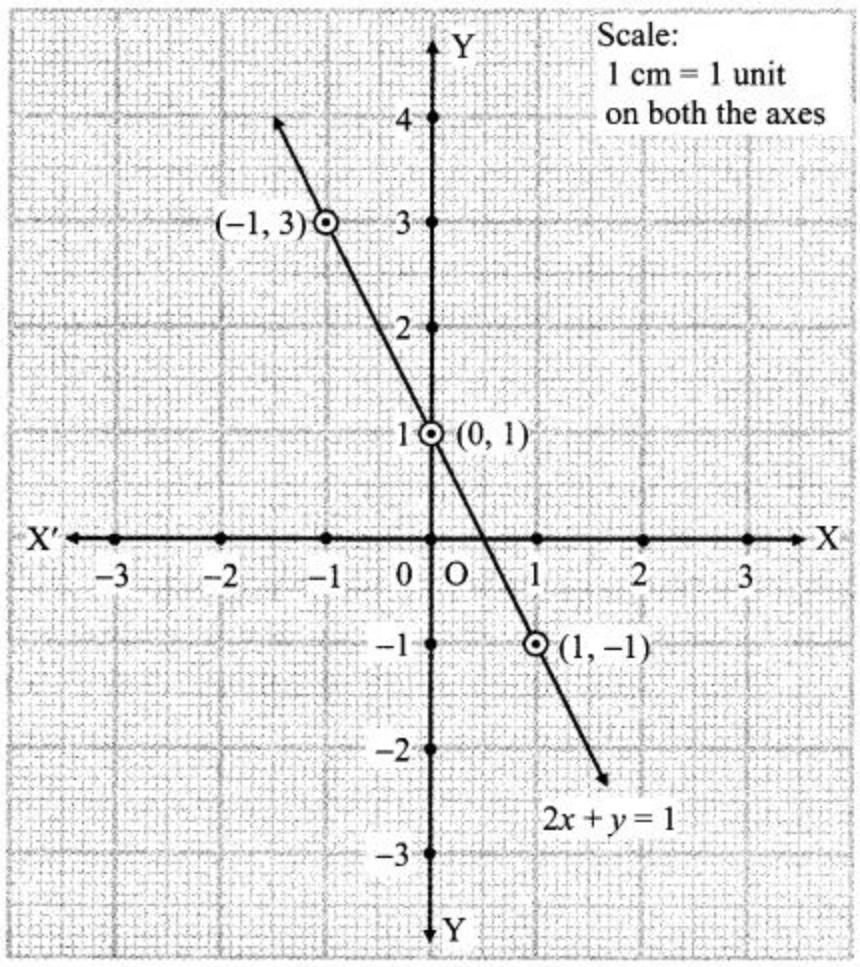
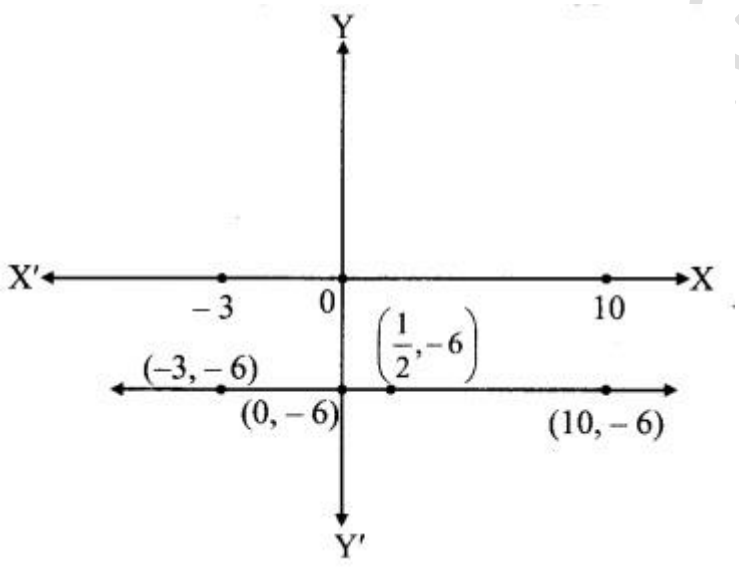
x	0	1	−1
y	1	−1	3
(x, y)	(0, 1)	(1, −1)	(−1, 3)



Maharashtra Board Class 9 Maths Chapter 7 Co-ordinate Geometry Practice Set 7.2 Intext Questions and Activities

