

The distance of the point (1, 0, 2) from the point of intersection of the line $\frac{x-2}{3} = \frac{y+1}{4} = \frac{z-2}{12}$ and the plane $x-y+z=16$, is :

- (1) $3\sqrt{21}$
- (2) 13
- (3) $2\sqrt{14}$
- (4) 8

$$\frac{x-2}{3} = \frac{y+1}{4} = \frac{z-2}{12} = t$$

$$\Rightarrow x = 3t + 2 ; y = 4t - 1 ; z = 12t + 2$$

This will satisfy the plane

$$x - y + z = 16$$

$$\therefore 3t + 2 - 4t + 1 + 12t + 2 = 16$$

$$\Rightarrow t = 1$$

\therefore The point of intersection is (5, 3, 14)

\therefore Distance of this point from (1, 0, 2) is

$$= \sqrt{(5-1)^2 + (3-0)^2 + (14-2)^2} = 13$$

Correct option is (2)