MATHEMATICS

Important Questions

Multiple Choice questions-

Question 1. If the coordinates of a point are (0, -4), then it lies in:

a) X-axis

b) Y-axis

c) At origin

d) Between x-axis and y-axis

Question 2. If the coordinates of a point are (3, 0), then it lies in:

a) X-axis

b) Y-axis

c) At origin

d) Between x-axis and y-axis

Question 3. If the coordinates of a point are (-3,4), then it lies in:

a) First quadrant

b) Second quadrant

c) Third quadrant

d) Fourth quadrant

Question 4. If the coordinates of a point are (-3, -4), then it lies in:

a) First quadrant

b) Second quadrant

c) Third quadrant

d) Fourth quadrant

Question 5. The name of horizontal line in the cartesian plane which determines the position of a point is called:

a) Origin

b) X-axis

c) Y-axis

d) Quadrants

Question 6. The name of vertical line in the cartesian plane which determines the position of a point is called:

a) Origin

b) X-axis

c) Y-axis

d) Quadrants

Question 7. The section formed by horizontal and vertical lines determining the position of point in a cartesian plane is called:

a) Origin

b) X-axis

c) Y-axis

d) Quadrants

Question 8. The point of intersection of horizontal and vertical lines determining the position of point in a cartesian plane is called:

a) Origin

b) X-axis

c) Y-axis

d) Quadrants

Question 9. Points (1,2), (-2,-3), (2,-3);

a) First quadrant

b) Do not lie in the same quadrant

c) Third quadrant

d) Fourth quadrant

Question 10. If x coordinate of a point is zero, then the point lies on:

a) First quadrant

b) Second quadrant

c) X-axis

d) Y-axis

Very Short:

1. Write the signs convention of the coordinates of a point in the second quadrant.
2. Write the value of ordinate of all the points lie on x-axis.
3. Write the value of abscissa of all the points lie on y-axis.
4. If in coordinates of a point B(3, -2), signs of both coordinates are interchanged, then it will lie in which quadrant?

5. Find distances of points C(-3, -2) and D(5, 2) from x-axis and y-axis.

6. Find the values of x and y, if two ordered pairs (x – 3, – 6) and (4, x + y) are equal.

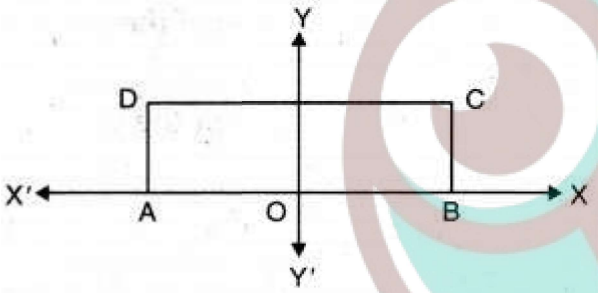
7. In which quadrant does the point (-1, 2) lie?

8. Find the distance of the point (0, -5) from the origin.

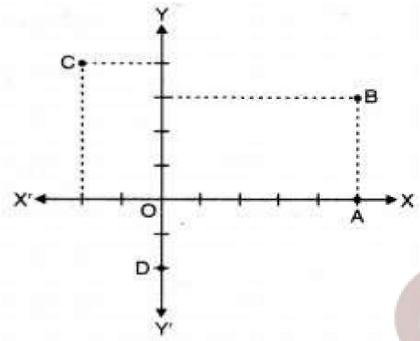
9. Write the shape of the quadrilateral formed by joining (1, 1), (6, 1), (4, 5) and (3, 5) on graph paper.

Short Questions:

1. In the given figure, ABCD is a rectangle with length 6 cm and breadth 3 cm. O is the mid-
point of AB. Find the coordinates of A, B, C and D.



2. Write the coordinates of A, B, C and D from the figure given alongside.



3. A point lies on x-axis at a distance of 9 units from y-axis. What are its coordinates? What will be the coordinates of a point, if it lies on y-axis at a distance of -9 units from x-axis?

4. Plot the point P(2, -6) on a graph paper and from it draw PM and PN perpendiculars to x-axis and y-axis respectively. Write the coordinates of the points M and N.

