# Week 1 Exercises

Auriana Anderson

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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.**

```
ex2 <- (x<z) & (x>y)
```

# 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.**

```
ex3 <- (x != z) & (y != z)
```

# Exercise 4

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

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

```
ex4 <- (x + 2*y) == z
```

# 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)

ex5 <- (x %in% test_vector)|(y %in% test_vector)|(z %in% test_vector)
```

# 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**

```
match_value <- (x == test_vector) | (y == test_vector)| (z == test_vector)

ex6 <- which(match_value)
```