

Week 1 Exercises

Benjamin Michaels

July 9, 2023

Please complete all exercises below WITHOUT using any libraries/packages.

Exercise 1

Assign 10 to the variable x. Assign 5 to the variable y. Assign 20 to the variable z.

#your code below

```
x <- 10
y <- 5
z <- 20
```

Exercise 2

Show that x is less than z but greater than y.

Note: your output must be a SINGLE boolean, do not output a boolean for each expression.

#your code below

```
x < z & x > y
```

```
## [1] TRUE
```

Exercise 3

Show that x and y do not equal z.

Note: your output must be a SINGLE boolean, do not output a boolean for each expression.

#your code here

```
(x != z) & (y != z)
```

```
## [1] TRUE
```

Exercise 4

Show that the formula $x + 2y = z$.

Note: your output must be a SINGLE boolean

#your code below

```
(x + (2*y)) == z
```

```
## [1] TRUE
```

Exercise 5

I have created a vector (`test_vector`) of integers for you. Determine if any of `x`, `y`, or `z` are in the vector.

Note: your output must be a SINGLE boolean, do not output a boolean for each expression.

```
test_vector <- c(1,5,11:22)
```

#your code below

```
(x %in% test_vector)|(y %in% test_vector)|(z %in% test_vector)
```

```
## [1] TRUE
```

Exercise 6

Show which value is contained in the test vector. To do this you will need to create an element-wise logical vector using operators. `x == vector`. Once you have done that you will need to use slicing to return all indices that have matches. **Note: your output should be two integers**

#your code below

```
test_vector[(x == test_vector)|(y == test_vector)|(z == test_vector)]
```

```
## [1] 5 20
```