Question 1.
i. Can we draw a line parallel to the X-axis at a distance of 6 unIts from It and below the X-axis?
ii. Will all of the points (-3,-6), (10,-6), (12, -6) be on that line?
iii. What would be the equation of this line?(Textbook pg. no. 94)
Solution:



i. Yes.
This line will pass through the point (0,-6).
ii. Yes.
Here, y co-ordinate of the points (-3, -6), (10,-6), (12, -6) is the same, which is -6.
∴ All the above points lie on the same line.
iii. Since, the line is at a distance of 6 units below the X-axis.
∴ b = -6
∴ Equation of the line is y = -6.

Question 2.
i. Can we draw a line parallel to the Y – axis at a distance of 2 units from ¡t and to its right?
ii. Will all of the points (2, 10), (2, 8), (2, -) be on that line?
iii. What would be the equation of this line? (Textbook pg. no. 95)
Solution:

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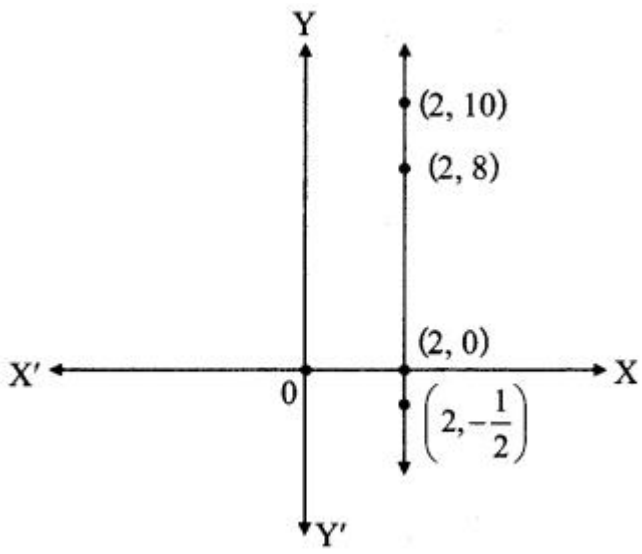
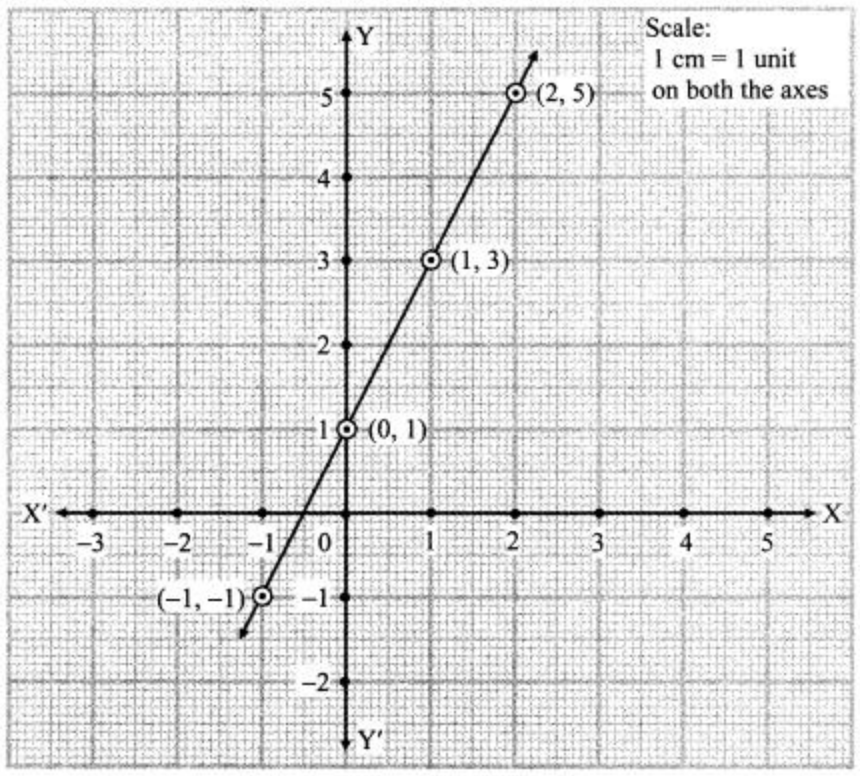


i. Yes.
(2, 10)
This line will pass through the point (2, 0).
(2,8)
ii. Yes.
Here, x co-ordinate of the points (2, 10), (2, 8), (2,-12) is the same, which is 2.
∴ All the above points lie on the same line.
iii. Since, the line is at a distance of 2 units to the right of Y-axis.
a = 2
∴ Equation of the line is x = 2.

