Name: **Tutorial day and time:**

Number of the *completed* problem you want feedback on:

1. Find the area of the triangle with vertices $P = (2, 0, -1)$, $Q = (-3, 4, 2)$, and $R = (0, -3, 1)$.

2. Find the point of intersection (if any) of the line $\langle x, y, z\rangle = \langle 1, -2, 3\rangle + t\langle 3, 5, -1\rangle$ with the plane $x - 2y + 3z = -6$

3. Find the shortest distance from the point $P = (1, 3, -2)$ to the line through the point $P_0 = (2, 0, -1)$ in the direction of $\vec{v} = \langle 1, -1, 0 \rangle$. Also find the point P_1 on the line that is closest to P. **Include a diagram.**

4. Find the shortest distance from the point $P = (2, 8, 5)$ to the plane given by the equation $x - 2y - 2z = 1$. Also find the point P_1 on the plane that is closest to P.
Hint: Begin by finding any point P_0 that lies on the plane. **Include a diagram.**