WORKSHEET 1

1. In which quadrant does the point (3, −5) lie?
   (a) I (b) II (c) III (d) IV

2. The distance between the points P(2, −3) and Q(2, 2) is
   (a) 6 units (b) 2 units (c) 5 units (d) 8 units

3. The distance of the point (5, 7) from the x-axis is
   (a) 5 (b) 7 (c) 12 (d) 2

4. The distance of the point (5, 7) from the y-axis is
   (a) 5 (b) 7 (c) 12 (d) 9

5. If the points P(2, 3), Q(5, k) and R(6, 7) are collinear, then
   (a) $k = 3$ (b) $k = 5$ (c) $k = 6$ (d) $k = \dfrac{7}{4}$

6. The coordinates of the point P dividing the line segment joining the points A(1, 3) and B(4, 6) in the ratio 2 : 1 are
   (a) (2, 4) (b) (3, 5) (c) (4, 2) (d) (5, 3)

7. The mid-point of the line segment joining the points P(−2, 8) and Q(−6, −4) is
   (a) (−4, 2) (b) (3, 2) (c) (−6, −3) (d) (−1, −5)

8. If the point (x, y) is equidistant from the points ($a + b$, $b − a$) and ($a − b$, $a + b$), prove that $bx = ay$.

9. Show that points A(1, −1), B(5, 2) and C(9, 5) are collinear.

10. Point P divides the line segment joining the points A(2, 1) and B(5, −8) such that $\dfrac{AP}{AB} = \dfrac{1}{3}$. If P lies on the line $2x − y + k = 0$, find the value of k.

11. If A(−2, −1), B(a, 0), C(4, b) and D(1, 2) are the vertices of a ‖gm, find the values of a and b.

12. Find the coordinates of the points which divide the line segment joining A(−2, 2) and B(2, 8) into four equal parts.

13. Prove that diagonals of a rectangle bisect each other and are equal.

14. Find the third vertex of a triangle, if two of its vertices are at (−3, 1) and (0, −2), and the centroid is at the origin.

15. Find the area of the quadrilateral ABCD whose vertices are A(1, 1), B(7, −3), C(12, 2) and D(7, 21) respectively.

16. If P(x, y) is any point on the line joining the points A(a, 0) and B(0, b), then show that $\dfrac{x}{a} + \dfrac{y}{b} = 1$.

17. Find the distance between the points $\left(-\dfrac{8}{5}, 2\right)$ and $\left(\dfrac{2}{5}, 2\right)$.

18. Show that the point A(a, $b + c$), B(b, $c + a$) and C(c, $a + b$) are collinear.

19. Find the centroid of △ABC whose vertices are A(−1, 0), B(5, −2) and C(8, 2).

20. The coordinates of one end point of a diameter AB of a circle are A(4, −1) and the coordinates of the centre of the circle are C(1, −3). Find the coordinates of B.

Name: ....

Class: .... X ....

Teacher's signature: ....

Date: ....

ANSWERS

1. (*d*) IV   2. (*c*) 5 units   3. (*b*) 7   4. (*a*) 5   5. (*c*) $k = 6$ 6. (*b*) (3, 5)   7. (*a*) (−4, −2)

10. $k = -4$ 11. $a = 1, b = 3$ 12. $\left(-1, \dfrac{7}{2}\right)$, (0, 5), $\left(-1, \dfrac{13}{2}\right)$ 14. (3, 1)

15. 132 sq units   17. 2 units   19. G(4, 0)   20. B(−2, −5)