CBSE Test Paper 03

CH-3 Coordinate Geometry

1. The zero of the polynomial $(x-2)^2-(x+2)^2$ is

   a. 0

   b. 2

   c. 1

   d. -2

2. If x-1 if the factor of p(x)= $x^3-23x^2+kx-120$, then the value of 'k' is

   a. 120

   b. 124

   c. 142

   d. 140

3. If $x^2+kx-3=(x-3)(x+1)$, then the value of 'k' is

   a. -3

   b. 2

   c. -2

   d. 3

4. A symbol having a fixed value is called a _____.

   a. coefficient

   b. none of these

   c. constant

d. variable

5. If $10x - 4x^2 - 3$, then the value of $p(0) + p(1)$ is

   a. -3

   b. 0

   c. 3

   d. 1

6. Fill in the blanks:

   The positive abscissa lies in _____, _____ quadrants.

7. Fill in the blanks:

   The y-coordinate is also called the _____.

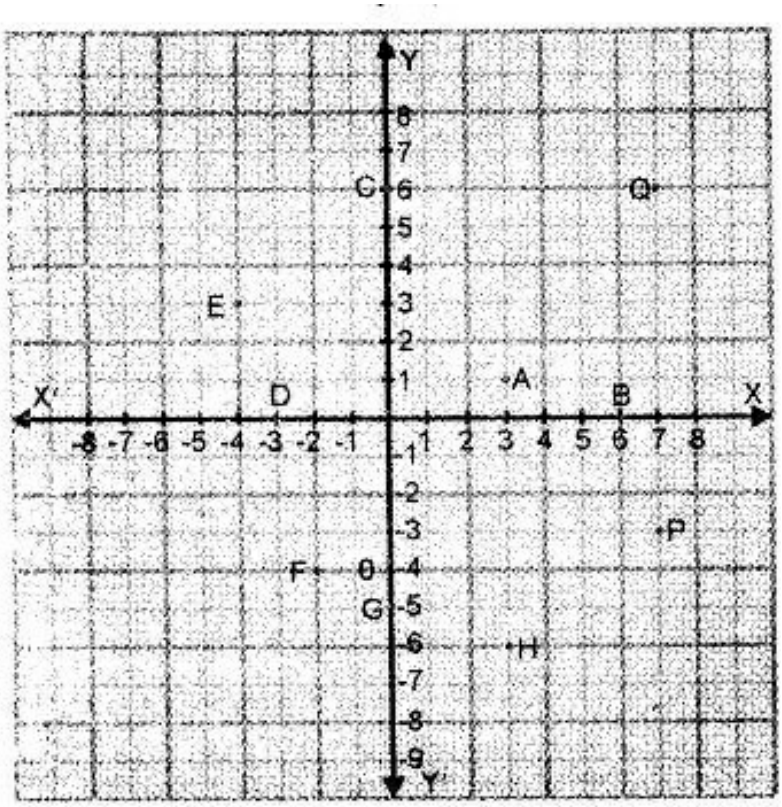
8. In which quadrant or on which axis each of the points (-2, 4), (3, -1), (-1, 0), (1, 2) and (-3, -5) lie? Verify your answer by locating them on the Cartesian plane.

9. Take a quadrilateral ABCD (A) (-5, -4) (B) (-5, 2) (C) (-3, 3) and (D) (-3, 4) find its mirror image with respect to y- axis.

10. Name the quadrant in which the point lies :(i) A(1, 1) (ii) (–2, –4) (iii) C(1, –2).

11. Name the quadrant in which the following points lie: (i) A(2, 9) (ii) B(–3, 5) (iii) C(–4, –7) (iv) D(3, –2)

12. Write the co-ordinates of each of the following points marked in the graph paper.



13. Write the answer of each of the following questions:

    i. What is the name of horizontal and the vertical lines drawn to determine the position of any point in the Cartesian plane?
    ii. What is the name of each part of the plane formed by these two lines?
    iii. Write the name of the point where these two lines intersect.

14. Plot the following points and check whether they are collinear or not: (1, 3), (-1, -1), (-2, -3).

15. Write the coordinates of the vertices of a rectangle whose length and breadth are 5 and 3 units respectively, one vertex at the origin, the longer side lies on the x-axis and one of the vertices lies in the III quadrant.

