

# hmwrk.R

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```
# Define matrices A and B
A <- matrix(c(2, 0, 1, 3), ncol = 2)
B <- matrix(c(5, 2, 4, -1), ncol = 2)
```

```
# Matrix addition
A_plus_B <- A + B
print("Matrix Addition:")
```

```
## [1] "Matrix Addition:"
```

```
print(A_plus_B)
```

```
##      [,1] [,2]
## [1,]    7    5
## [2,]    2    2
```

```
# Matrix subtraction
A_minus_B <- A - B
print("Matrix Subtraction:")
```

```
## [1] "Matrix Subtraction:"
```

```
print(A_minus_B)
```

```
##      [,1] [,2]
## [1,]   -3   -3
## [2,]   -2    4
```

```
# Create a diagonal matrix with values 4, 1, 2, 3
diagonal_matrix <- diag(c(4, 1, 2, 3))
print("Diagonal Matrix:")
```

```
## [1] "Diagonal Matrix:"
```

```
print(diagonal_matrix)
```

```
##      [,1] [,2] [,3] [,4]
## [1,]    4    0    0    0
## [2,]    0    1    0    0
## [3,]    0    0    2    0
## [4,]    0    0    0    3
```

```
# Generate the matrix
generated_matrix <- diag(3, 5) # Create a diagonal matrix with 3s

# Fill the upper diagonal
generated_matrix[upper.tri(generated_matrix)] <- 1

# Fill the lower diagonal
generated_matrix[lower.tri(generated_matrix)] <- 2

# Print the result
print(generated_matrix)
```

```
##      [,1] [,2] [,3] [,4] [,5]
## [1,]    3    1    1    1    1
## [2,]    2    3    1    1    1
## [3,]    2    2    3    1    1
## [4,]    2    2    2    3    1
## [5,]    2    2    2    2    3
```