Name: Let $\mathbf{v} = (1, 2, -2)$ and $\mathbf{w} = (-1, 0, 3)$.

1. Compute the projection of \mathbf{v} along \mathbf{w} .

2. Compute the component of ${\bf v}$ orthogonal to ${\bf w}.$

3. Compute the projection of \mathbf{w} along \mathbf{v} .