iemisc: Examples from GNU Octave Rem, Mod, and fractdiff Compatible Functions

Irucka Embry, E.I.T. (EcoC²S)

2023-05-02

Contents

Rem Examples (R style)

```r
library("iemisc")

# Examples from GNU Octave

x <- 23.4
y <- 20
z <- 0

Rem(x, y)

## [1] 3.4
Rem(y, x)

## [1] 20
Rem(x, z)

## [1] NaN
```

```
Rem(y, z)
```

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

```
Rem(z, x)
```

```
## [1] 0
```

```
Rem(z, y)
```

```
## [1] 0
```

```
Rem(-1, 3)
```

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

```
# Examples from FreeMat
```

```
Rem(18, 12)
```

```
## [1] 6
```

```
Rem(6, 5)
```

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

```
Rem(2 * pi, pi)
```

```
## [1] 0
```

```
Rem(c(1, 3, 5, 2), 2)
```

```
##      [,1] [,2] [,3] [,4]
## [1,]    1    1    1    0
```

```
Rem(c(9, 3, 2, 0), c(1, 0, 2, 2))
```

```
## [1]   0 NaN   0   0
```

rem Examples (GNU Octave style)

```
% check against GNU Octave
```

```
% Examples from GNU Octave
```

```
x = 23.4
```

```
y = 20
```

```
z = 0
```

```
rem(x, y)
```

```
rem(y, x)
```

```
rem(x, z)
```

```matlab
rem(y, z)

rem(z, x)

rem(z, y)

rem(-1, 3)


% Examples from FreeMat

rem(18, 12)

rem(6, 5)

rem(2 * pi, pi)

rem([1, 3, 5, 2], 2)

rem([9 3 2 0], [1 0 2 2])



% results

>> x = 23.4
x =   23.400
>>
>> y = 20
y =   20
>>
>> z = 0
z = 0
>>
>> rem(x, y)
ans =   3.4000
>>
>> rem(y, x)
ans =   20
>>
>> rem(x, z)
ans = NaN
>>
>> rem(y, z)
ans = NaN
>>
>> rem(z, x)
ans = 0
>>
>> rem(z, y)
ans = 0
>>
>> rem(-1, 3)
```

```
ans = -1
>>
>>
>> % Examples from FreeMat
>>
>> rem(18, 12)
ans =  6
>>
>> rem(6, 5)
ans =  1
>>
>> rem(2 * pi, pi)
ans = 0
>>
>> rem([1, 3, 5, 2], 2)
ans =

   1   1   1   0

>>
>> rem([9 3 2 0], [1 0 2 2])
ans =

    0   NaN    0    0

>>
```

Mod_octave Examples (R style)

```
library("iemisc")

# Examples from FreeMat

Mod_octave(6, 5)

## [1] 1
Mod_octave(2 * pi, pi)

## [1] 0
Mod_octave(c(1, 3, 5, 2), 2)

##      [,1] [,2] [,3] [,4]
## [1,]    1    1    1    0
Mod_octave(c(9, 3, 2, 0), c(1, 0, 2, 2))

## [1] 0 3 0 0
Mod_octave(-1, 3)

## [1] 2
```

mod Examples (GNU Octave style)

```
% check against GNU Octave

% Examples from FreeMat

mod(18, 12)

mod(6, 5)

mod(2*pi, pi)

mod([1, 3, 5, 2], 2)

mod([9 3 2 0], [1 0 2 2])

mod(-1, 3)



% results

>> mod(18, 12)
ans =   6
>>
>> mod(6, 5)
ans =   1
>>
>> mod(2*pi, pi)
ans = 0
>>
>> mod([1, 3, 5, 2], 2)
ans =

   1   1   1   0

>>
>> mod([9 3 2 0], [1 0 2 2])
ans =

   0   3   0   0

>>
>> mod(-1, 3)
ans =   2
>>
```

fractdiff Example (R style)

```r
library("iemisc")
import::from(ramify, mat)

# values from https://github.com/simaki/fracdiff

a <- mat("1, 2, 4, 7, 0")

fractdiff(x = a, d = 0.5)

## [1]  1.000000  1.500000  2.875000  4.687500 -4.164062
```

fractdiff Example (GNU Octave style)

```octave
% check against GNU Octave

a = [1, 2, 4, 7, 0]

fractdiff(a, d = 0.5)


% results

>> a = [1, 2, 4, 7, 0]
a =

   1   2   4   7   0

>>
>> fractdiff(a, d = 0.5)
ans =

   1.0000   1.5000   2.8750   4.6875  -4.1641

>>
```

Works Cited

John W. Eaton, David Bateman, Søren Hauberg, and Rik Wehbring (October 2021). *GNU Octave: A high-level interactive language for numerical computations: Edition 6 for Octave version 6.4.0*. https://www.gnu.org/software/octave/octave.pdf. Page 547.

EcoC²S Links

EcoC²S Home – https://www.ecoccs.com/
About EcoC²S – https://www.ecoccs.com/about_ecoc2s.html
Services – https://www.ecoccs.com/services.html
Products – https://www.questionuniverse.com/products.html
EcoC²S Media – https://www.ecoccs.com/media.html
EcoC²S Resources – https://www.ecoccs.com/resources.html
R Trainings and Resources provided by EcoC²S (Irucka Embry, E.I.T.) – https://www.ecoccs.com/rtraining.html

Copyright and License