LINES AND PLANES WORKSHEET

APRIL 24, 2019

1. Find the distance d from the point $M = (0, 3, -3)$ to the line L with equation
$$\vec{r} = \langle 1, -2, 4 \rangle + t \langle 1, 3, -1 \rangle.$$
using the formula $d = \dfrac{\left\| \vec{PM} \times \vec{v} \right\|}{\|\vec{v}\|}.$

2. Consider the lines

$$L_1 : x = 1 + t \qquad y = -2 + 3t \qquad z = 4 - t$$
$$L_2 : x = 2s \qquad y = 3 + s \qquad z = -3 + 4s.$$

Determine whether the lines are equal, parallel, intersect, or are skew.

3. Find the equation of the plane that passes through the point $(1, 2, 3)$ and contains the line $x = 3t$, $y = 1 + t$, $z = 2 - t$.

4. Find the distance from the point $(1, -2, 4)$ to the plane $3x + 2y + 6z = 5$.