

11. Co-ordinate Geometry

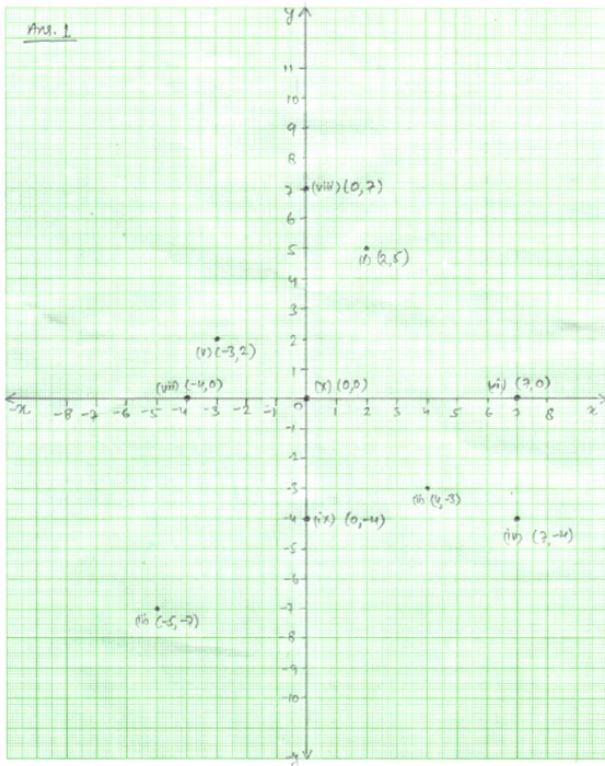
Exercise 11.1

1. Question

Plot the following points on the graph paper:

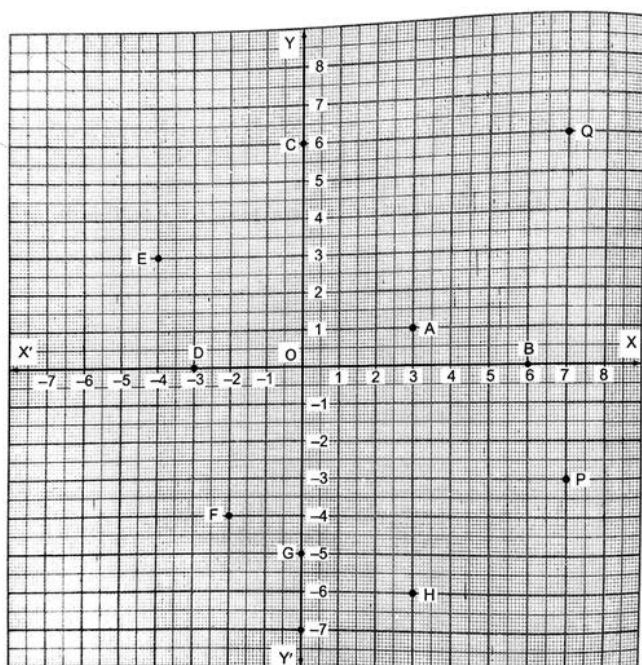
- (i) (2, 5) (ii) (4, -3)
(iii) (-5, -7) (iv) (7, -4)
(v) (-3, 2) (vi) (7, 0)
(vii) (-4, 0) (viii) (0, 7)
(ix) (0, -4) (x) (0, 0)

Answer



2. Question

Write the coordinates of each of the following points marked in the graph paper:



Answer

A (3, 1)

From Point A draw a perpendicular to x-axis we get 3 and perpendicular to y-axis we get 1. Therefore co-ordinates of point A is (3, 1).

B(6, 0)

Since Point B lies on x-axis six places away from origin. Therefore co-ordinates of point B is (6, 0).

C(0, 6)

Since Point C lies on y-axis six places away from origin. Therefore co-ordinates of point C is (0, 6).

D(-3, 0)

Since Point D lies on x-axis three places away from origin on left side. Therefore co-ordinates of point D is (-3, 0).

E(-4, 3)

From Point E draw a perpendicular to x-axis we get -4 and perpendicular to y-axis we get 3. Therefore co-ordinates of point E is (-4, 3).

F(-2, -4)

From Point F draw a perpendicular to x-axis we get -2 and perpendicular to y-axis we get -4. Therefore co-ordinates of point F is (-2, -4).

G(0, -5)

Since Point G lies on y-axis 5 places away from origin in the downward direction since value of the co-ordinate is negative. Therefore co-ordinates of point G is (0, -5).

H(3, -6)

From Point H draw a perpendicular to x-axis we get 3 and perpendicular to y-axis we get -6. Therefore co-ordinates of point H is (3, -6).

P(7, -3)

From Point P draw a perpendicular to x-axis we get 7 and perpendicular to y-axis we get -3. Therefore co-ordinates of point P is (7, -3).

CCE - Formative Assessment

1. Question

The point of intersect of the coordinate axes is

- A. ordinate
- B. abscissa
- C. quadrant
- D. origin

Answer

The point where coordinate axes intersect is known as origin $O(0, 0)$.