5. Without plotting the points indicate the quadrant in which they lie, if :

   (i) ordinate is 5 and abscissa is – 3

   (ii) abscissa is -5 and ordinate is – 3

   (iii) abscissa is – 5 and ordinate is 3

   (iv) ordinate is 5 and abscissa is 3

6. Plot the points A(1, 4), B(-2, 1) and C(4, 1). Name the figure so obtained on joining them in order and also, find its area.
7. Plot the following points, join them in order and identify the figure thus formed: A(1, 3), B(1, -1), C(7, -1) and D(7, 3)

Long Questions:

1. Plot the points A(3, 2), B(-2, 2), C(-2, -2) and D(3, -2) in the cartesian plane. Join these points and name the figure so formed.
2. Write the coordinates of two points on X-axis and two points on Y-axis which are at equal distances from the origin. Connect all these points and make them as vertices of quadrilateral. Name the quadrilateral thus formed.
3. On environment day, class-9 students got five plants of mango, silver oak, orange, banyan and amla from soil department. Students planted the plants and noted their locations as (x, y).

	Mango	Silver Oak	Orange	Banyan	Amla
x	2	3	0	–3	–2
y	0	4	7	4	0

Plot the points (x, y) in the graph and join them in the given order. Name the figure you get. Which social act is being done by students of class-9 ?

Assertion and Reason Questions-

1. In these questions, a statement of assertion followed by a statement of reason is given. Choose the correct answer out of the following choices.

a) Assertion and reason both are correct statements and reason is correct explanation for assertion.

b) Assertion and reason both are correct statements but reason is not correct explanation for assertion.

c) Assertion is correct statement but reason is wrong statement.

d) Assertion is wrong statement but reason is correct statement.

Assertion: The points (- 3,5) and (5, - 3)are at different positions in the coordinate plane.

Reason: If $x \neq y$, then $(x, y) \neq (y,x)$

2. In these questions, a statement of assertion followed by a statement of reason is given. Choose the correct answer out of the following choices.

a) Assertion and reason both are correct statements and reason is correct explanation for assertion.

b) Assertion and reason both are correct statements but reason is not correct explanation for assertion.

c) Assertion is correct statement but reason is wrong statement.

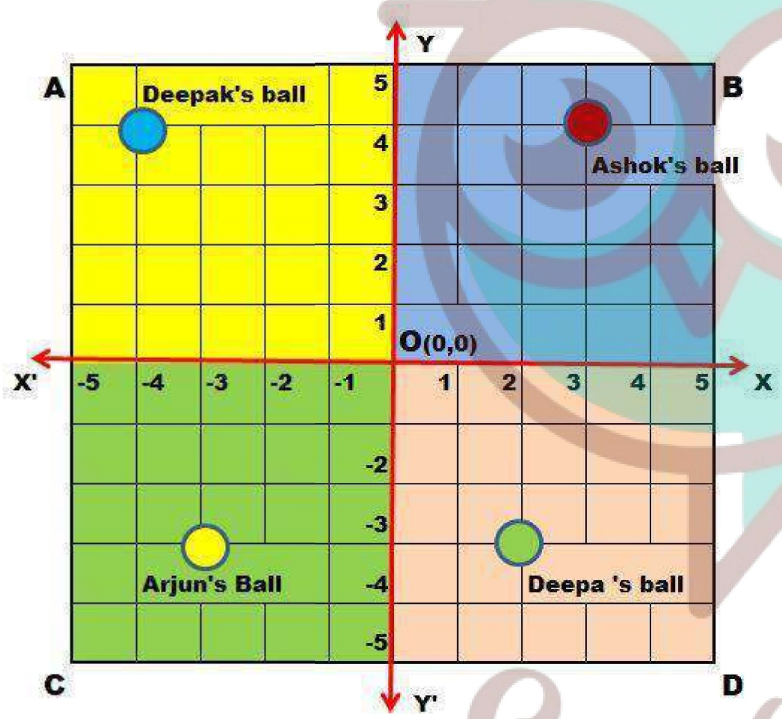
d) Assertion is wrong statement but reason is correct statement.

Assertion: The point (- 5 , 0) lies on y – axis and (0, - 4) on x -axis.

Reason: Every point on the x -axis has zero distance from x -axis and every point on the y -axis has zero distance from y -axis.

Case Study Questions-

1. Read the Source/ Text given below and answer these questions:



There is a square park ABCD in the middle of Saket colony in Delhi. Four children Deepak, Ashok, Arjun and Deepa went to play with their balls. The colour of the ball of Ashok, Deepak, Arjun and Deepa are red, blue, yellow and green respectively. All four children roll their ball from centre point O in the direction of XOY, X'OY, X'OY' and XOY'. Their balls stopped as shown in the above image.

