

12. If the angle θ between the line $\frac{x+1}{1} = \frac{y-1}{2} = \frac{z-2}{2}$ and the plane $2x - y + \sqrt{\lambda}z + 4 = 0$ is such of $\sin \theta = 1/3$ the value of λ is

A. $5/3$

B. $-3/5$

C. $3/4$

D. $-4/3$

A. $5/3$

Angle between line and normal to plane is

$$\cos\left(\frac{\pi}{2} - \theta\right) = \frac{2-2 + 2\sqrt{\lambda}}{3 \times \sqrt{5 + \lambda}} \text{ where } \theta \text{ is the angle between line \& plane}$$

$$\Rightarrow \sin \theta = \frac{2\sqrt{\lambda}}{3\sqrt{5 + \lambda}} = \frac{1}{3}$$

$$\lambda = \frac{5}{3}$$