Operations and Data types

Example 1

Addition

```
x <- 5
y <- 15
x + y
```

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

Subtraction

```
x - y
```

```
## [1] -10
```

```
y - x
```

```
## [1] 10
```

Multiplication

```
x * y
```

```
## [1] 75
```

Division

```
x / y
```

```
## [1] 0.3333333
```

Modulus

```
x %% y
```

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

```
y %% x
```

```
## [1] 0
```

Example 2

```
a <- 5
b <- 4
b - a + 10 / 2 * a * 3 + 10 + 59
```

```
## [1] 143
```

Operator>, <

```
a > b
```

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

```
a < b
```

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

Operator<=, >=

```
a >= b
```

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

```
a <= b
```

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

Operator

```
a == b
```

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

```
a != b
```

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

Example 3

Logical Operators

```
v <- c(3, 1, TRUE, 2 + 3i)
t <- c(4, 1, FALSE, 2 + 3i)
v&t
```

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

```
v|t
```

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

```
v||t
```

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

Example 4

Data types

```
m = 62.5
m
```

```
## [1] 62.5
```

```
n = as.integer(3)
n
```

```
## [1] 3
```

```
g = as.character(64.71)
g
```

```
## [1] "64.71"
```

Lists and Vectors

Lists

```
#alist <- list("Red", "Blue", c(42, 36, 01), FALSE, 73.91, 128.6)
#alist
#list_data <- list(c("Jan", "Feb", "March"), matrix(c(3,9,5,1,-2,8), nrows = 2), list("green", 12.3))
#names(list_data) <- c("1st Quarter", "A_Matrix", "A Inner List")
#list_data
```

Vectors

```
a <- c(1, 2, 5.3, 6, -2, 4)
b <- c("One", "Two", "Three")
c <-  c("TRUE", "TRUE", "TRUE", "FALSE", "FALSE", "FALSE")
a
```

```
## [1]  1.0  2.0  5.3  6.0 -2.0  4.0
```

```
b
```

```
## [1] "One"   "Two"   "Three"
```

```
c
```

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

Example 2

```
a <- c("Serena Williams", "Tennis Player")
names(a) <- c("Name", "Professional")
a
```

```
##              Name      Professional
## "Serena Williams"   "Tennis Player"
```