Answer the following questions:

i. What are the coordinates of the ball of Ashok?

a. (4, 3)

b. (3, 4)

c. (4, 4)

d. (3, 3)

ii. What are the coordinates of the ball of Deepa?

a. (2, -3)

b. (3, 2)

c. (2, 3)

d. (2, 2)

iii. What the line XOX' is called?

a. y-axis.

b. ordinate.

c. x-axis.

d. origin.

iv. What the point O(0, 0) is called?

a. y-axis.

b. ordinate.

c. x-axis.

d. origin.

v. What is the ordinate of the ball of Arjun?

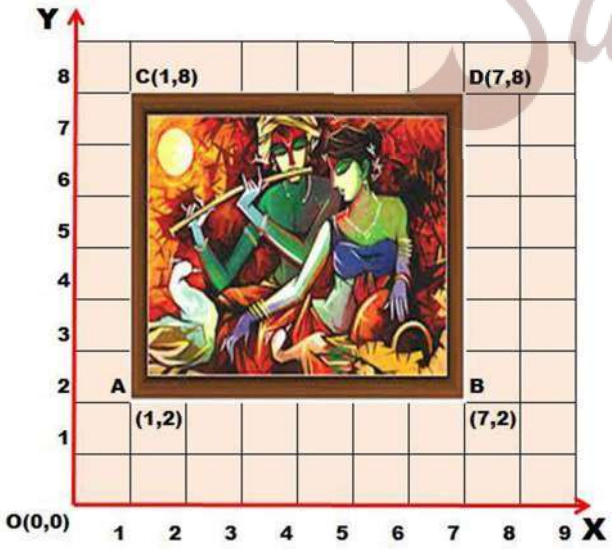
a. -3

b. 3

c. 4

d. 2

2. Read the Source/ Text given below and answer any four questions:



Rohit was putting up one of his paintings in his living room. Before this Rohit had put a grid on the wall where each unit measured equal to a foot. The upper-left corner of the frame is at point C(1, 8) and the upper-right corner at D(7, 8). The bottom-left corner is at A(1, 2) and the bottom-right corner at B(7, 2).

Please answer the following questions:

i. What is the width of the painting plus frame?
   a. 5 feet
   b. 8 feet
   c. 9 feet
   d. 6 feet

ii. What is the length of the painting plus frame?
   a. 9 feet
   b. 8 feet
   c. 6 feet
   d. 5 feet

iii. Which sides of the painting are parallel to x-axis?
   a. AB and CD
   b. AC and BD
   c. Diagonals AD and BC
   d. No one

iv. Which sides of the painting are parallel to y-axis?
   a. AB and CD
   b. AC and BD
   c. Diagonals AC and BD
   d. No one

v. Point A, B, C and D lie in which quadrant?
   a. I
   b. II
   c. III
   d. IV

Answer Key:

MCQ:

1. (b) Y-axis
2. (a) Y-axis
3. (b) Second quadrant
4. (c) Third quadrant
5. (b) X-axis
6. (c) Y-axis
7. (d) Quadrants
8. (a) Origin
9. (b) Do not lie in the same quadrant
10. (d) Y-axis

Very Short Answer:

1. (-ve, +ve)

2. 0

3. 0

4. When signs of both coordinates of B(3, -2) are interchanged, then coordinates of new point are B'(-3, 2) and it will lie in second quadrant.

5. Distances of point C(-3, -2) from x-axis is 2 units in the negative direction and from y-axis is 3 units in the negative direction. Distances of point D(5, 2) from x-axis is 2 units and from y-axis is 5 units.

6. Here, two ordered pairs are equal.

⇒ Their first components are equal, and their second components are separately equal.

⇒ $x - 3 = 4$ and $x + y = -6$

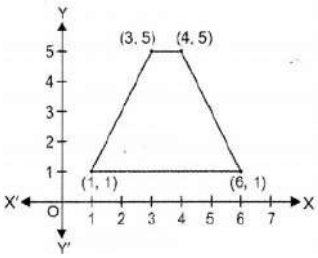
⇒ $x = 7$ and $7 + y = -6 \Rightarrow y = -13$

Hence, $x = 7$ and $y = -13$.

7. (-1, 2) lie in second quadrant.

