Student number: _____
Surname: _____
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This assignment consists of TWO pages. Show your solutions.

1. Let $\vec{u} = (1, 0, 3)$, $\vec{v} = (2, -1, 0)$ and $\vec{w} = (2, 0, -2)$. Calculate the following:
   (a) $(\vec{u} \times \vec{v}) \times \vec{w}$

   (b) $(\vec{w} \times \vec{v}) + \vec{u}$

   (c) $\vec{u} \cdot \vec{w} + \|\vec{v}\|$

   (d) $\text{proj}_{\vec{v}}\vec{u}$ (projection of $\vec{u}$ onto $\vec{v}$)

   (e) The volume of the parallelepiped determined by the vectors $\vec{u}$, $\vec{v}$ and $\vec{w}$.

2. Find the parametric equations of the line of intersection of the planes $x + 2y + z = 1$ and $x + y + 5z = 3$.

3. Find the distance between the point $P(1, 2, 3)$ and the plane $x + 2y + 2z = 0$.