

>

```
1 matrix_a <- matrix(1:9, nrow=3, ncol=3)
2 matrix_b <- matrix(9:1, nrow=3, ncol=3)
3 matrix_add <- matrix_a + matrix_b
4 matrix_sub <- matrix_a - matrix_b
5 matrix_mul_elementwise <- matrix_a * matrix_b
6 matrix_mul_matrix <- matrix_a %*% matrix_b
7 print("Matrix A:")
8 print(matrix_a)
9 print("Matrix B:")
10 print(matrix_b)
11 print("Addition of matrices:")
12 print(matrix_add)
13 print("Subtraction of matrices:")
14 print(matrix_sub)
15 print("Element-wise multiplication of matrices:")
16 print(matrix_mul_elementwise)
17 print("Matrix multiplication of matrices:")
18 print(matrix_mul_matrix)
19 det_a <- det(matrix_a)
20 print("Determinant of Matrix A:")
21 print(det_a)
22 if (det_a != 0) {
23   print("Matrix A is invertible.")
24 } else {
25   print("Matrix A is not invertible.")
26 }
27
```

> source("C:/active/130410 document /

[1] "Matrix A:"

 [,1] [,2] [,3]

[1,] 1 4 7

[2,] 2 5 8

[3,] 3 6 9

[1] "Matrix B:"

 [,1] [,2] [,3]

[1,] 9 6 3

[2,] 8 5 2

[3,] 7 4 1

[1] "Addition of matrices:"

 [,1] [,2] [,3]

[1,] 10 10 10

[2,] 10 10 10

[3,] 10 10 10

[1] "Subtraction of matrices:"

 [,1] [,2] [,3]

[1,] -8 -2 4

[2,] -6 0 6

[3,] -4 2 8

[1] "Element-wise multiplication of matrices:"

 [,1] [,2] [,3]

[1,] 9 24 21

[2,] 16 25 16

[3,] 21 24 9

[1] "Matrix multiplication of matrices:"

 [,1] [,2] [,3]

[1,] 90 54 18

[2,] 114 69 24

[3,] 138 84 30

[1] "Determinant of Matrix A:"

[1] 0

[1] "Matrix A is not invertible."

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```
1 df <- data.frame(A = 1:3, B = 4:6, C = 7:9)
2 matrix_from_df <- as.matrix(df)
3 print("Matrix from Data Frame:")
4 print(matrix_from_df)
5 transpose_matrix <- function(mat) {
6   t(mat)
7 }
8 transposed_matrix <- transpose_matrix(matrix_from_df)
9 print("Transposed Matrix:")
10 print(transposed_matrix)
11
```

7:2 (Top Level) ↕

> source("~/active-rstudio-document")

[1] "Matrix from Data Frame:"

	A	B	C
[1,]	1	4	7
[2,]	2	5	8
[3,]	3	6	9

[1] "Transposed Matrix:"

	[,1]	[,2]	[,3]
A	1	2	3
B	4	5	6
C	7	8	9

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```
1 random_numbers <- runif(10)
2 print("Random Numbers from Uniform Distribution:")
3 print(random_numbers)
4 |
```

4:1 (Top Level) ↕

> source("~/active-rstudio-document")

[1] "Random Numbers from Uniform Distribution:"

[1] 0.16649957 0.07135597 0.15011191 0.18681975 0.21483195 0.88541156 0.01235640 0.45715219 0.30641317 0.79683133

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