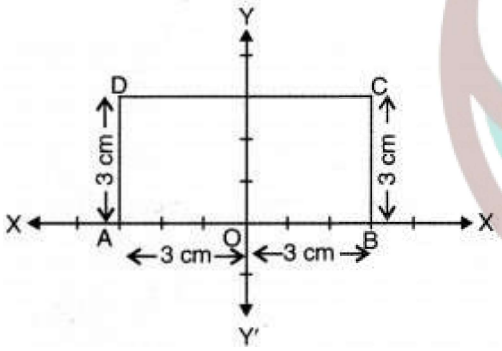
8. 5 units.

9. Trapezium.



Short Answer:

Ans: 1.



We have taken 1cm = 1 unit and origin O is the mid-point of AB

∴ OA = OB = 3cm

and BC = AD = 3cm

Thus, the coordinates of A are (-3, 0)

the coordinates of B are (3, 0)

the coordinates of C are (3, 3)

the coordinates of D are (-3, 3)

Ans: 2. Coordinates of the point A are (5, 0)

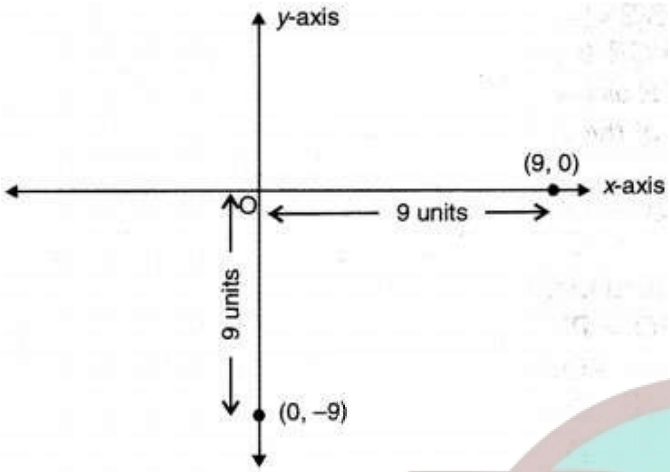
Coordinates of the point B are (5, 3)

Coordinates of the point C are (-2, 4)

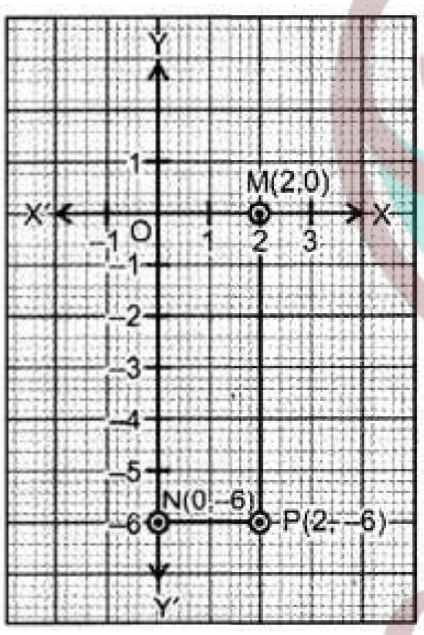
Coordinates of the point D are (0, -2)

Ans: 3. As shown in graph, the coordinates of a point which lies on x-axis at a distance of 9 units from y-axis are (9, 0) and the coordinates of a point which lies at a distance of -9 units from x-axis are

(0, -9).



Ans: 4.



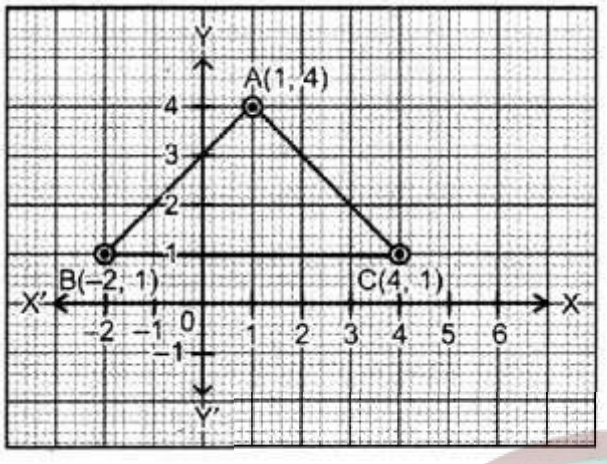
Ans: 5. (i) Clearly, point (-3, 5) lies in 2nd quadrant.

