INDIAN SCHOOL NIZWA - WORKSHEET

SUBJECT: MATHEMATICS
CH-11 3D Geometry

Name: _____ Date: _____ Class: Sec: ___

1. Find the coordinates of the point where the line through A(5,1,6) and B(3,4,1) crosses yz plane.
2. Find the coordinate of the point whose line through A(3,4,1) and B(5,1,6) cross xz plane. Also find angle between line and xz plane.
3. Find the point of intersection of lines
   $\vec{r} = 3\hat{\imath} + 2\hat{\jmath} - 4\hat{k} + \lambda(\hat{\imath} + 2\hat{\jmath} + 2\hat{k})$ and
   $$\vec{r} = 5\hat{\imath} - 2\hat{\jmath} + \mu(3\hat{\imath} + 2\hat{\jmath} + 6\hat{k})$$
4. Find the point of intersection of lines
   $\frac{x+1}{3} = \frac{y+3}{5} = \frac{z+5}{7}$ and
   $$\frac{x-2}{1} = \frac{y+1}{3} = \frac{z-6}{5}$$
5. If the x-coordinate of the point P on the join of Q(2,2,1) and R(5,1,-2) is 4. Find y and z coordinates.
6. Find the point on the line $\frac{x+2}{3} = \frac{y+1}{2} = \frac{z-3}{2}$ at a distance $3\sqrt{2}$ from the point (1,2,3).
7. Find the point on the line $\frac{x+2}{3} = \frac{y+1}{2} = \frac{z-3}{2}$ at a distance 5 from the point (1,3,3).
8. Find the distance between (1,0,0) and the line $\frac{x-1}{2} = \frac{y+1}{-3} = \frac{z+10}{8}$
9. A line passing through the point A with p.v $\mathbf{a} = 4\mathbf{i} + 2\mathbf{j} + 2\mathbf{k}$ is parallel to the vector $\mathbf{b} = 2\mathbf{i} + 3\mathbf{j} + 6\mathbf{k}$. Find length of $\perp$ line from a point with p.v $\mathbf{i} + 2\mathbf{j} + 3\mathbf{k}$.
10. Find the coordinate of foot of $\perp$ and length of $\perp$ from P(5,4,2) to the line

    $\vec{r} = -\mathbf{i} + 3\mathbf{j} + \mathbf{k} + \lambda(2\mathbf{i} + 3\mathbf{j} - \mathbf{k})$.
    Also find the image of P in the line.

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11. Find the coord. of foot of the $\perp$ and length of the $\perp$ from P(3,0,1) to the line
    $\vec{r} = \mathbf{i} - 2\mathbf{j} + 3\mathbf{k} + \lambda(2\mathbf{i} + 2\mathbf{j} - \mathbf{k})$.

    Also find the image of P on the line.