2. Question

The abscissa and ordinate of the origin are

- A. $(0, 0)$
- B. $(1, 0)$
- C. $(0, 1)$
- D. $(1, 1)$

Answer

The point where coordinate axes intersect is known as origin The abscissa and the ordinate of Origin are $(0, 0)$.

3. Question

The measure of the angle between the coordinate axes is

- A. 0°
- B. 90°
- C. 180°
- D. 360°

Answer

Coordinate axes intersect each other at 90° or coordinate axes are perpendicular to each other.

4. Question

A point whose abscissa and ordinate are 2 and -5 respectively lies in

- A. First quadrant
- B. Second quadrant
- C. Third quadrant
- D. Fourth quadrant

Answer

As we know in the fourth coordinate abscissa is positive and ordinate is negative.

5. Question

Points $(-4, 0)$ and $(7, 0)$ lie

- A. on x -axis
- B. y -axis
- C. a line parallel to y -axis
- D. a line parallel to x -axis

Answer

Since the ordinate of both the given points is 0, therefore both the points lie on $x - axis$.

6. Question

The ordinate of any point on x-axis is

- A. 0
- B. 1
- C. -1
- D. any number

Answer

The ordinate of any point on x-axis is always zero. This means that this point hasn't covered at any distance on y-axis.

7. Question

The abscissa of any point on y-axis is

- A. 0
- B. 1
- C. -1
- D. any number

Answer

The abscissa of any point on y-axis is always zero. This means that this point hasn't covered at any distance on x-axis.

8. Question

The abscissa of a point is positive in the

- A. First and Second quadrant
- B. Second and Third quadrant
- C. Third and Fourth quadrant
- D. Fourth quadrant

Answer

We know that abscissa is always positive in first and fourth coordinate and ordinate is always positive in first and second coordinate.

9. Question

A point whose abscissa is -3 and ordinate 2 lies in

- A. First quadrant
- B. Second quadrant
- C. Third quadrant
- D. Fourth quadrant

Answer

As we know that abscissa is negative in second and third coordinate and ordinate is positive in first and second coordinate. Therefore the given point -3, 2 lies in second coordinate.

10. Question

Two points having same abscissa but different ordinates lie on

- A. x -axis
- B. y -axis
- C. a line parallel to y -axis
- D. a line parallel to x -axis

Answer

Two points having same abscissa but different ordinate always make a line which is parallel to y -axis.

11. Question

The perpendicular distance of the point $P(4,3)$ from x -axis is

- A. 4
- B. 3
- C. 5
- D. none of these

Answer

The perpendicular distance of any point from x -axis is always equal to the value of ordinate.

12. Question

The perpendicular distance of the point $P(4,3)$ from y -axis is

- A. 4
- B. 3
- C. 5
- D. none of these

Answer

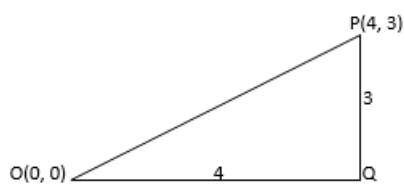
The perpendicular distance of any point from y -axis is always equal to the value of abscissa.

13. Question

The distance of the point $P(4,3)$ from the origin is

- A. 4
- B. 3
- C. 5
- D. 7

Answer



Using Pythagorean theorem: $OP^2 = OQ^2 + QP^2$

$$OP^2 = 4^2 + 3^2$$

$$OP^2 = \sqrt{16 + 9} = 5$$

14. Question

The area of the triangle formed by the points $A(2,0)$, $B(6,0)$ and $C(4,6)$ is

- A. 24 sq. units
- B. 12 sq. units
- C. 10 sq. units
- D. none of these

Answer

If (x_1, y_1) , (x_2, y_2) , (x_3, y_3) are the vertices of a triangle then its area is given by

$$\text{Area} = \left| \frac{1}{2} (x_1(y_2 - y_3) + x_2(y_3 - y_1) + x_3(y_1 - y_2)) \right|$$

$$\text{Area} = \frac{1}{2} [(2(0-6) + 6(6-0) + 4(0-0))]$$

$$\Rightarrow \frac{1}{2} [-12 + 36 + 0]$$

$$\Rightarrow 12 \text{ sq. units}$$

15. Question

The area of the triangle formed by the points $P(0,1)$, $Q(0,5)$ and $R(3,4)$ is

- A. 16 sq. units
- B. 8 sq. units
- C. 4 sq. units
- D. 6 sq. Units

Answer

If (x_1, y_1) , (x_2, y_2) , (x_3, y_3) are the vertices of a triangle then its area is given by

$$\text{Area} = \left| \frac{1}{2} (x_1(y_2 - y_3) + x_2(y_3 - y_1) + x_3(y_1 - y_2)) \right|$$

$$\text{Area} = \frac{1}{2} [(0(5-4) + 0(4-1) + 3(1-5))]$$

$$\Rightarrow \left| \frac{1}{2} [-12] \right|$$

$$\Rightarrow 6 \text{ sq. units}$$