MATHEMATICS

Board –		Class –		Topic –

1. A line intersects y –axis and x-axis at the points P and Q respectively. If (2,-5) is the midpoint of PQ, then find the coordinates of P and Q respectively.

   [Ans. (0,-10) and (4, 0)]

2. Find the ratio in which y-axis divides the line segment joining the points A(5, -6) and B(-l, -4). Also find the coordinates of the point of division.   [Ans. 5:1 and (0, -13/3)]

3. If the point C(-l, 2) divides internally the line-segment joining the points A(2, 5) and B(x,y) in the ratio 3 : 4, find the value of $x^2 + y^2$.   [Ans. 29]

4. Find the area of a quadrilateral ABCD, the coordinates of whose vertices are   A(—3,2), B(5,4), C(7, -6) and D(-5, -4).   [Ans. 80 sq units]

5. Find the area of the triangle ABC with A(l, -4) and mid-points of sides through A being (2, -1) and (0, -1).   [Ans. 12 sq unit]

6. If A(-4,8), B(-3, -4), C(0, – 5) and D(5,6) are the vertices of a quadrilateral ABCD, find its area.   [Ans. 72 sq unit]

7. Points A(-l, y) and B(5,7) lie on a circle with centre 0(2, -3y). Find the values ofy. Hence, find the radius of the circle.   [Ans. $y = -1\ or\ 7$]

8. If the point P(k – 1, 2) is equidistant from the points A(3, k) and B(k, 5), find the values of k.

   [Ans. 1 or 5]

9. Prove that the diagonals of a rectangle ABCD, with vertices A(2, – 1), B(5, – 1), C(5,6) and D(2,6), are equal and bisect each other.

10. Find the value(s) of p for which the points (p + 1, 2p – 2), (p – 1 ,p) and (p -6, 2p – 6) are collinear.   [Ans. 4]

11. If the distance between the points (4, p) & (1, 0) is 5, then find the value of P

    [Ans.$\pm$4]

12. Point A (1, 2), B (0, 0) and C (a, b) are collinear, find the relation between a and b.

    [Ans. 2a=b]

13. Find the coordinate of the point on x-axis which is equidistant from (2,-5) and   (-2, 9).

    [Ans. (-7,0)]

14. Find the coordinates of a point A, where AB is diameter of a circle whose centre is (2, -3) and B is (1, 4)   [Ans. (3, -10)]

15. Find the centroid of triangle whose vertices are (3, -7), (-8, 6) and (5, 10)

[Ans. (0, 3)]

16. Point P (5, -3) is one of the two points of trisection of the line segment joining the points A (7, -2) and B (1, -5) near to A. Find the coordinates of the other point of trisection.

[Ans. (3, -4)]

17. If A (-2, 4), B (0, 0), C (4, 2) are the vertices of a ΔABC, then find the length of median through the vertex A.   **[Ans. 5 units]**

18. What is the distance between the point A (c, 0) and B (0, -c)?   **[Ans. $\sqrt{2}c$]**

19. Point P divides the line segment joining the points A (2, 1) and B (5,-8) such that AP: AB=1:3.If P lies on the line 2x-y+k=0, then find the value of.   **[Ans. k = -8]**

20. Points P, Q, R, and S in that order are dividing a line segment joining A (2, 6) and B (7, -4) in five equal parts. Find the coordinates of point P and R?   **[P (3, 4), R (5, 0)]**

21. Find a relation between x and y if the points (2, 1), (x, y) and (7, 5) are collinear.

[Ans. 4x - 5y + 3 = 0]

22. If A (-4, -2), B (-3, -5), C (3, -2) and D (2, 3) are the vertices of a quadrilateral, then find the area of the quadrilateral.   **[Ans. 28 sq. units]**

23. Find the point on y- axis which is equidistant from the points (5, -2) and (-3, 2)

[Ans. (0, -2)]

24. Find the area of the triangle formed by joining the mid points of the sides of the triangle whose vertices are (0, -1), (2, 1) and (0, 3). Find the ratio of this area to the area of the given triangle.   **[Ans. 1:4]**

25. Find the area of the quadrilateral whose vertices taken in order are (-4, -2), (-3, -5), (3, -2) and (2, 3)   **[Ans. 28 sq. units]**

26. Find the area of the rhombus, if its vertices are (3, 0), (4, 5), (-1, 4) and (-2,-1) taken in order.   **[Ans. 24 sq. units]**

27. A (6, 1), B (8, 2), C (9, 4) are the three vertices of a parallelogram ABCD. If E is the Midpoint of DC, then find the area of ΔADE.   **[Ans. $\frac{3}{4}$ sq. units]**