

Introduction to R Software

Swayam Prabha

Lecture 6

Basics of Calculations and R as a Calculator

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Slides can be downloaded from
<http://home.iitk.ac.in/~shalab/sp>



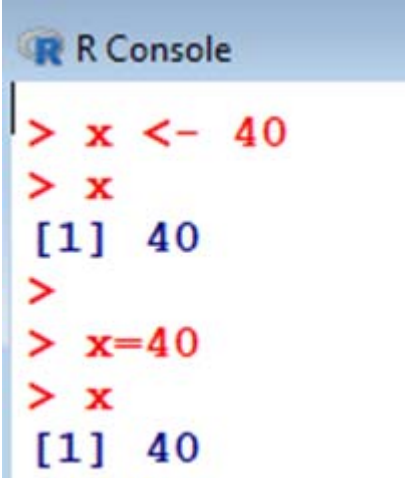
Basics

- **>** is the prompt sign in R.
- The assignment operators are the left arrow with dash **<-** and equal sign **=**.

> x <- 40 assigns the value 40 to **x**.

> x = 40 assigns the value 40 to **x**.

Initially only **<-** was available in R.



```
R Console
> x <- 40
> x
[1] 40
>
> x=40
> x
[1] 40
```

Basics

> x = 40 assigns the value 40 to **x**.

> y = x * 4 assigns the value **4*x** to **y**.

> z = x + y assigns the value **x + y** to **z**.

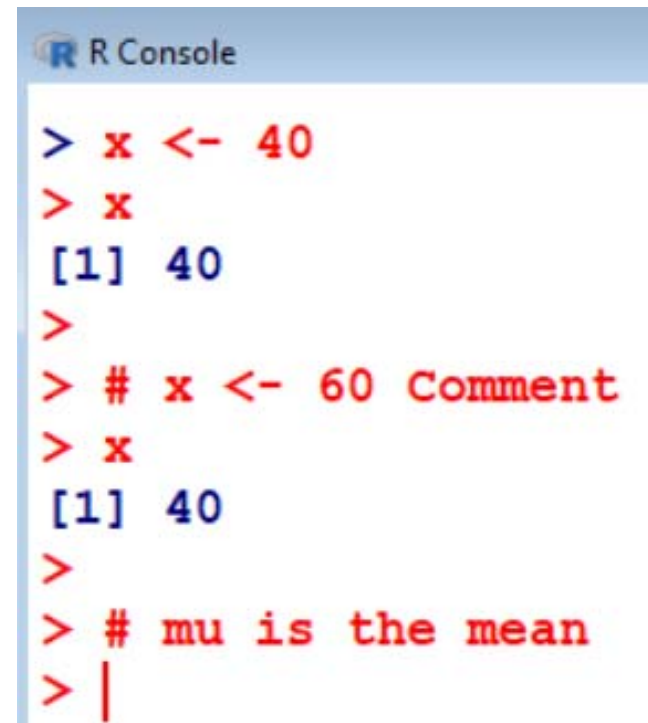
```
R Console
> y = x * 4
> y
[1] 160
>
> z = x + y
> z
[1] 200
>
```

Basics

: The character # marks the beginning of a comment. All characters until the end of the line are ignored.

> # mu is the mean

> # x <- 40 is treated as comment only



```
R Console
> x <- 40
> x
[1] 40
>
> # x <- 60 Comment
> x
[1] 40
>
> # mu is the mean
> |
```

Basics

Capital and small letters are different.

X <- 40 and **x** <- 50 are different

```
R Console
> x <- 40
> x
[1] 40
>
> X <- 50
> X
[1] 50
>
> x
[1] 40
> |
```

Basics

The command `c(6,7,8,9,10)` combines the numbers 6, 7, 8, 9 and 10 to a vector.

```
R Console
> y=6,7,8,9,10
Error: unexpected ',' in "y=6,"
>
> y=(6,7,8,9,10)
Error: unexpected ',' in "y=(6,"
>
> y=c(6,7,8,9,10)
>
> y
[1] 6 7 8 9 10
>
```

