Math 122 - #32
Lines

1. Find the parametric equations for the line through $(3, 2, 4)$ with direction vector $\vec{v} = \langle 7, 8, -3 \rangle$

2. Find the intersection of

$$x = 4 + 2t, \qquad y = 2 - t, \qquad z = 1 + t$$

with the xy-plane, yz-plane, and the xz-plane.

3. Determine if the two lines:

$$L_1 : x = 4t - 1, \qquad y = t + 3, \qquad z = 1$$

$$L_2 : x = -13 + 12t, \qquad y = 1 + 6t, \qquad z = 2 + 3t$$

are parallel, intersect or are skew.

4. Determine if the two lines:

$$L_1 : x = 1 + 2t, \qquad y = 2 - t, \qquad z = 4 - 2t$$

$$L_2 1 : x = 9 + t, \qquad y = 5 + 3t, \qquad z = -4 - t$$

are parallel, intersect or are skew.

Answers

1. $\quad x = 3 + 7t \qquad y = 2 + 8t \qquad z = 4 - 3t$

2. $\quad xy$-plane at (2, 3, 0), yz-plane at (0, 4, -1), and the xz-plane at (8, 0, 3).

3. intersect at the point (-17, -1, 1).

4. intersect at the point $(7, -1, -2)$