Assignment 1

1. (10 points)
Enter a matrix

\[
A = \begin{bmatrix}
1 & 2 & 3 \\
4 & 5 & 6 \\
7 & 8 & 9
\end{bmatrix}
\]

into MATLAB prompt. Type \( A(A) \). Explain the answer.

2. (30 points) Write two MATLAB functions, one that uses three for loops and the other that uses two for loops, to compute a product of two arbitrary \( n \)-by-\( m \) and \( m \)-by-\( k \) matrices. Using tic-toc compare the time it takes to compute the product of two random matrix of sizes 1000-by-1500 and 1500-by-2000 with your functions and with MATLAB * function.

3. (10 points) What does each of these programs do? How many lines of output does each program produce? What are the last two values of \( x \) printed?

\[
x = 1; \text{while } 1+x > 1, \ x = x/2, \ \text{pause(.02)}, \ \text{end}
\]
\[
x = 1; \text{while } x+x > x, \ x = 2*x, \ \text{pause(.02)}, \ \text{end}
\]
\[
x = 1; \text{while } x+x > x, \ x = x/2, \ \text{pause(.02)}, \ \text{end}
\]