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Solution

1. (a) 0

   Explanation:

   $(x-2)^2-(x+2)^2$

   = $(x-2+x+2)(x-2-x-2)$ [Using identity] $a^2-b^2=(a+b)(a-b)$]

   = $(2x)(-4)$

   = $-8x$

   Then the zero is

   $-8x=0$

   => $x=0$

2. (c) 142

   Explanation:

   If x - 1is a factor of p(x), then

   p(1) = 0

   $(1)^3$ - 23 $(1)^2$ + k (1) - 120 = 0

   1 - 23 + k - 120 = 0

   1 - 143 + k = 0

   -142 + k = 0

   k = 142

3. (c) -2

   Explanation:

   $x^2 + kx - 3 = (x - 3)(x + 1)$

   => $x^2 + kx - 3 = x^2 + (-3 + 1)\,x + (-3) \times 1$

   => $x^2 + kx - 3 = x^2 - 2x - 3$

   On comparing the term, we get $k = -2$

4. (c) constant

   Explanation: A symbol having a fixed value is called a constant. Ex. Any natural number, whole number, integers, rational number. A symbol having the variable values is called variable.

5. (b) 0

   Explanation:

   $10x - 4x^2 - 3$

   $p\,(x) = -4x^2 + 10x - 3$

   => $p\,(0) + p\,(1) = \left[-4(0)^2 + 10\,(0) - 3\right] + \left[-4(1)^2 + 10\,(1) - 3\right]$

   => $p\,(0) + p\,(1) = [0 + 0 - 3] + [-4 + 10 - 3]$

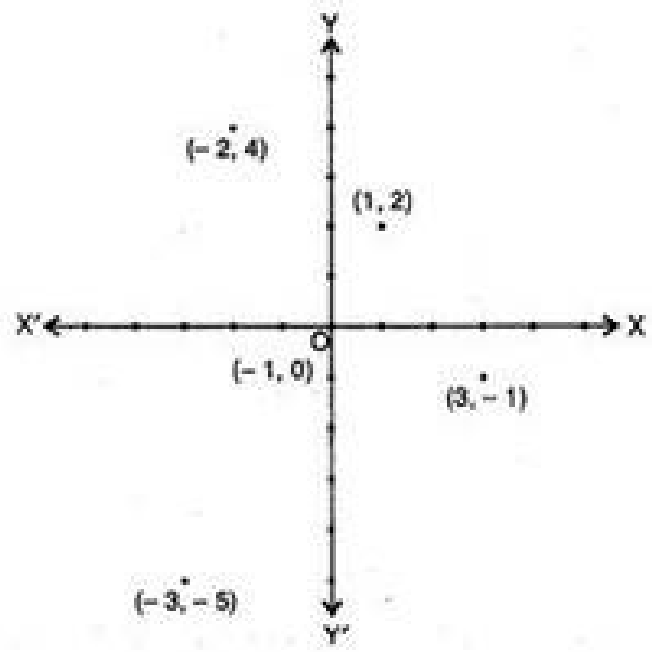
   => $p\,(0) + p\,(1) = [-3] + [3]$

   => $p\,(0) + p\,(1) = 0$

6. I, IV

7. ordinate

8. The point (-2, 4) lies in the II quadrant.
   The point (3, -1) lies in the IV quadrant.
   The point (-1, 0) lies on the x-axis.
   The point (1, 2) lies in the quadrant I.
   The point (-3, -5) lies in the quadrant III.



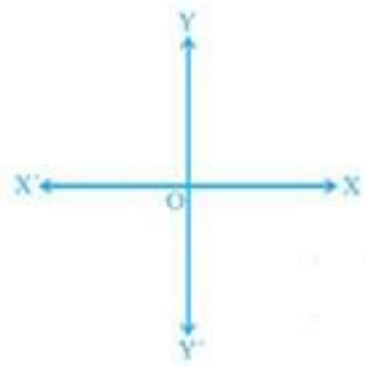
9. The mirror image of point.
   (A) (-5, 4) (B) (-5, 2) (C) (-3, 3) and (D) (-3, 4) with respect to y-axis are. A' (5, 4), B' (5, 2), C' (3, 3) and D' (3, 4)

10. (i) (+, +) are the signs of the co-ordinates of points in the I quadrant.
    ∴ A(1, 1) lies in the I quadrant.
    (ii) (–, –) are the signs of the co-ordinates of points in the III quadrant.
    ∴ B(–2, –4) lies in the III quadrant.
    (iii) (+, –) are the signs of the co-ordinates of points in the IV quadrant.
    ∴ C(1, –2) lies in the IV quadrant.

