

# Introduction to Programming in R: Takeaways



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## Syntax

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### ARITHMETIC OPERATORS

- Parentheses: `(5 / 5) + 5`
- Multiplication: `5 * 5`
- Division: `5 / 5`
- Addition: `5 + 5`
- Subtraction: `5 - 5`

### VARIABLE OPERATIONS

- Assigning a value to a variable:

```
value_1 <- 50
value_2 <- 5
```
- Assigning the result of a calculation to a variable:

```
total <- 5 + 5
average <- (5 + 5 + 5) / 3
```
- Performing calculations using variable names:

```
value_1 + value_2
```

### VECTOR OPERATIONS

- Create a vector of values:
- Create a vector using variable names

```
vector_1 <- c(50, 5)
```

```
vector_1 <- c(value_1, value_2)
```

### BUILT-IN FUNCTIONS

- Average of values in a vector:

```
mean(vector_1)
```

- Smallest value in a vector:

```
min(vector_1)
```

- Largest value in a vector:

```
max(vector_1)
```

- Total number of elements in a vector:

```
length(vector_1)
```

- Sum of elements in a vector:

```
sum(vector_1)
```

## Concepts

- R uses the [order of operations](#) rules from mathematics when evaluating expressions.
- There are some rules you need to follow when naming variables in R:

Variable Name	Valid?
variable_name1	yes
variable_name%	<b>no</b> (contains a special character)
1variable_name	<b>no</b> (starts with a number)
.variable_name	yes
.1variable_name	<b>no</b> (dot is followed by a number)
_1variable_name	<b>no</b> (starts with an underscore)

## Resources

- [Notes on naming variables in R](#)
- [Documentation on vectors in R](#)