

Week 1 Exercises

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October 27, 2024

Please complete all exercises below WITHOUT using any libraries/packages

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
```