Problem #3

A user has typed in the following commands into the RStudio console

obj1 ← 2:10 #creates obj1 vector containing values from 2 to 10, inclusive

obj2 ← c(2,5) #creates obj2 vector containing 2 and 5

obj3 ← c(TRUE, FALSE) #creates obj3 vector containing boolean values TRUE and FALSE

obj4 ← 42 #creates an integer object with value 42

What values are returned by the following commands?

obj1 * 10

The resulting vector would be (20, 30, 40, 50, 60, 70, 80, 90, 100)

obj1[2:4]

The resulting vector is (3, 4, 5)

obj1[-3]

This returns the vector without index 3. The resulting vector is (2, 3, 5, 6, 7, 8, 9, 10)

obj1 + obj2

The resulting vector is (4, 8, 6, 10, 8, 12, 10, 14, 12)

obj1 * obj3

The resulting vector is (2, 0, 4, 0, 6, 0, 8, 0, 10)

obj1 + obj4

The resulting vector is (44, 45, 46, 48, 49, 50, 51, 52

obj2 + obj3

The resulting vector is (3, 5)

sum(obj2)

The result is the integer 7

sum(obj3)

The result is the integer 1, which indicates that there are one TRUE boolean value within obj3.

One thing to note is obj1, obj2, obj3, and obj4 never changes with these operations since we never assign the result of the operations to these objects.

Problem #4

A user has typed the following commands into RStudio console

mylist ← list(x1 = “sally”, x2 = 42, x3 = FALSE, x4 = 1:5) #creates a list with “sally”, 42, FALSE, and a vector with number from 1 to 5

What values do each of the following commands return?

is.list(mylist)

This return boolean value TRUE

names(mylist)

This returns “x1”, “x2”, “x3”, and “x4”. These are the names of the objects within mylist.

length(mylist)

This returns 4, which is the length of mylist

mylist[[2]]

This returns the object at index 2 of mylist, which is 42

mylist[["x1"]]

This returns the object with the name "x1" within mylist, which is "Sally"

mylist$x2

This returns the object with the name "x2" within mylist, which is 42

length(mylist[["x4"]])

This returns the length of the "x4" object within mylist, which is 5.

class(mylist)

This returns the class attribute of mylist, which is "list".

typeof(mylist)

This returns the actual type or storage mode of mylist, which is "list."

Problem #9

A user has typed the following commands into the RStudio console.

a ← c(10, 15)

b ← c(TRUE, FALSE)

c ← c("happy", "sad")

What values do each of the following commands return? Describe the class of the object as well as its value.

data.frame(a, b, c)

This returns a data frame with values from vectors a, b, and c. The result is

```
10  TRUE happy
15 FALSE   sad
```

cbind(a, b)

This function combines “a” vector object and “b” vector object by columns. The class of the object is an array.

```
> cbind(a, b)
      a b
[1,] 10 1
[2,] 15 0
```

rbind(a, b)

This function combines “a” vector object and “b” vector object by rows. The class of the object is an array.

```
> rbind(a, b)
  [,1] [,2]
a   10   15
b    1    0
```

cbind(a, b, c)

This function combines “a” vector object, “c” vector object, and “b” vector object by columns. The class of the object is an array.

```
> cbind(a, b, c)
     a    b       c
[1,] "10" "TRUE"  "happy"
[2,] "15" "FALSE" "sad"
```

list(a, b, c)[[2]]

This function creates a list with “a” vector object, “c” vector object, and “b” vector object. Then, it returns the second index of the list, which is vector object “b”. Therefore, the result is **boolean values** in object “b”

```
> list(a, b, c)[[2]]
[1]  TRUE FALSE
```

Problem #10

result1 ← sqrt 10

The error in this assignment statement is the missing of paratheses for sqrt(). The correct function is result1 <- sqrt(10).

result2 ←- “Hello to you!”

The error in this assignment statement is the extra dash. The correct function is result2 ← “Hello to you!”

3result ← “Hello to you”

There is no error in this assignment statement as it follows the format to create an assignment statement.

result4 ← “Hello to you

The error is that there is no apostrophe after “you” to end the assignment statement. The correct function is result4 ← “Hello to you”

result5 ← date()

There is no error in this statement. The original error is from the previous assignment statement’s error.