

### EXERCISE 9.1

1. Draw a quadrilateral in the Cartesian plane, whose vertices are  $(-4, 5)$ ,  $(0, 7)$ ,  $(5, -5)$  and  $(-4, -2)$ . Also, find its area.

2. The base of an equilateral triangle with side  $2a$  lies along the  $y$ -axis such that the mid-point of the base is at the origin. Find vertices of the triangle.

3. Find the distance between P  $(x_1, y_1)$  and Q  $(x_2, y_2)$  when : (i) PQ is parallel to the  $y$ -axis, (ii) PQ is parallel to the  $x$ -axis.

4. Find a point on the  $x$ -axis, which is equidistant from the points  $(7, 6)$  and  $(3, 4)$ .

5. Find the slope of a line, which passes through the origin, and the mid-point of the line segment joining the points P  $(0, -4)$  and B  $(8, 0)$ .

6. Without using the Pythagoras theorem, show that the points  $(4, 4)$ ,  $(3, 5)$  and  $(-1, -1)$  are the vertices of a right angled triangle.

7. Find the slope of the line, which makes an angle of  $30^\circ$  with the positive direction of  $y$ -axis measured anticlockwise.

8. Without using distance formula, show that points  $(-2, -1)$ ,  $(4, 0)$ ,  $(3, 3)$  and  $(-3, 2)$  are the vertices of a parallelogram.



9. Find the angle between the  $x$ -axis and the line joining the points  $(3, -1)$  and  $(4, -2)$ .

10. The slope of a line is double of the slope of another line. If tangent of the angle between them is  $\frac{1}{3}$ , find the slopes of the lines.















**11.** A line passes through  $(x_1, y_1)$  and  $(h, k)$ . If slope of the line is  $m$ , show that

$$k - y_1 = m (h - x_1).$$