Exercises from Strang  Page 8 2,3,5-9,13,28,31; Page 20 18,19,22,29,31;

Additional Problems

1. Consider the vectors

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

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