COORDINATE GEOMETRY

AREA OF TRIANGLE

EXERCISE

Q.1 Prove that the points (– 2, 5), (0, 1) and (2, – 3) are collinear.

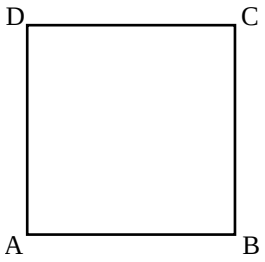
Q.2 Find the area of a triangle whose vertices are

(i) (6, 3), (– 3, 5) and (4, – 2)

(ii) $(at_1^2, 2at_1)$, $(at_2^2, 2at_2)$ and $(at_3^2, 2at_3)$

(iii) (a, c + a), (a, c) and (– a, c – a)

Q.3 Find the co-ordinates of the vertices of the square ABCD (side 2a)



(i) Taking AB and AD as axis,

(ii) Taking the centre of the square as origin and axes parallel to the sides AB, AD.

Q.4 Show that the points (– 4, – 1), (– 2, – 4), (4, 0) and (2, 3) are the vertices points of a rectangle.

Q.5 Show that the points A (1, – 2), B (3, 6), C (5, 10) and D (3, 2) are the vertices of a parallelogram.

Q.6 Prove that the point A (0, 1), B (1, 4), C (4, 3) and D (3, 0) are the vertices of a square.

Q.7 Prove that the points (3, 0), (6, 4) and (–1, 3) are the vertices of a right angled isosceles triangle.

Q.8 Prove that (2, – 2), (– 2, 1) and (5, 2) are the vertices of a right angled triangle. Find the area of the triangle and the length of the hypotenuse.

Q.9 Prove that the points (2, 3), (– 4, – 6) and (1, 3/2) do not form a triangle

Q.10 Show that the quadrilateral whose vertices are (2, –1), (3, 4), (– 2, 3) and (– 3, – 2) is a rhombus.

ANSWER KEY

2. (i) 49/2 sq. units

(ii) $a^2 (t_1 - t_2) (t_2 - t_3) (t_1 - t_3)$

(iii) a^2

3. (i) A(0, 0), B(2a, 0), C (2a, 2a), D (0, 2a)

(ii) A (–a, –a), B(a, – a), C(a, a), D(–a, a)