

4.12.8

AI25BTECH11003 - Bhavesh Gaikwad

Question: Distance of the point (α, β, γ) from y-axis is

- a) β
- b) $|\beta|$
- c) $|\beta + \gamma|$
- d) $\sqrt{\alpha^2 + \gamma^2}$

Solution:

Let $\mathbf{A} = \begin{pmatrix} \alpha \\ \beta \\ \gamma \end{pmatrix}$

$$\text{Equation of y-axis: } \mathbf{r} = \mathbf{e}_2 \text{ OR } \mathbf{r} = \begin{pmatrix} 0 \\ 1 \\ 0 \end{pmatrix} \quad (0.1)$$

Let the distance of Point A from the y-axis be 'd'.

$$\text{Distance formula from y-axis of a point} = \sqrt{x^2 + z^2} \quad (0.2)$$

$$\therefore d = \sqrt{\alpha^2 + \gamma^2} \quad (0.3)$$

Therefore, Option D is Correct.

(0.4)

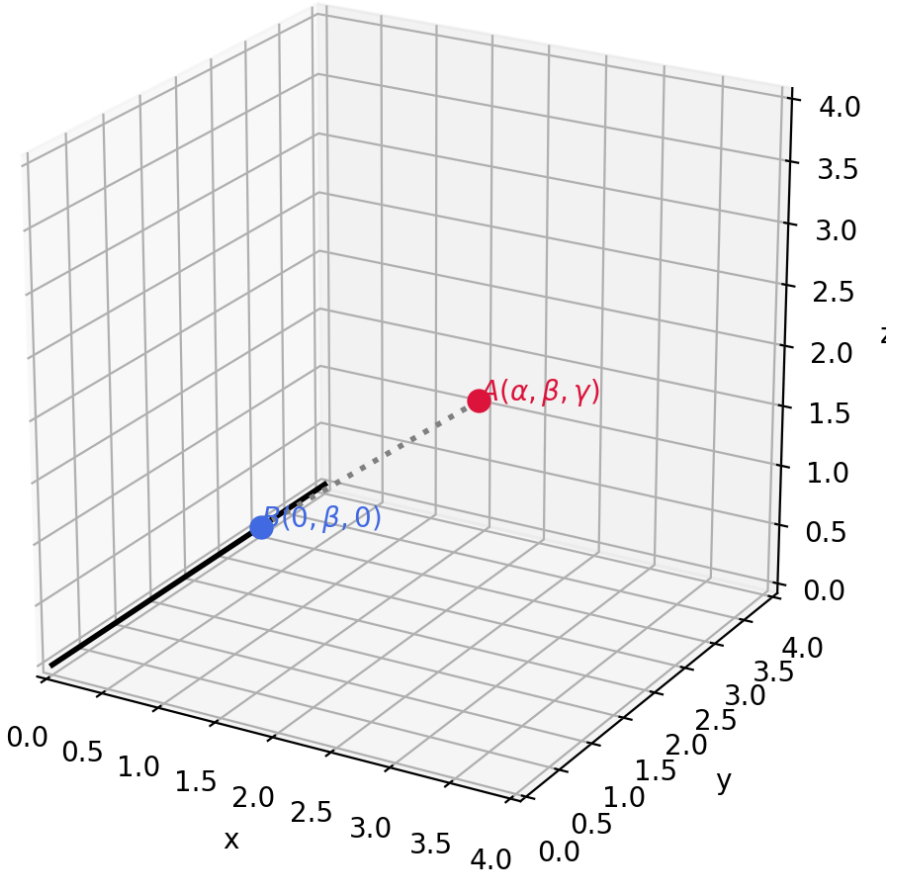


Fig. 0.1: Point **B** is a point on the y -axis which is nearest to point **A**