Name: _____ **ESMI Applied Math**
Due: 06/07 **Worksheet 1**

Problem 1. Let $u = \begin{bmatrix} 1 \\ 0 \end{bmatrix}$ and $v = \begin{bmatrix} 0 \\ 1 \end{bmatrix}$. Compute and plot the following:

(a) $u + v$

(b) $3u + v$

Problem 2. If matrix A is of size 2×7 and matrix B is of size 3×2, what is the size of the matrix-matrix multiplication $A \cdot B$? What is the size of matrix-matrix multiplication $B \cdot A$? Is one of these impossible to compute?

Problem 3. Let $A = \begin{bmatrix} 3 & 2 \\ 2 & 5 \end{bmatrix}$ and $B = \begin{bmatrix} 1/2 & -1 \\ 0 & 3 \end{bmatrix}$. Compute the following:

(a) $A + B$

(b) $3B$

Problem 4. Draw two networks different from the ones presented in class. You have free range with this problem but make sure that each of the nodes have a physical meaning (i.e. each of the nodes should be a different person/animal/city/etc.) and the edges correspond to connections between those nodes. If you are not sure what to draw, try drawing a network with some of the biggest airports in the US as the nodes and figure out what appropriate edges could correspond to.