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° 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 $k - y_1 = m\ (h - x_1)$.