

# Assignment-1

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## 1 Chapter-2, Example II, Q.7

**1. Prove that the points  $(0,1), (1,4), (4,3), (3,0)$  are the vertices of a Square :**

Answer-

Step1 : Find the distance between all the four points.

Distance between two points is :

$$distance = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

From the above points , we get six distances between the points. and if four distances length are equal and two distance length are equal, then it is a square.

3.1622776601683795, 3.1622776601683795, 3.1622776601683795, 3.1622776601683795  
4.47213595499958, 4.47213595499958

Conditions to be a Square :

1. All the lengths of the sides of Square must be equal.

$$2.diagonal\ length = \sqrt{2} \times Side\ length$$

$$4.47213595499958 = \sqrt{2} \times 3.1622776601683795$$

As these points obey above conditions , Hence they form a Square.