1. (8 points) Let $\mathbf{u} = \langle 1, 1, -1 \rangle$, $\mathbf{v} = \langle 2, -3, 5 \rangle$, $\mathbf{w} = \langle 3, 0, 1 \rangle$.
   Find $\mathbf{u} \cdot (\mathbf{v} \times \mathbf{w})$.

   Answer. $\mathbf{v} \times \mathbf{w} = \langle -3, 13, 9 \rangle$, and $\mathbf{u} \cdot \langle -3, 13, 9 \rangle = 1$ □

   Answer: 1

2. (1 point) True or false: If $\mathbf{u}$ and $\mathbf{v}$ are orthogonal, then $\mathrm{proj}_{\mathbf{u}} \mathbf{v} = 0$

   Answer: True

3. (1 point) True or false: For any vector $\mathbf{u}$, $\mathbf{u} \times \mathbf{u} = 0$.

   Answer: True