Additional Problems

1. Consider the vectors

\[ \vec{v} = \begin{bmatrix} 1 \\ 2 \\ 4 \end{bmatrix} \quad \text{and} \quad \vec{w} = \begin{bmatrix} 3 \\ -5 \\ 7 \end{bmatrix} \]

Compute the inner product \( \vec{v}^T \vec{w} \) and the outer product \( \vec{v} \vec{w}^T \). Is the outer product commutative? How are \( \vec{v} \vec{w}^T \) and \( \vec{w} \vec{v}^T \) related?