Homework 1 – Part 1

NOTE: This is the part of the homework you will do outside of Matlab. You will turn your work in at the beginning of class, Tuesday October 14th.

Addressing array elements

1) What is V(5) in row vector V = $[-3 \quad 0 \quad 6 \quad 1 \quad -2]$?

2) What is M(2,3) in the matrix M = $\begin{bmatrix} 4 & 3 \\ 9 & 1 \\ 0 & 7 \end{bmatrix}$?

3) What is M(3,2)?

Matrix operations

Circle true or false for the following questions.

4) True or False? You can only multiply a scalar and a square matrix.

5) True or False? The product matrix A and matrix B always has dimensions equal to either A or B.

6) True or False? When multiplying two matrices, the dimensions of the two matrices must be equal.

7) True or False? When adding two matrices, the dimensions of the two matrices must be equal.

Matrices: A,B,C, and D and Scalars: s and t are used in the following exercises.

A = $\begin{bmatrix} 6 & 2 & 10 & 0 \\ 3 & -1 & 6 & 14 \\ 5 & 18 & 3 & 0.2 \end{bmatrix}$ B = $\begin{bmatrix} 1 \\ 0 \\ 1 \\ 0 \end{bmatrix}$ C = $\begin{bmatrix} 4 & 8 \\ 1 & 2 \\ 9 & 7 \\ 2 & 6 \end{bmatrix}$ D = $\begin{bmatrix} 2 & 2 & 2 & 0 \\ 3 & 3 & 0 & 3 \\ 0 & 1 & 1 & 1 \end{bmatrix}$ s = 3 t = 0.5

Compute the answers to the following expressions or indicate that there is no answer.

*+ means addition, * means multiplication, •* means element-by-element multiplication.*

8) A + B

9) $A + D$

10) A - D

11) B + C

12) $A * B$

13) B * A

14) $A * C$

15) C * A

16) C * D

17) D * C

18) D * B

19) A .* D

20) (t + s) * C

21) (t * C) + (s * C)

22) s * (A + D)

23) (s * A) + (s * D)