

Week 1 Exercises

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June 28, 2024

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.

```
x > y && 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.

```
x != z && y != z
```

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

Exercise 4

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

Note: your output must be a SINGLE boolean

```
z == x + 2*y
```

```
## [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)
xyz=c(10,5,20)
any(xyz %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**

```
xyz==test_vector
```

```
## Warning in xyz == test_vector: longer object length is not a multiple of
## shorter object length
```

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

```
## [13] FALSE FALSE
```

```
test_vector[c(2,12)]
```

```
## [1] 5 20
```