Let a plane P pass through the point (3, 7, −7) and contain the line, $\frac{x-2}{-3} = \frac{y-3}{2} = \frac{z+2}{1}$. If distance of the plane P from the origin is d, then d^2 is equal to _____.

Answer

Correct Answer is **3**

Explanation

$\overrightarrow{BA} = (\hat{i} + 4\hat{j} - 5\hat{k})$

$$\overrightarrow{BA} \times \vec{l} = \vec{n} = \begin{vmatrix} \hat{i} & \hat{j} & \hat{k} \\ -3 & 2 & 1 \\ 1 & 4 & -5 \end{vmatrix}$$

$a\hat{i} + b\hat{j} + c\hat{k} = -14\hat{i} - \hat{j}(14) + \hat{k}(-14)$

a = 1, b = 1, c = 1

Plane is (x − 2) + (y − 3) + (z + 2) = 0

$\Rightarrow$ x + y + z − 3 = 0

$\therefore$ d = $\sqrt{3} \Rightarrow d^2 = 3$