1. Find the parametric and symmetric equation of the line.
   (a) The line through the origin and the point (1, 2, 3).
   (b) The line through the point (2, 1, 0) and (0, -1, 3).

2. Are the lines parallel, intersecting, or skew lines?
   (a) \( L_1: x = -1 + 2t, y = 6 - 3t, z = 3 + 9t. \)
       \( L_2: x = 3 + 2s, y = 4 - s, z = 3. \)
   (b) \( L_1: x = 1 + 2t, y = -2 + 3t, z = 4 - t. \)
       \( L_2: x = 2s, y = 3 + s, z = -3 + 4s. \)
   (c) \( L_1: x = 1 + 4t, y = -3t, z = 9 - 8t. \)
       \( L_2: x = 4s, y = 361 - 3s, z = 1 - 8s. \)

3. Find the equation of the plane.
   (a) The plane through the origin and perpendicular to the vector (1, -2, 5).
   (b) The plane through the point (1, -1, -1) and parallel to the plane \( 5x - y - z = 6. \)
   (c) The plane through the points (0, 1, 1), (1, 0, 1), and (1, 1, 0).

4. (a) Find the point at which the given lines intersect:
    \( \mathbf{r} = (1, 1, 0) + t(1, -1, 2) \)
    \( \mathbf{r} = (2, 0, 2) + s(-1, 1, 0). \)
   (b) Find an equation of the plane that contains these lines.