

Section-A

Choose the correct answer from the given four options:

1. The distance of the point P (2, 3) from the x-axis is

- (A) 2 (B) 3 (C) 1 (D) 5

2. The distance between the points A (0, 6) and B (0, -2) is

- (A) 6 (B) 8 (C) 4 (D) 2

3. The distance of the point P (-6, 8) from the origin is

- (A) 8 (B) $2\sqrt{7}$ (C) 10 (D) 6

4. The distance between the points (0, 5) and (-5, 0) is

- (A) 5 (B) $5\sqrt{2}$ (C) $2\sqrt{5}$ (D) 10

5. AOBC is a rectangle whose three vertices are vertices A (0, 3), O (0, 0) and B (5, 0). The length of its diagonal is

- (A) 5 (B) 3 (C) $\sqrt{34}$ (D) 4

Section-B

1. Find the coordinates of the mid point of the line segment joining the points (4, 3) and (2, 1).

2. Find the coordinates of the point which divides the line segment joining the points (1, 3) and (2, 7) in the ratio 3: 4.

3. Show that the points (1, 1), (3, - 2) and (- 1, 4) are collinear.

4. Find the centroid of the triangle whose vertices are (3, - 5); (- 7, 4) and (10, - 2).

5. If the distance of the point P(x, y) from the points A (5, 1) and B (- 1, 5) is equal, show that $3x = 2y$.

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6. Find the area of a triangle whose vertices are A (1, 2); B (3, 5) and C (- 4, - 7)
7. In what ratio does the point P (- 4, 6) divide the line segment joining the points A (- 6, 10) and B (3, - 8).
8. For what value of m, the points (4, 3), (m, 1) and (1, 9) are collinear.
9. Prove that the coordinates of the centroid of a triangle ABC with vertices $A(x_1, y_1)$, $B(x_2, y_2)$ and $C(x_3, y_3)$ are given by $[(x_1+x_2+x_3)/3]$, $[(y_1+y_2+y_3)/3]$
10. Prove that the diagonals of a rectangle bisect each other and are of equal length
11. Find the coordinates of the points Q and R on medians BE and CF respectively such that $BQ: QE = 2: 1$ and $CR: RF = 2: 1$.
12. In what ratio does the line $4x + y = 11$ divide the line segment joining the points (1, 3) and (2, 7).
13. PQRS is a square of side .b. units. If P lies at the origin, sides PQ and PS lie along x - axis and y - axis respectively, find the coordinates of the vertices of the square PQRS.
14. If the points (5, 4) and (x, y) are equidistant from the point (4, 5); then show that $x^2 + y^2 - 8x - 10y + 39 = 0$
15. The line segment joining the points (3, - 4) and (1, 2) is trisected at the points P and Q. If the coordinates of P and Q are (p, -2) and (5/3, q) respectively, Find the value of p and q.