2022-06-05

Contents

“ ”

Chapter 1

R

1.1

```
(1 + 2 * 4)/3 - 1.3
```

```
# [1] 1.7
```

100 0.5

```
100^0.5
```

```
# [1] 10
```

```
log(2)
```

```
# [1] 0.6931472
```

excel 10

```
log10(2)
```

```
# [1] 0.30103
```

2

```
log2(2)
```

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

e e=2.718..., exp(1) = e^1

```
exp(1)
```

```
## [1] 2.718282
```

pi = 3.14159...

```
sin(pi/2)
```

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

6.22*10^23 e

```
6.22e23
```

```
## [1] 6.22e+23
```

```
abs(-10)
```

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

1.1.1

round()

```
round(2.3)
```

```
## [1] 2
```

```
round(2.6)
```

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

```
round(2.5)
```

```
## [1] 2
```

```
round(3.5)
```

```
## [1] 4
```

```
floor(2.6) #
```

```
## [1] 2
```

```
ceiling(2.3) #
```

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

```
trunc(2.3)#
```

```
## [1] 2
```

```
trunc(2.6)
```

```
## [1] 2
```

1.1.2

```
round(pi, 2) # 2
```

```
## [1] 3.14
```

```
round(pi, 3) # 3
```

```
## [1] 3.142
```

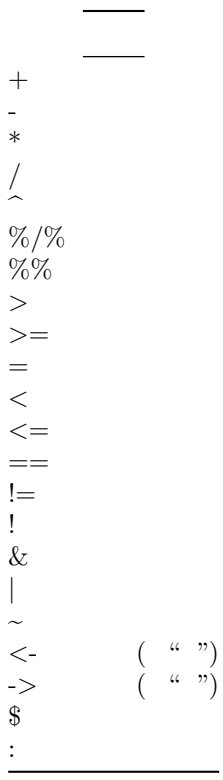
```
signif(pi,2) # 2
```

```
## [1] 3.1
```

```
signif(pi,3) # 3
```

```
## [1] 3.14
```

1.1.3



1.1.4

```
5 > 3
```

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

```
5 == 3
```

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

```
1:5 != 3
```

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

```
1:5 > 2 & 1:5 <5
```

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

```
1:5 <= 2 | 1:5 >=4
```

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

1 5 “1 2 3 4 5” 5

1.2

R ”.red[<-]“ ”=” <-

```
x1 = 12
x1
```

```
## [1] 12
```

```
x2 <- 23
x2
```

```
## [1] 23
```

```
y <- x1 + x2
y
```

```
## [1] 35
```

```
x1 + x2 -> z
z
```

```
## [1] 35
```

1.3

- . _
-
- a A
- x_1, x.1 x 1 x_1

1.4

integer	
numeric	
character	
logical	(TRUE FALSE)

```
class(as.integer(1.2)) # 1.2  ,
```

```
## [1] "integer"
```

```
class(pi) # pi = 3.1415......
```

```
## [1] "numeric"
```

```
class("Xiamen")
```

```
## [1] "character"
```

```
class(c(TRUE,FALSE))
```

```
## [1] "logical"
```

1.5

vector	
factor	vector
matrix	(numeric, character)
data frame	matrix
list	vector numeric,data frame, list…)

1.6 coercing

```
t_1 <- c("1", "2", "3.4") #
t_1
```

```
## [1] "1"   "2"   "3.4"
```

```
class(t_1)
```

```
## [1] "character"
```

```
t_2 <- as.numeric(t_1) #
t_2
```

```
## [1] 1.0 2.0 3.4
```

```
class(t_2)
```

```
## [1] "numeric"
```

```
t_3 <- as.factor(t_2) #
t_3
```