Quiz 1

1) For which value of parameter a the vectors $\vec{u} = \langle 1, a, 2 \rangle$ and $\vec{v} = \langle a, 4, 4 \rangle$ are orthogonal?

(6 points)

2) Determine whether points $(1, -5, 2)$, $(-1, -3, 3)$ and $(-3, -1, 5)$ lie on the same line or not?

(6 points)

3) Find the plane perpendicular to the planes $x + y - z = 1$ and $2x - 3y + 4z = 5$ passing through the point $P = (1, 0, -2)$.

(8 points)