

1. Find the distance between the points P(-6, 7) and Q(-1, -5)
2. Show that the points (1, -1), (5, 2) and (9, 5) are collinear.
3. Do the points A(3, 2), B(-2, -3) and C(2, 3) form a triangle? If so, name the type of triangle formed.
4. Find the coordinates of the circumcentre of a triangle whose vertices are A(4, 6), B(0, 4) and C(6, 2). Also, find its circumradius.
5. Determine the ratio in which the line $y - x + 12 = 0$ divides the line joining the points (3, -1) and (8, 9)?
6. Find the coordinates of the point which divides the line segment joining the points (6, 3) and (-4, 5) in the ratio 3 : 2 internally.
7. Find the ratio in which the y-axis divides the line segment joining the points (5, -6) and (-1, -4). Also find the point of intersection.
8. In what ratio does the x-axis divide the line segment joining the points (2, -3) and (5, 6)? Also, find the coordinates of the point of intersection.
9. If the points A(6, 1), B(8, 2), C(9, 4) and D(p, 3) are the vertices of a parallelogram, taken in order, find the value of p.
10. Find the centroid of $\triangle ABC$ whose vertices are A(-3, 0), B(5, -2) and C(-8, 5). And hence also find the centroid of a triangle having the mid point as $(1, -1), \left(\frac{-3}{2}, \frac{3}{2}\right), \left(\frac{-11}{2}, \frac{5}{2}\right)$?
11. Find the area of a triangle whose vertices are (1, -1), (-4, 6) and (-3, -5).
12. Find the value of k if the points A(2, 3), B(4, k) and C(6, -3) are collinear.
13. Prove that the points (a, b + c), (b, c + a) and (c, a + b) are collinear.
14. Find the value of k for which the area formed by the triangle with vertices A(k, 2k), B(-2, 6) and C(3, 1) is 5 square units.