Question 3.
On a graph paper, plot the points (0, 1), (1, 3), (2, 5). Are they collinear? If so, draw the line that passes through them.
i. Through which quadrants does this line pass ?
ii. Write the co-ordinates of the point at which it intersects the Y-axis.
iii. Show any point in the third quadrant which lies on this line. Write the co-ordinates of the point. (Textbook pg. no. 96)
Solution:
i. The line passes through the quadrants I, II and III.
ii. The line intersects the Y-axis at (0, 1).
iii. (-1,-1)



Problem Set 7.2 Geometry 9th Std Maths Part 2 Answers Chapter 7 Co-ordinate Geometry

Question 1.
Choose the correct alternative answer for the following questions.

i. What is the form of co-ordinates of a point on the X-axis?
(A) (b,b)
(B) (0, b)
(C) (a, 0)
(D) (a, a)

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Answer:
(C) (a, 0)

ii. Any point on the line y = x is of the form _____.
(A) (a, a)
(B) (0, a)
(C) (a, 0)
(D) (a, -a)
Answer:
(A) (a, a)

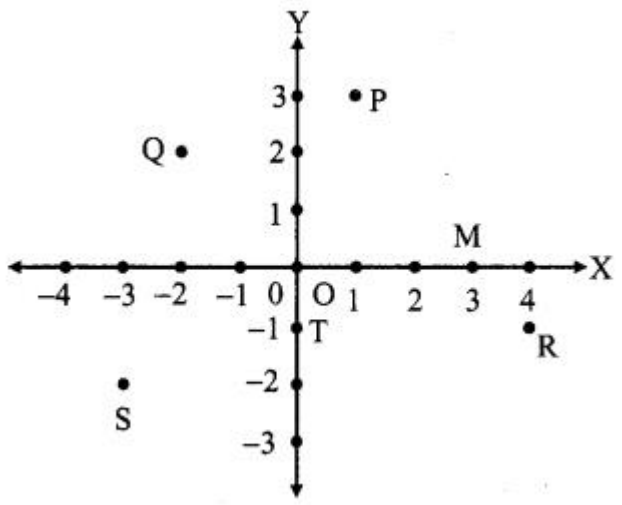
iii. What is the equation of the X-axis ?
(A) x = 0
(B) y = 0
(C) x + y = 0
(D) x = y
Answer:
(B) y = 0

iv. In which quadrant does the point (-4, -3) lie ?
(A) First
(B) Second
(C) Third
(D) Fourth
Answer:
(C) Third

v. What is the nature of the line which includes the points (-5, 5), (6, 5), (-3, 5), (0, 5)?
(A) Passes through the origin
(B) Parallel to Y-axis
(C) Parallel to X-axis
(D) None of these
Answer:
The y co-ordinate of all the points is the same.
∴ The line which passes through the given points is parallel to X-axis.
(C) Parallel to X-axis

vi. Which of the points P(-1, 1), Q(3, -4), R(-1, -1), S(-2, -3), T (-4, 4) lie in the fourth quadrant?
(A) P and T
(B) Q and R
(C) only S
(D) P and R
Answer:
(B) Q and R

Question 2.
Some points are shown in the adjoining figure. With the help of it answer the following questions :