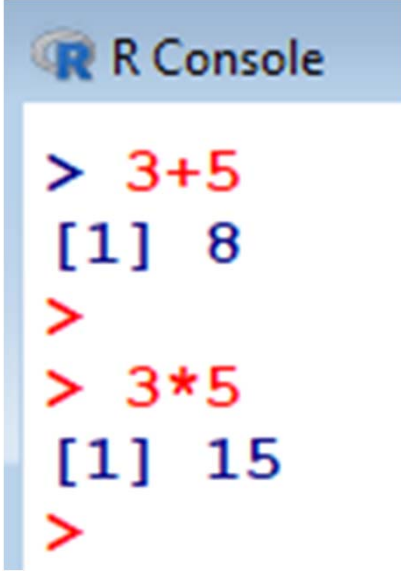
R as a calculator

> 3+5 # Command

[1] 8 # Output

> 3*5 # Command

[1] 15 # Output



```
R Console
> 3+5
[1] 8
>
> 3*5
[1] 15
>
```

A screenshot of an R Console window. The title bar is blue with the R logo and the text 'R Console'. The console area is white and shows a sequence of commands and their outputs. The first command is '> 3+5' in red, followed by the output '[1] 8' in blue. Then there is a blank line with a red '>' prompt. The second command is '> 3*5' in red, followed by the output '[1] 15' in blue. The console ends with a red '>' prompt.

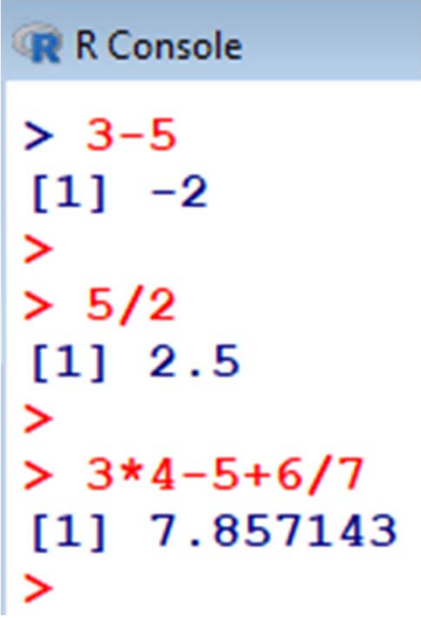
R as a calculator

> 3-5 # Command

[1] -2 # Output

> 5/2 # Command

[1] 2.5 # Output



```
R Console
> 3-5
[1] -2
>
> 5/2
[1] 2.5
>
> 3*4-5+6/7
[1] 7.857143
>
```

> 3*4-5+6/7 # Command BODMAS

[1] 7.857143 # Output

Bracket, Of, Division, Multiplication, Addition, and Subtraction.

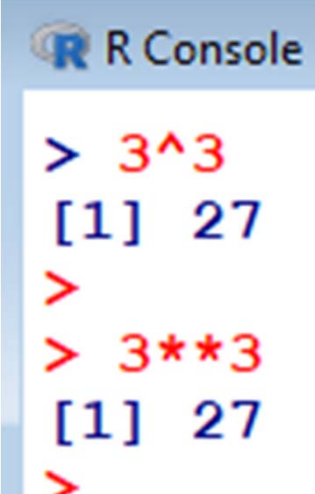
R as a calculator

```
> 3^3 # Command
```

```
[1] 27 # Output
```

```
> 3**3 # Command
```

```
[1] 27 # Output
```



```
R Console  
> 3^3  
[1] 27  
>  
> 3**3  
[1] 27  
>
```

R as a calculator

> 3^0.5 # Command

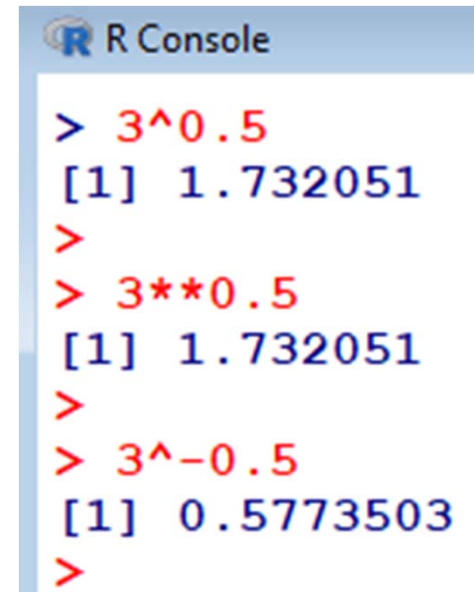
[1] 1.732051 # Output

> 3**0.5 # Command

[1] 1.732051 # Output

> 3^-0.5 # Command

[1] 0.5773503 # Output

A screenshot of the R Console window. The title bar says 'R Console'. The console shows three commands and their outputs: 1. Command: 3^0.5, Output: [1] 1.732051. 2. Command: 3**0.5, Output: [1] 1.732051. 3. Command: 3^-0.5, Output: [1] 0.5773503. The prompt character is a red '>'.