Vector

Exercise 1

Consider two vectors, a, b

```
> a <- c(1,5,4,3,6)
> b <- c(3,5,2,1,9)
```

What is the value of: $a <= b$

Exercise 2

Consider two vectors, x, y

```
> x <- c(12:4)
> y <- c(0,1,2,0,1,2,0,1,2)
```

What is the value of: $which(!is.finite(x/y))$

Exercise 3

```
> x <- c(1,2,3,4)
```

What is the value of k for:

```
> (x+2)[(!is.na(x)) & x > 0] -> k
```

Exercise 4

If

```
> x <- c(2, 4, 6, 8)
> y <- c(TRUE, TRUE, FALSE, TRUE)
```

What is the value of: $sum(x[y])$

Exercise 5

Consider the vector:

```
> x <- c(34, 56, 55, 87, NA, 4, 77, NA, 21, NA, 39)
```

Which R-statement will count the number of NA values in x?

```
a. count(is.na(X))
b. length(is.na(x))
c. sum(is.na(x))
d. count(!is.na(x))
e. sum(!is.na(x))
```

List

Exercise 1

If:

```
> p <- c(2,7,8)
> q <- c("A", "B", "C")
> x <- list(p, q),
```

Then what is the value of x[2]?

```
a. NULL
b. "A" "B" "C"
c. "7"
```

Exercise 2

If:

```
> w <- c(2, 7, 8)
> v <- c("A", "B", "C")
> x <- list(w, v),
```

then write a R statement will replace “A” in x with “K”. The expected output:

```
> x
[[1]]
[1] 2 7 8

[[2]]
[1] "K" "B" "C"
```

Exercise 3

If:

```
> a <- list ("x"=5, "y"=10, "z"=15)
```

which R statement will give the sum of all elements in a?

```
a. sum(a)
b. sum(list(a))
c. sum(unlist(a))
```

Exercise 4

If:

```
> Newlist <- list(a=1:10, b="Good morning", c="Hi")
```

Write an R statement that will add 1 to each element of the first vector in Newlist. The expected output:

```
> Newlist
$a
 [1]  2  3  4  5  6  7  8  9 10 11

$b
[1] "Good morning"

$c
[1] "Hi"
```

Exercise 5

If:

```
> b <- list(a=1:10, c="Hello", d="AA")
```

write an R expression that will give all elements, except the second, of the first vector of b. The expected output

```
 [1]  1  3  4  5  6  7  8  9 10
```

Exercise 6

Let

```
> x <- list(a=5:10, c="Hello", d="AA")
```

write an R statement to add a new item z = "NewItem" to the list x. The expected output:

```
> x
$a
[1]  5  6  7  8  9 10

$c
[1] "Hello"

$d
[1] "AA"

$z
[1] "New Item"
```

Exercise 7

Consider

```
> y <- list("a", "b", "c")
```

write an R statement that will assign new names "one", "two" and "three" to the elements of y. The expected output:

```
> y
$one
[1] "a"

$two
[1] "b"

$three
[1] "c"
```

Exercise 8

If

```
> x <- list(y=1:10, t="Hello", f="TT", r=5:20)
```

write an R statement that will give the length of vector r of x. The expected output:

```
[1] 16
```

Exercise 9 (bonus)

Let

```
> string <- "Grand Opening"
```

write an R statement to split this string into two and return the following output:

```
[[1]]
[1] "Grand"

[[2]]
[1] "Opening"
```

hint: use strsplit() function

Exercise 10 (bonus)

Let

```
> y <- list("a", "b", "c")
> q <- list("A", "B", "C", "a", "b", "c").
```

Write an R statement that will return all elements of q that are not in y, with the following result:

```
[[1]]
[1] "A"

[[2]]
[1] "B"

[[3]]
[1] "C"
```

hint: use setdiff() function