1. Explain why the outputs of the two lines are different

The first output is numeric variables, the second output is a string of characters because it has “ “.

1. Is c\_1 a variable, or a function?

Variable, using the combine function c()

1. Is c\_2 a variable, or a function?

Variable, we are assigning the character in “” using the combine function.

1. If c\_1 and c\_2 have different values, why?

They are different because “ “ makes c\_2 a character, and without them it is numeric.

1. What are the dimensions of the matrix (i.e. how many rows and columns)

3 rows, 1 column

1. Write R code to retrieve the element of mat\_1 that has a value of 3.

Q6 <- mat\_1 [3,1]

1. Paste the code you used to create mat\_2

-mat\_2= matrix(my\_vec, nrow= 2, ncol=3)

1. Paste the code you used to create mat\_3

-mat\_3= matrix(my\_vec, nrow= 3, ncol=2)

1. Did R use rows or columns to recycle the values in my\_vec?

Columns

1. Create a matrix, mat\_4, with a number of elements that is not a multiple of 3 and paste the code into the editor

mat\_4 = matrix(my\_vec, nrow = 4, ncol = 4)

1. How did R handle the recycling of values of my\_vec in mat\_4?

I receive the Warning message:

In: mat\_4 data length [3] is not a sub-multiple or multiple of the number of rows [4]

> mat\_4

[,1] [,2] [,3] [,4]

[1,] 1 2 3 1

[2,] 2 3 1 2

[3,] 3 1 2 3

[4,] 1 2 3 1

1. For each of the 8 lines, answer the following:
2. Did the line return a 1: value, 2: error, or 3: NULL

1, 1, 3, 1, 1, 1, 2, 3

1. If it did not return an error, what type of sub-setting operation was used?

[[]], [[]], [[]], [[]], $,$,$

1. If it did not return an error, explain how R chose which element to retrieve.

Numeric- the value in the [1] position

Logical- the character in the [1] position as a numeric value using as.numeric

Character- the character in the [1] position, which there isn’t a character.

Character- the character in variable one, using “one”

Character- everything in variable one using $one

Character- all of the characters in variable one using $”one”

Character- all of the characters that are 1, which there isn’t any.

1. Identify which lines produced output "five point two" and explain why

The fourth line produced “five point two” because the command [[“one”]] asked it to retrieve the character in variable one. The fifth line produced “five point two” because the command $one asked it to retrieve everything in variable one. The sixth line produced “five point two” because the command $“one” asked it to retrieve all of the characters in variable one.

1. Identify which lines produced NULL output and explain why

The third line returned a NULL output because it was asking to find the character 1 in the 1 position by using [[“1”]] but there isn’t a character in position 1.

The eighth line returned NULL because it tried to retrieve all of the characters that are 1, which there isn’t any. There is a numeric value of 1 in variable three, but since they used the “” its requesting the character “1”.