1. Given the following array \( a \),

\[
\begin{array}{cccc}
3 & 7 & 6 & 4 \\
9 & 4 & 10 & 2 \\
1 & 8 & 3 & 5 \\
\end{array}
\]

determine the result of each of the following commands.

\[
\begin{align*}
&\text{>> } a(4, 3) \\
&\text{>> } a(3, 1) \\
&\text{>> } a(0, 2) \\
&\text{>> } a(5) \\
&\text{>> } a' \\
&\text{>> } a([2 \ 3], [3 \ 4]) \\
&\text{>> } a([2 \ 1], [2 \ 3]) \\
&\text{>> } a(3:-1:1, 4:-1:1) \\
&\text{>> } a([2 \ 2], :) \\
&\text{>> } a(\text{end}, 2) \\
&\text{>> } \text{max}(a) \\
&\text{>> } a(:) \\
&\text{>> } b = a; b([1 \ 3],[2 \ 4]) = [-1 \ -2; \ -3 \ -4]; b \\
&\text{>> } b = a; b(:,2) = []; b \\
&\text{>> } a > 5
\end{align*}
\]

2. Given the following vector \( a \),

\[
\begin{array}{cccc}
3 & 7 & 6 & 4 & 9 \\
\end{array}
\]

determine the result of each of the following commands.

\[
\begin{align*}
&\text{>> } a(3) \\
&\text{>> } a(1,3)
\end{align*}
\]
3. What is the result of the following commands?

```matlab
>> a = [2 1 3];
>> b = [-1 -2 -3];
>> conv(a,b)
```

4. Write a MATLAB code fragment to generate the following figure, including axis labels, and title.

```matlab
>> a = [2 1 3];
>> b = [-1 -2 -3];
>> conv(a,b)
```

5. Write a MATLAB code fragment to generate the following figure, including axis labels, and title.
6. Suppose a system is implemented with the difference equation:

\[ y(n) = x(n) + 2 x(n - 1) + 1.5 x(n - 2) - 0.95 y(n - 1) - 0.1 y(n - 2) \]

Write your own Matlab function, mydiffeq, to implement this difference equation using a for loop. If the input signal is \(N\)-samples long \((0 \leq n \leq N - 1)\), your program should find the first \(N\) sample of the output \(y(n)\) \((0 \leq n \leq N - 1)\).

Use the initial conditions,

\[
\begin{align*}
x(-1) &= 1.1, & x(-2) &= 0.5 \\
y(-1) &= 0 - 0.3, & y(-2) &= 0.2
\end{align*}
\]