

## Assignment

<- : Basic Assignment  
= : Basic Assignment  
<<- : Global Assignment

## Mathematical Operations

+ : Addition  
- : Subtraction  
\* : Multiplication  
/ : Division  
\*\* : Exponentiation  
sqrt() : Square Root  
%% : Modulo  
round() : Rounds an object (to a specified decimal)

## Logical Operations

== : Is equal to  
!= : Not equal to  
! : Not  
< : Less than  
≤ : Less than or equal to  
> : Greater than  
≥ : Greater than or equal to  
& : AND  
| : OR

## Object Manipulation

c() : Create vector  
: : Create sequence vector  
[ ] : Subsetting/slicing  
rep() : Repeat object  
names() : Return object names  
dimnames() : Returns object dimensions' names  
list() : Create List  
\$ : List extraction  
[[ ]] : List extraction

## Object Class

class() : Return object class  
is.character() : Is a character  
is.numeric() : Is a number  
is.integer() : Is an integer  
is.logical() : Is a logical  
is.na() : Is an NA  
is.null() : Is a NULL

## Object Coercion

as.character() : Coerce to character  
as.numeric() : Coerce to numeric  
as.integer() : Coerce to integer  
as.logical() : Coerce to logical  
unlist() : Unlist a list object  
as.vector() : Coerce to vector

## Programmers' Workhorses

if() : Conditional statement  
for() : For loop  
while() : While loop  
break : Break out of loop  
next : Skip to next iteration of loop  
function() : Create function  
return() : Return function output

## Other Useful “Primitives”

sum() : Returns the sum of an object  
max() : Returns the highest number of an object  
min() : Returns the lowest number of an object  
ceiling() : Rounds up an object  
floor() : Rounds down an object  
abs() : Returns absolute values of an object  
length() : Returns the length of an object  
dim() : Returns the dimensions of an object  
all() : Checks if all (logical) inputs are TRUE  
seq() : Returns a specified sequence of numbers  
exp() : Exponential of Euler's  $e$   
log() : Logarithm (default base is Euler's  $e$ )

## Other Allowed Functions

%in% : Is left subset of right  
which() : Returns index positions of TRUE  
sort() : Returns sorted vector  
order() : Returns index positions of sorted vector  
print() : Prints input on console  
paste() : Concatenates inputs into character string  
matrix() : Create matrix object  
data.frame() : Create data.frame object  
as.data.frame() : Coerce object to data.frame  
nrow() : Returns number of rows of data.frame  
ncol() : Returns number of columns of data.frame  
rownames() : Returns row names of data.frame  
colnames() : Returns column names of data.frame  
str() : Returns structure of object  
summary() : Returns summary of object  
unique() : Returns unique elements of object