1. Find the exact angle between the vectors $a = \mathbf{i} - \mathbf{j}$ and $b = < -1, 2, 2 >$. 

2. Find a vector which is orthogonal to $c = 2\mathbf{i} + 2\mathbf{j} - \mathbf{k}$ and the line $L: \frac{x - 1}{1} = \frac{y - 2}{3} = \frac{z + 1}{4}$. 

3. Given the line $L: \mathbf{r} = < -1, -2, 5 > + t < 4, -2, 3 >$, write L in parametric form and symmetric form.