(ii) Clearly, point (-5, – 3) lies in 3rd quadrant.

(ii) Clearly, point (-5, 3) lies in 2nd quadrant.

(iv) Clearly, point (3, 5) lies in 1st quadrant.

Ans: 6.



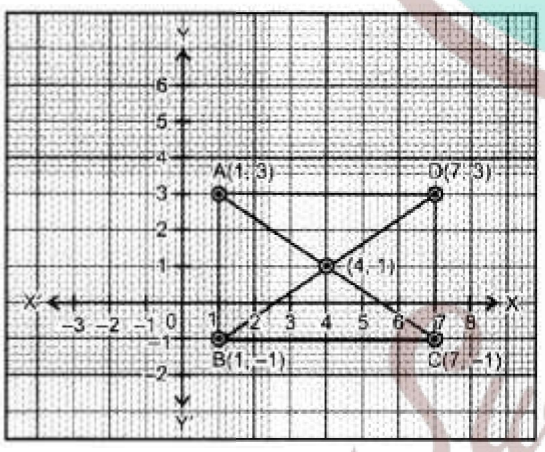
Triangle.

Area of $\Delta ABC = \frac{1}{2} \times BC \times Height$

$= \frac{1}{2} \times 6 \times 3$

= 9 sq. units

Ans: 7.



ABCD is a rectangle.

Point of intersection of the diagonals AC and BD is (4, 1)

Long Answer:

Ans: 1.

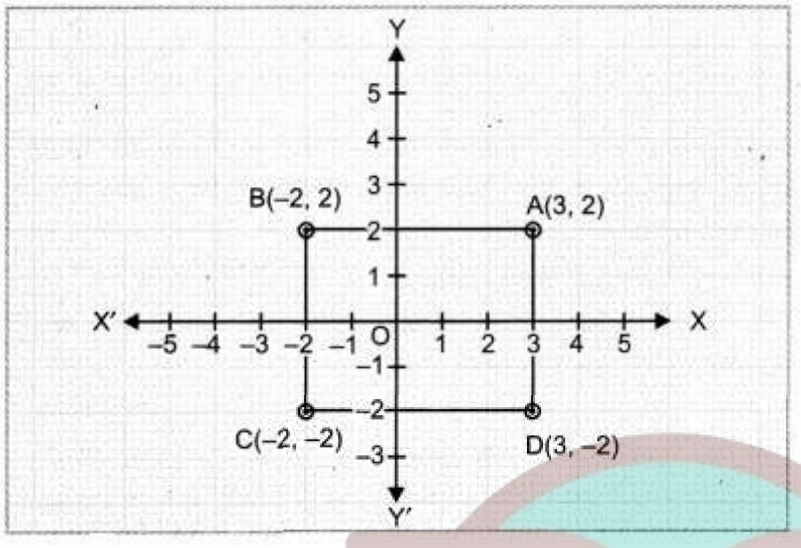
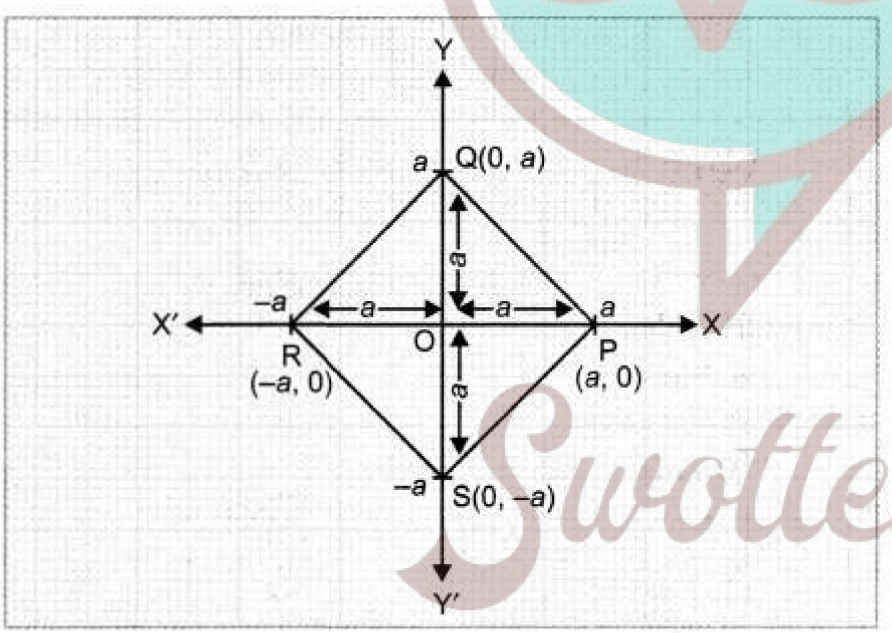
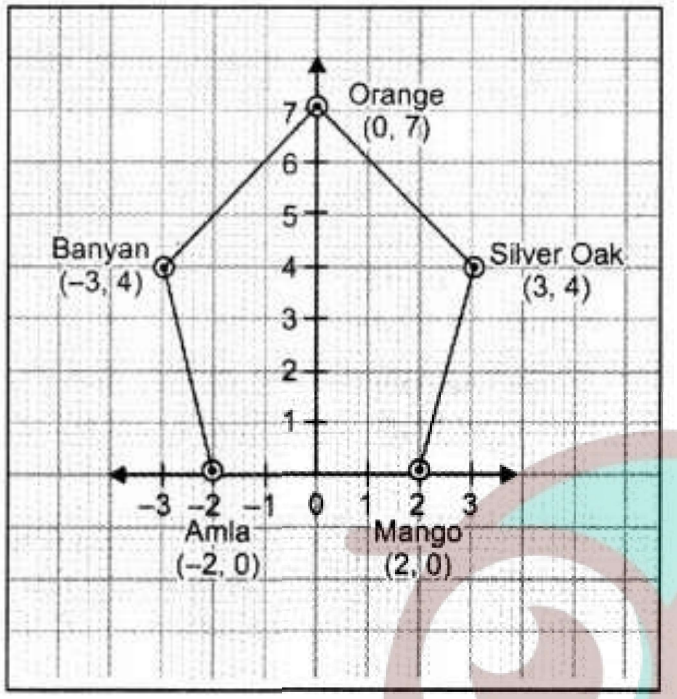


