Week 1 Exercises

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Please complete all exercises below WITHOUT using any libraries/packages

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

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.**

(z > x) & (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.**

(x & y) != z

## [1] TRUE

# Exercise 4

Show that the formula x + 2y = z.

**Note: your output must be a SINGLE boolean**

(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)  
(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**

#One way to check which of x, y, or z is in the test vector with a boolean  
sample\_vector <- c(x, y,z)  
  
locate\_test <- function (n) {  
 n %in% test\_vector  
}  
  
locate\_test(sample\_vector)

## [1] FALSE TRUE TRUE

#With slicing - y and z (5 and 20) are in the test vector  
test\_vector[x == test\_vector | y == test\_vector | z == test\_vector]

## [1] 5 20