Week 1 Exercises

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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.

```
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.

```
result <- (x > y & x < z)

result
```

```
## [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.

```
result2 <- (x != z) && (y != z)
result2
```

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

Exercise 4

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

Note: your output must be a SINGLE boolean

```
result3 <- (x +2*y) == z
result3
```

```
## [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)
result4 <- any(c(x, y, z) %in% test_vector)
result4
```

```
## [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**

```
#logical vector
x_in_vector <- test_vector == x
y_in_vector <- test_vector == y
z_in_vector <- test_vector == z

# logical vectors combined
matches <- x_in_vector | y_in_vector | z_in_vector

# Indices that match
matching_indices <- which(matches)
matching_indices
```

```
## [1]  2 12
```