

1. Compute the scalar triple product of $\underline{u} = \begin{pmatrix} -1 \\ 2 \\ 1 \end{pmatrix}$, $\underline{v} = \begin{pmatrix} 1 \\ 0 \\ 4 \end{pmatrix}$, $\underline{w} = \begin{pmatrix} 2 \\ -1 \\ -1 \end{pmatrix}$ using a determinant.

2. Construct $D\underline{f}$ for the function $\underline{f} = \begin{pmatrix} x \sin(y) \\ xy^2 \\ 3xy \end{pmatrix}$.