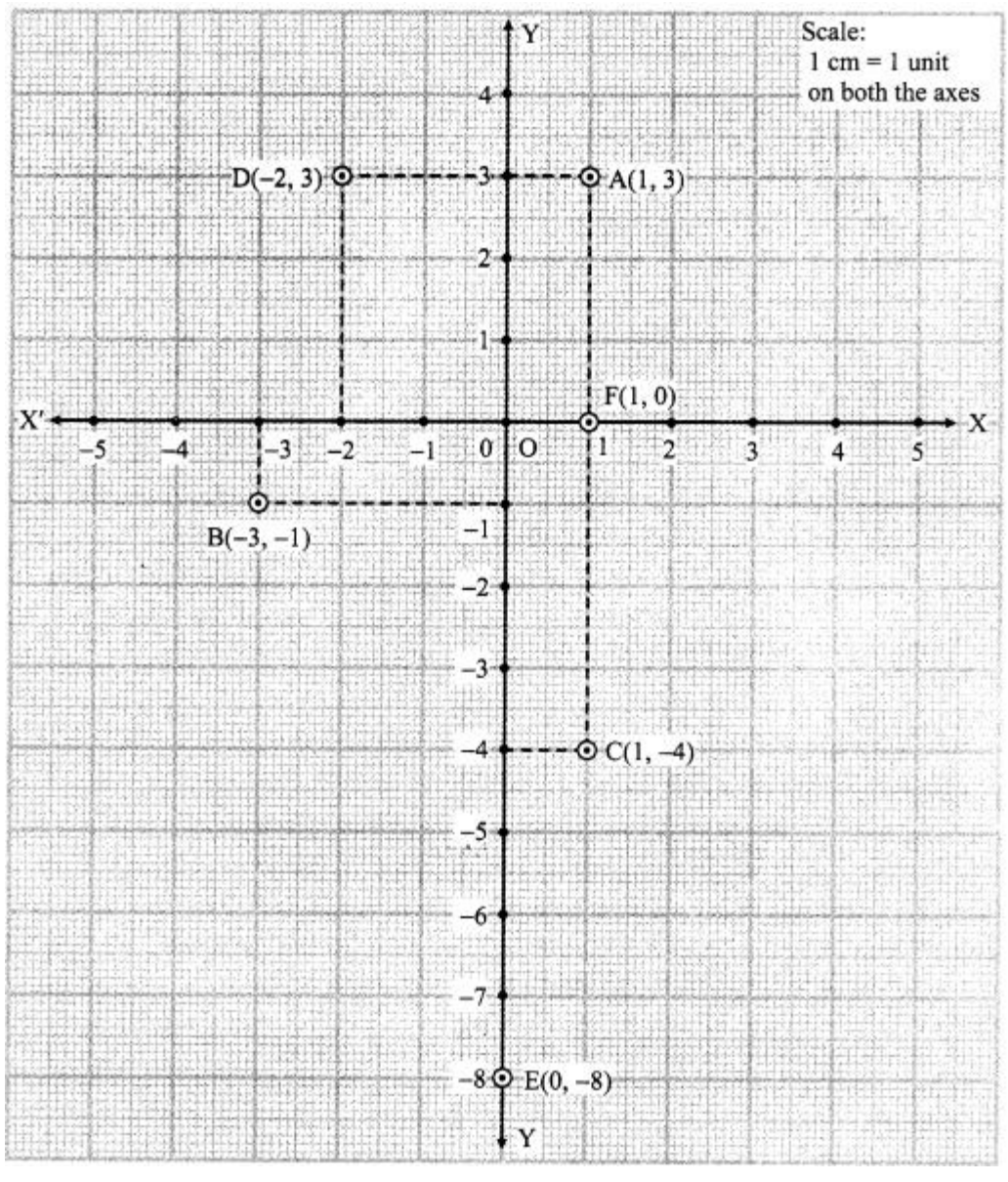


i. Write the co-ordinates of the points Q and R.
ii. Write the co-ordinates of the points T and M.
iii. Which point lies in the third quadrant ?
iv. Which are the points whose x and y co-ordinates are equal ?
Solution:
i. Q(-2, 2) and R(4, -1)
ii. T(0, -1) and M(3, 0)
iii. Point S lies in the third quadrant.
iv. The x and y co-ordinates of point O are equal.

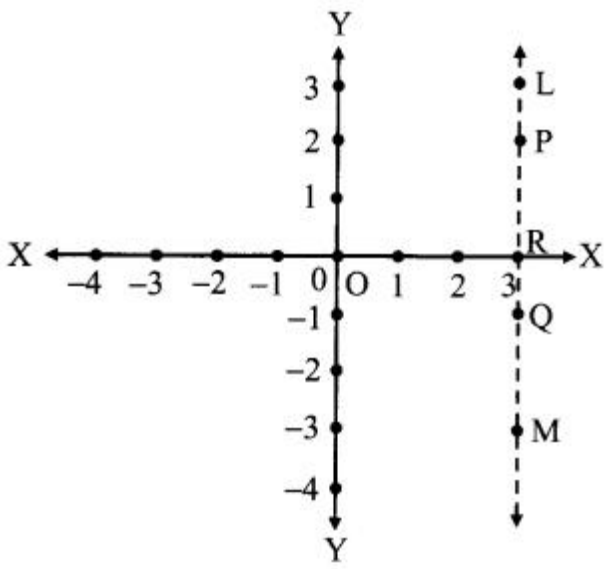
Question 3.
Without plotting the points on a graph, state in which quadrant or on which axis do the following points lie.
i. (5, -3)
ii. (-7, -12)
iii. (-23, 4)
iv. (-9, 5)
v. (0, -3)
vi. (-6, 0)
Solution:

