Some MATLAB commands on this quiz may produce errors. For those cases, please state that.

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

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

determine the result of each of the following commands.

- \( a(1, 3) \)
- \( a(0, 0) \)
- \( a(2,:,:) \)
- \( a(1) \)
- \( a(end) \)
- \( a(2, 1:2:end) \)
- \( a([2 1], 1:3) \)
- \( a([2 3], [1 4]) \)
- \( a(end:-1:1, end:-1:1) \)
- \( \text{sum}(a) \)
- \( \text{max}(a(:)) \)
- \( b = a; b(2,:) = []; b \)

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

\[
a = \\
\begin{bmatrix}
1 & 2 & 3 & -1 \\
\end{bmatrix}
\]
determine the result of each of the following commands.

- \( \text{length}(a) \)
- \( \text{size}(a) \)
- \( a(1,2) \)
- \( a(2,1) \)
- \( a' \)
- \( a * a \)
- \( a * a' \)
- \( a .* a \)
- \( a.^2 \)
- \( [a; a] \)
- \( [a; a'] \)
- \( \text{abs}(a) \)
- \( [M, k] = \text{min}(a) \)
- \( a > 1 \)
- \( \text{find}(a > 1) \)
- \( a(a > 1) \)
3. Sketch each graph produced by the following code fragment. Indicate the horizontal coordinates in your sketch.

\[
\begin{align*}
\text{n} & = [0 \ 1 \ 2 \ 4 \ 8]; \\
\text{x} & = [2 \ 3 \ 1 \ 4 \ 0]; \\
\text{plot}(x) \\
\text{plot}(x, 'o') \\
\text{plot}(n, x) \\
\text{plot}(n, x, 'o') \\
\text{plot}(n, x, n, -x)
\end{align*}
\]

4. Write a MATLAB function called myfun.m that has two inputs, \(x\) (vector) and \(a\) (scalar), and one output, \(y\) (vector). The output \(y\) should be the same size as \(x\) and defined as

\[
y(n) = \begin{cases} 
1, & x(n) > a \\
0, & x(n) = a \\
-1, & x(n) < a
\end{cases}
\]

For example:

\[
\text{myfun}([0.2 \ 0.9 \ 0.6 \ -0.1 \ 1.2], 0.6)
\]

\[
\text{ans} =
\]

\[
\begin{array}{cccccc}
-1 & 1 & 0 & -1 & 1 \\
\end{array}
\]

Your program should not use any `for` or `while` loops and it should not use any `if` statements. Your program need not do any error checking. For full credit, write the correct syntax for a MATLAB function (the full contents of the .m file).