Figure so formed is ABCD a rectangle.

Ans: 2. Let a be the equal distance from origin on both axes. Now, the coordinates of two points on equal distance 'a 'on x-axis are Pla, 0) and R(-a, 0). Also, the coordinates of two points on equal distance 'a' on Y-axis are Q(0, a) and S(0, -a). Join all the four points on the graph. Now, PQRS, thus formed is a square.



Ans: 3.



The given trees (points) are Mango (2, 0), Silver Oak (3, 4), Orange (0,7), Banyan (-3, 4) and Amla (-2, 0). The location of these trees are Orange (0,7) shown in the graph.

On joining the points of mango, silver oak, orange, banyan and amla in order, the figure so formed is a regular pentagon.

Planting more trees helpful in reducing pollution and make the environment clean and green for the coming generations.

Assertion and Reason Answers-

1. a) Assertion and reason both are correct statements and reason is correct explanation for assertion.

Explanation:

Assertion (A) :

The points(-3,5) and (5,-3) are at different positions in the coordinate plane.

For the point (-3,5)

Abscissa = - 3 & ordinate = 5

The point lies is 2nd quadrant

For the point (5,-3)

Abscissa = 5 & ordinate = - 3

The point lies is 4th quadrant

Since $5 \neq -3$

So the points(-3,5) and (5,-3) are at different positions in the coordinate plane.

So Assertion (A) is correct

Reason(R) :

If x is not equal to y then the position of (x,y) in the cartesian plane is different from the position of (y,x)

We know that two point (a, b) & (c, d) are the same point iff a = c , b = d

So if x is not equal to y then the position of (x,y) in the cartesian plane is different from the position of (y,x)

Therefore Reason(R) is correct

Also reason (R) is the correct explanation of assertion

Hence the correct option is:

(a) Assertion and reason both are correct statements and reason is correct explanation for assertion.

2. d) Assertion is wrong statement but reason is correct statement.

Explanation: (-5,0) lies on x-axis because the first part of co-ordinate shows X-axis and second part show y-axis and also the point (0,-4) lies on y axis not x axis

Hence the assertion is false but the reason is 100% true statement.

Case Study Answers-

1.

(i)	(b)	(3, 4)
(ii)	(a)	(2, -3)
(iii)	(c)	x-axis.
(iv)	(d)	origin.
(v)	(a)	-3

2.

i	d	6 feet
ii	c	6 feet
iii	a	AB and CD
iv	b	AC and BD
v	a	I