

Three Dimensional Geometry - Class XII

Past Year JEE Questions

Questions

Question: 01

The equation of a plane containing the line of intersection of the planes $2x - y - 4 = 0$ and $y + 2z - 4 = 0$ and passing through the point $(1, 1, 0)$ is :

- A. $x - 3y - 2z = -2$
- B. $2x - z = 2$
- C. $x - y - z = 0$
- D. $x + 3y + z = 4$

Solutions

Solution: 01

Explanation

The equation of any plane passing through the intersection of the planes $2x - y - 4 = 0$ and $y + 2z - 4 = 0$ is :

$$(2x - y - 4) + \lambda(y + 2z - 4) = 0 \dots\dots(1)$$

As this plane passes through $(1, 1, 0)$ then this point satisfy the equation (1).

$$\therefore (2 - 1 - 4) + \lambda(1 + 0 - 4) = 0$$

$$\Rightarrow \lambda = -1$$

Equation of required plane will be

$$(2x - y - 4) - (y + 2z - 4) = 0$$

$$\Rightarrow 2x - 2y - 2z = 0$$

$$\Rightarrow x - y - z = 0$$