

Week 1 Exercises

James Clark

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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  
y<x && x<z
```

```
## [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] FALSE
```

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

#If you want to know which values in the vector you use the following code
test_vector[test_vector==x|test_vector==y|test_vector==z]

## [1] 5 20

#If you want to know where in the vector the values are you use the following code
which(test_vector==x|test_vector==y|test_vector==z)

## [1] 2 12
```