

Name: _____

1. Find a vector equation, symmetric equations, and parametric equations for the line through the point $(6, -5, 2)$ and parallel to the vector $\langle 1, 3, -2/3 \rangle$.
2. Find a vector equation, symmetric equations, and parametric equations for the line through the point $(0, 14, -10)$ and parallel to the line $x = -1 + 2t, y = 6 - 3t, z = 3 + 9t$.
3. Find a vector equation, symmetric equations, and parametric equations for the line through $(2, 1, 0)$ and perpendicular to both $\mathbf{i} + \mathbf{j}$ and $\mathbf{j} + \mathbf{k}$.
4. Find parametric equations and symmetric equations for the line segment from $(6, 1, -3)$ to $(2, 4, 5)$.

5. Determine whether the lines L_1 and L_2 are parallel, skew, or intersecting. If they intersect, find the point of intersection.

$$L_1: x = -10 - 6t, y = 17 + 9t, z = 8 + 2t$$

$$L_2: x = -7 + 3s, y = -4 + s, z = 10 - 2s$$