

SAINIK SCHOOL GOPALGANJ

ASSIGNMENT ON CHAPTER-11 (3-D GEOMETRY)

CLASS – XII

1. Find the value of k such that $\frac{x-3}{2} = \frac{y-2}{3} = \frac{z-1}{k}$ and $\frac{x-2}{3} = \frac{y-3}{2} = \frac{z-2}{3}$ lie in the same plane.
2. Find a unit vector perpendicular to both the lines $L_1: \frac{x+1}{3} = \frac{y+2}{1} = \frac{z+1}{2}$ and $L_2: \frac{x-2}{1} = \frac{y+2}{2} = \frac{z-3}{3}$.
3. Find the distance of the plane through (1, 1, 1) and \perp to the line $\frac{x-1}{3} = \frac{y-1}{0} = \frac{z-1}{4}$ from the origin .
4. Find the equation of the plane containing the two lines $\frac{x-1}{2} = \frac{y+2}{-1} = \frac{z}{3}$ and $\frac{x}{2} = \frac{y-2}{-1} = \frac{z+1}{-3}$
5. Find the equation of the plane through the intersection of planes $x + y + z - 6 = 0$, $2x + 3y + 4z + 5 = 0$ and the point (1, 1, 1) .
6. Find the angle between the line $\vec{r} = (\hat{i} + 2\hat{j} - \hat{k}) + \lambda(\hat{i} - \hat{j} + \hat{k})$ and the plane $\vec{r} \cdot (2\hat{i} - \hat{j} + \hat{k}) = 4$
7. Find the shortest distance between lines $\frac{x-1}{2} = \frac{y+2}{-1} = \frac{z}{3}$ and $\frac{x}{2} = \frac{y-2}{-1} = \frac{z+1}{-3}$
8. Find the image of point (1, 0, -1) in the plane $2x + 3y - z = 5$.
9. Find the vector equation of line passing through (1, 2, -4) and perpendicular to $\frac{x+1}{3} = \frac{y+2}{1} = \frac{z+1}{2}$ and $L_2: \frac{x-2}{1} = \frac{y+2}{2} = \frac{z-3}{3}$.
10. Find the equation of plane passing through the point (3, 2, 0) and containing the line $\frac{x-3}{1} = \frac{y-6}{5} = \frac{z-4}{4}$.