Sr. No.	Point	x co-ordinate	y co-ordinate	Quadrant/Axis
i.	(5, –3)	Positive	Negative	Quadrant IV
ii.	(–7, –12)	Negative	Negative	Quadrant III
iii.	(–23, 4)	Negative	Positive	Quadrant II
iv.	(–9, 5)	Negative	Positive	Quadrant II
v.	(0, –3)	0	Negative	Y-axis
vi.	(–6, 0)	Negative	0	X-axis

Question 4.
Plot the following points on one and the same co-ordinate system.
A(1, 3), B(-3, -1), C(1, -4), D(-2, 3), E(0, -8), F(1, 0)
Solution:

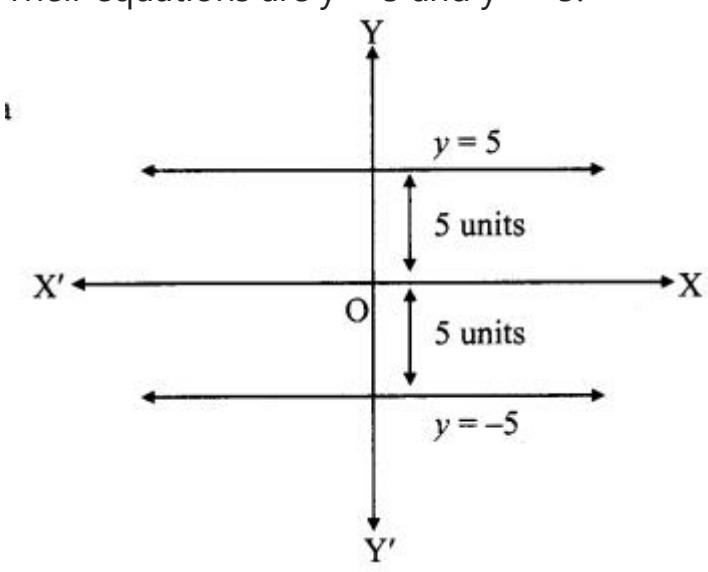


Question 5.
In the graph alongside, line LM is parallel to the Y-axis.



i. What is the distance of line LM from the Y-axis?
ii. Write the co-ordinates of the points P, Q and R.
iii. What is the difference between the x co-ordinates of the points L and M?
Solution:
i. Distance of line LM from the Y-axis is 3 units.
ii. P(3, 2), Q (3, -1), R(3, 0)
iii. x co-ordinate of point L = 3
x co-ordinate of point M = 3
∴ Difference between the x co-ordinates of the points L and M = 3 – 3
= 0

Question 6.
How many lines are there which are parallel to X-axis and having a distance 5 units?
Solution:
The equation of a line parallel to the X-axis is y = b.
There are 2 lines which are parallel to X-axis and at a distance of 5 units.
Their equations are y = 5 and y = -5.



Question 7.
If ‘a’ is a real number, what is the distance between the Y-axis and the line x = a?
Solution:
Equation of Y-axis is x = 0.
Since, ‘a’ is a real number, there are two possibilities.
Case I: a > 0
Case II: a < 0 ∴ Distance between the Y-axis and the line x = a = a-0 = a Since, |a| = a, a > 0
= – a, a < 0
∴ Distance between the Y-axis and the line x = a is |a|.

Maharashtra Board Class 9 Maths Chapter 7 Co-ordinate Geometry Problem Set 7 Intext Questions and Activities

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Question 1.

As shown in the adjoining figure, ask girls to sit in lines so as to form the X-axis and Y-axis.

i. Ask some boys to sit at the positions marked by the coloured dots in the four quadrants.

i. Now, call the students turn by turn using the initial letter of each student's name. As his or her initial is called, the student stands and gives his or her own co-ordinates. For example Rajendra (2, 2) and Kirti (-1, 0)

iii. Even as they have fun during this field activity, the students will leam how to state the position of a point in a plane. (Textbook pg. no. 92)