

Introduction to R Software

Sequences

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Sequences

A sequence is a set of related numbers, events, movements, or items that follow each other in a particular order.

The regular sequences can be generated in R.

Syntax

`seq()`

```
seq(from = 1, to = 1, by = ((to -  
from) / (length.out - 1)), length.out = NULL,  
along.with = NULL, ...)
```

Help for `seq`

```
> help("seq")
```

`seq {base}`

Sequence Generation

Description

Generate regular sequences. `seq` is a standard generic with a default method. `seq.int` is a primitive which can be much faster but has a few restrictions. `seq_along` and `seq_len` are very fast primitives for two common cases.

Usage

```
seq(...)
```

```
## Default S3 method:
```

```
seq(from = 1, to = 1, by = ((to - from)/(length.out - 1)),  
    length.out = NULL, along.with = NULL, ...)
```

```
seq.int(from, to, by, length.out, along.with, ...)
```

```
seq_along(along.with)
```

```
seq_len(length.out)
```

Arguments

`...` arguments passed to or from methods.

`from`, `to` the starting and (maximal) end values of the sequence. Of length 1 unless just `from` is supplied as an unnamed argument.



Sequences

□ The default increment is +1 or -1

```
> seq(from=2, to=4)
```

```
[1] 2 3 4
```

```
> seq(from=4, to=2)
```

```
[1] 4 3 2
```

```
> seq(from=-4, to=4)
```

```
[1] -4 -3 -2 -1 0 1 2 3 4
```

Sequences

R Console

```
> seq(from=2, to=4)
```

```
[1] 2 3 4
```

```
>
```

```
> seq(from=4, to=2)
```

```
[1] 4 3 2
```

```
>
```

```
> seq(from=-4, to=4)
```

```
[1] -4 -3 -2 -1 0 1 2 3 4
```

Sequences

❑ Sequence with constant increment:

Generate a sequence from 10 to 20 with an increment of 2 units

```
> seq(from=10, to=20, by=2)
```

```
[1] 10 12 14 16 18 20
```

R Console

```
> seq(from=10, to=20, by=2)
```

```
[1] 10 12 14 16 18 20
```

Sequences

❑ Sequence with constant increment:

Generate a sequence from 20 to 10 with an increment of 2 units

```
> seq(from=20, to=10, by=-2)
```

```
[1] 20 18 16 14 12 10
```

R Console

```
> seq(from=20, to=10, by=-2)
```

```
[1] 20 18 16 14 12 10
```

Sequences

❑ Sequence with constant increment:

Generate a sequence from 20 to 10 with a decrement of 2 units

```
> seq(from=20, to=10, by=-2)
```

```
[1] 20 18 16 14 12 10
```

R Console

```
> seq(from=20, to=10, by=-2)
```

```
[1] 20 18 16 14 12 10
```

Sequences

❑ Downstream sequence with constant increment:

Generate a sequence from 3 to -2 with a decrement of 0.5 units

```
> seq(from=3, to=-2, by=-0.5)
```

```
[1] 3.0 2.5 2.0 1.5 1.0 0.5 0.0 -0.5 -1.0 -1.5 -2
```

R Console

```
> seq(from=3, to=-2, by=-0.5)
```

```
[1] 3.0 2.5 2.0 1.5 1.0 0.5 0.0 -0.5 -1.0 -1.5 -2.0
```

Sequences

- ❑ Sequences with a predefined length with default increment +1

```
> seq(to=10, length=10)
```

```
[1] 1 2 3 4 5 6 7 8 9 10
```

R Console

```
> seq(to=10, length=10)
```

```
[1] 1 2 3 4 5 6 7 8 9 10
```

Sequences

- ❑ Sequences with a predefined length with default increment +1

```
> seq(from=10, length=10)
```

```
[1] 10 11 12 13 14 15 16 17 18 19
```

R Console

```
> seq(from=10, length=10)
```

```
[1] 10 11 12 13 14 15 16 17 18 19
```

Sequences

- ❑ Sequences with a predefined length with constant fractional increment

```
> seq(from=10, length=10, by=0.1)
```

```
[1] 10.0 10.1 10.2 10.3 10.4 10.5 10.6 10.7 10.8 10.9
```

R Console

```
> seq(from=10, length=10, by=0.1)
```

```
[1] 10.0 10.1 10.2 10.3 10.4 10.5 10.6 10.7 10.8 10.9
```

Sequences

❑ Sequences with a predefined length with constant decrement

```
> seq(from=10, length=10, by=-2)
```

```
[1] 10  8  6  4  2  0 -2 -4 -6 -8
```

Sequences

- ❑ Sequences with a predefined length with constant fractional decrement

```
> seq(from=10, length=5, by=-.2)
```

```
[1] 10.0  9.8  9.6  9.4  9.2
```

Sequences

Sequences with a predefined variable and constant increment

```
> x<-2
```

```
> seq(1, x, x/10)
```

```
[1] 1.0 1.2 1.4 1.6 1.8 2.0
```

```
> x<-50
```

```
> seq(0, x, x/10)
```

```
[1] 0 5 10 15 20 25 30 35 40 45 50
```

Sequences

R Console

```
> x<-2
```

```
> x
```

```
[1] 2
```

```
> seq(1, x, x/10)
```

```
[1] 1.0 1.2 1.4 1.6 1.8 2.0
```

```
>
```

```
> x<-50
```

```
> x
```

```
[1] 50
```

```
> seq(1, x, x/10)
```

```
[1] 1 6 11 16 21 26 31 36 41 46
```