

Name:

Problem 1: *Perform the indicated vector operation:*

$$7 \begin{pmatrix} 2 \\ 1 \end{pmatrix} + 9 \begin{pmatrix} 3 \\ 5 \end{pmatrix}.$$

Solution: We start by performing the two scalar multiplications:

$$7 \begin{pmatrix} 2 \\ 1 \end{pmatrix} + 9 \begin{pmatrix} 3 \\ 5 \end{pmatrix} = \begin{pmatrix} 14 \\ 7 \end{pmatrix} + \begin{pmatrix} 27 \\ 45 \end{pmatrix}.$$

Then we do the vector addition:

$$\begin{pmatrix} 14 \\ 7 \end{pmatrix} + \begin{pmatrix} 27 \\ 45 \end{pmatrix} = \begin{pmatrix} 41 \\ 52 \end{pmatrix}.$$

Therefore

$$7 \begin{pmatrix} 2 \\ 1 \end{pmatrix} + 9 \begin{pmatrix} 3 \\ 5 \end{pmatrix} = \begin{pmatrix} 41 \\ 52 \end{pmatrix}.$$