7.2.17

EE24BTECH11012 - Bhavanisankar G S

QUESTION

Find the area of the circle centred at $\begin{pmatrix}1\\2\end{pmatrix}$ and passing through $\begin{pmatrix}4\\6\end{pmatrix}$ is

1) 5π
2) 10π
3) 25π
4) None of these

SOLUTION

POINTS	CO-ORDINATES
A	$\begin{pmatrix}1\\2\end{pmatrix}$
B	$\begin{pmatrix}4\\6\end{pmatrix}$
distanceAB	$\sqrt{(x_2-x_1)^2+(y_2-y_1)^2}$

TABLE 4: Variables Used

$$\boxed{Eqnofcircle : \|\mathbf{x}\|^2 + 2\mathbf{u}^{\mathbf{T}}x + f = 0}$$

$$Radius = dist(A,B) \tag{4.1}$$
$$= \sqrt{(1-4)^2+(2-6)^2} \tag{4.2}$$
$$= 5 \tag{4.3}$$
$$Area = \pi^* radius^2 \tag{4.4}$$
$$= 25\pi \tag{4.5}$$
$$\tag{4.6}$$

Hence, the area of the given circle is 25π sq.units .

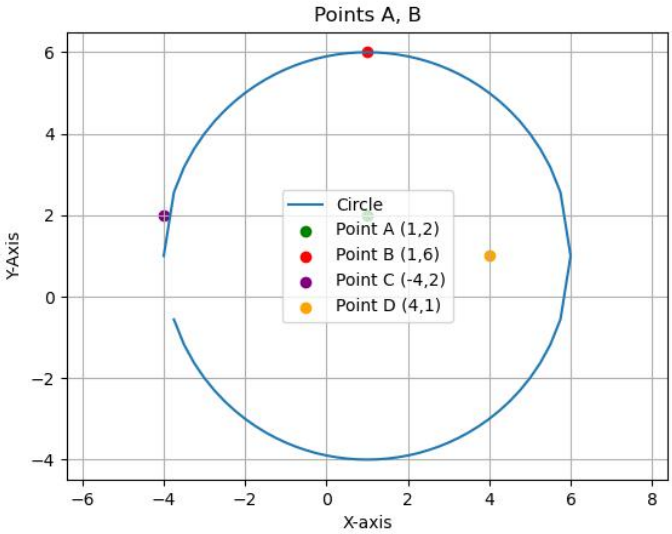

Fig. 4.1: A plot of the given question.