

Full Name:

Group:

Exercise 1 (10 pts)

Choose the correct answer by circling the appropriate letter.

1. What does the command `length([5 6 7 8])` return?
a) 3
b) 4
c) 5
2. Which of the following commands will generate a 2×2 matrix of zeros?
a) `zeros(2)`
b) `zeros(2,2)`
c) Both
3. What does `A(2,3)` refer to in a matrix `A`?
a) Row 2, Column 3
b) Column 2, Row 3
c) Element 2 of column 3
4. How do you write a comment in MATLAB?
a) `//`
b) `#`
c) `%`
5. What is the output of `mod(7,3)`?
a) 1
b) 2
c) 3
6. Which of the following creates a row vector with values from 1 to 5?
a) `1:5`
b) `[1 2 3 4 5]`
c) Both
7. What does the function `rand(3)` return?
a) A 3×3 matrix of ones
b) A 3×3 matrix of zeros
c) A 3×3 matrix of random values between 0 and 1
8. Which command is used to clear all variables from the workspace?
a) `clear all`
b) `clc`
c) `close all`
9. What is the result of `sum([1 2 3 4])`?
a) 10
b) 24
c) 0
10. Which command displays a graph of $y = x^2$ for x from -10 to 10?
a) `plot(x^2)`
b) `plot(x,x.^2)`
c) `plot(x=x^2)`

Exercise 2 (10 pts)

1. Write a program in MATLAB called `is_even` that takes one input `x` and returns `true` if the number is even, otherwise returns `false`.
2. Write a program in MATLAB to sum the elements of the **main diagonal** of a square matrix `A[n,n]`.

Best of luck!

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Exercise 1 (10 pts)

- [illegible]

Exercise 2 (10 pts)

1. Check if a number is even (5 pts)

```
x = input('Enter a number: ');
if mod(x,2) == 0
    disp('The number is even');
else
    disp('The number is odd');
end
```

2. Sum of the main diagonal of a matrix (5 pts)

```
n = input('Enter the size of the matrix: ');
A = zeros(n);
for i = 1:n
    for j = 1:n
        A(i,j) = input(['Enter element A(',num2str(i),',',num2str(j),'): ']);
    end
end
s = 0;
for i = 1:n
    s = s + A(i,i);
end
disp(['Sum of the main diagonal is: ', num2str(s)]);
```