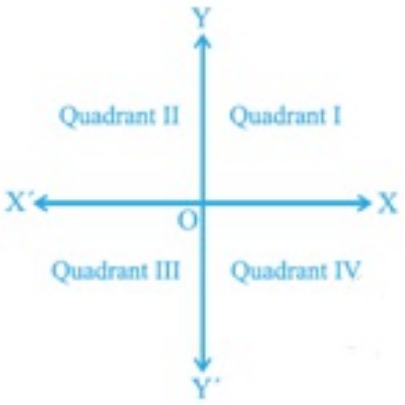
11. (i) I quadrant
    (ii) II quadrant
    (iii) III quadrant
    (iv) IV quadrant

12. A(3, 1), B(6, 0), C(0, 6), D(–3, 0), E(–4, 3), F(–2, –4), G(0, –5), H(3, –6), P(7, –3), Q(7, 6).

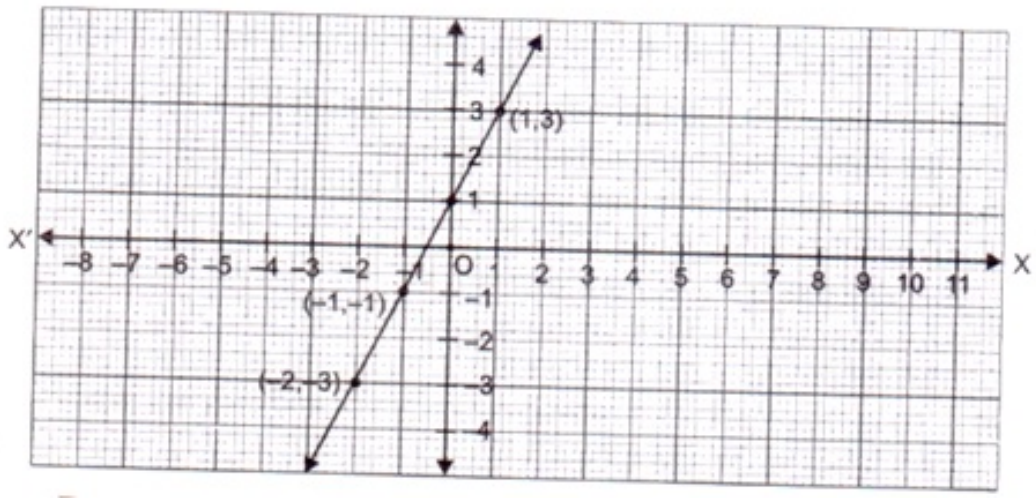
13. i. The horizontal line that is drawn to determine the position of any point in the Cartesian plane is called as x-axis. The vertical line that is drawn to determine the position of any point in the Cartesian plane is called as y-axis



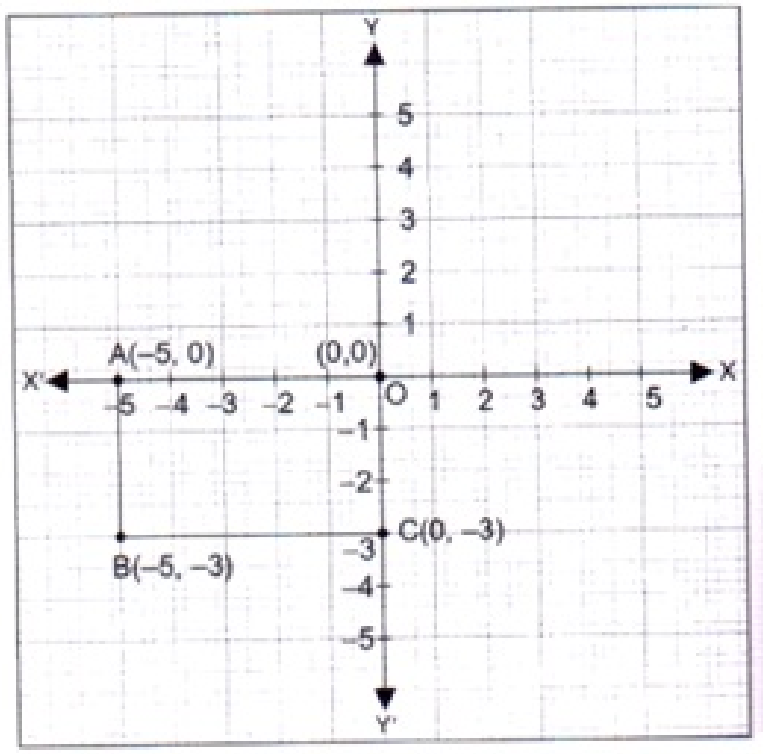
ii. The name of each part of the plane that is formed by x-axis and y-axis is called as quadrant.



iii. The point, where the x-axis and the y-axis intersect is called as origin.

14. 

From the graph, we find that all the three points lie on the same straight line. Hence, the given points are collinear.

15. 

As the length and breadth of the rectangle are 5 and 3 units respectively, one vertex at the origin, the longer side lies on the x-axis and one of the vertices lies in the III quadrant, so the coordinate of the vertices of rectangle OABC are O(0, 0), A (-5, 0), B (-5, -3) and C (0, -3).