## ASSIGNMENT 1

### Due September 5, 2024 at 5pm

Please complete the following steps in MATLAB:

1. Create a script called " LastName-Lab-1" ( insert your name please! For example I would have to write Anastasiadis-Lab-1 ). When you complete your homework (you must execute all the sections in the script), save this script and export it as a pdf file. Then submit this pdf file on Blackboard.

2. Define two column vectors: $\vec{u} = (1, 2, 2)$ and $\vec{v} = (1, 2, 5)$.

3. Calculate the linear combination $3\vec{u} - \vec{v}$.

4. Calculate the angle $\theta$ (name it 'theta' ) between the vectors $\vec{u}$ and $\vec{v}$.

5. Define two specific 3 by 3 matrices A,B ( you are the one who chooses the entries (numbers) of the two matrices).

6. Calculate $A - 2B, A * B, \frac{A^T + B}{2}$ where $A^T$ is the transpose of the matrix A.

7. Define the vectors $\vec{x} = (1, 3, 2, 3), \vec{y} = (4, 1, 0, 5), \vec{z} = (4, 1, 1, 1)$

8. Recall that given 2 vectors $u$ and $v$ of the same dimension

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>>plot(u,v,'b*')
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will plot the ordered pairs $(x(1), y(1)), (x(2), y(2)), \ldots, (x(n), y(n))$ in blue, with a * for each point.

Plot the ordered pairs (x,y) , (z,x), (z,y) on the same graph, being sure to use a different color and style for each ( you can use "help plot" to see the options.

9. Add a title for your plot, add legends for all 3 pairs and add legends for the two axes . You are the one who chooses all the names ( doesn't matter what names you choose).

10. Run all the sections , save your script, export it as a pdf with the appropriate name and submit it on Blackboard.