

Assignment - 2

EE23010: Probability and Random Processes Indian Institute of Technology, Hyderabad

Aman Kumar
EE22BTECH11006

Question 1.4.5- Draw the circle with centre at O and radius

$$R = OA \quad (1)$$

Solution: Given,

$$\mathbf{A} = \begin{pmatrix} 1 \\ -1 \end{pmatrix} \quad (2)$$

and

$$\mathbf{O} = \begin{pmatrix} 0 \\ 0 \end{pmatrix} \quad (3)$$

Radius:

$$\mathbf{R} = \sqrt{(\mathbf{A} - \mathbf{O})^T (\mathbf{A} - \mathbf{O})} \quad (4)$$

$$\mathbf{A} - \mathbf{O} = \begin{pmatrix} (1) - (0) \\ (-1) - 0 \end{pmatrix} \quad (5)$$

$$\Rightarrow \mathbf{R} = \sqrt{\begin{pmatrix} 1 & -1 \end{pmatrix} \begin{pmatrix} 1 \\ -1 \end{pmatrix}} \quad (6)$$

$$= 1.41 \quad (7)$$

$\therefore R = 1.41$

This is known as circumradius.

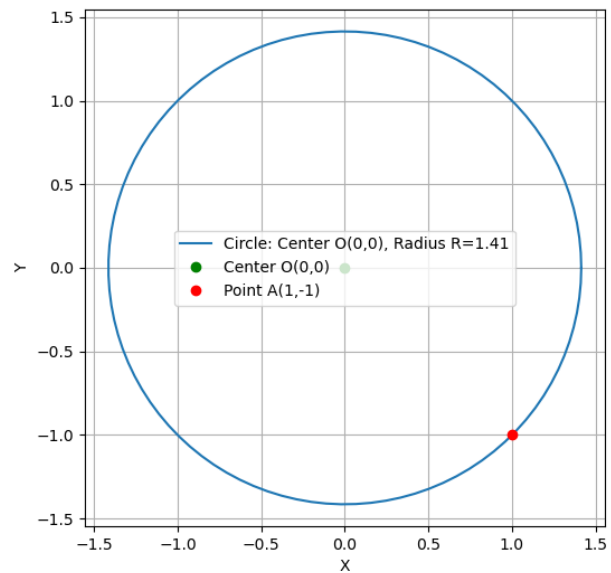


Fig. 0. Figure-1