Quiz 5

1. direction is $\bar{v} = \langle 3, -2, 2 \rangle$, so

$$x = 1 + 3t$$
$$y = 1 - 2t$$
$$z = 2 + 2t$$

$$\left(\text{or} \quad \begin{array}{l} x = 4 + 3t \\ y = -1 - 2t \\ z = 4 + 2t \end{array} \right)$$

2.
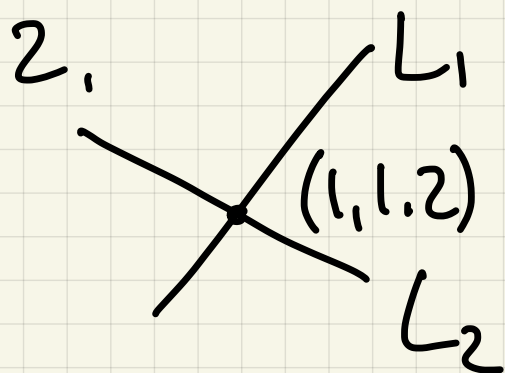
$$\bar{n} = \langle 3, -2, 2 \rangle \times \langle 4, 5, 1 \rangle =$$

$$\begin{vmatrix} i & j & k \\ 3 & -2 & 2 \\ 4 & 5 & 1 \end{vmatrix} =$$

$$\langle -12, 5, 23 \rangle \Rightarrow$$

$$-12(x-1) + 5(y-1) + 23(z-2) = 0 \Rightarrow$$
$$-12x + 5y + 23z = 39$$

3. normal vector for P_2 is $\langle 0, 0, 1 \rangle$,

So $\quad \cos\theta = \left| \dfrac{\langle -12, 5, 23 \rangle \cdot \langle 0, 0, 1 \rangle}{\sqrt{\langle -12, 5, 23 \rangle} \cdot 1} \right| =$

$$\frac{23}{\sqrt{144 + 25 + 529}} = \frac{23}{\sqrt{698}}$$