

sign() — Sign and complex quadrant functions

[Syntax](#) [Description](#) [Conformability](#) [Diagnostics](#) [Also see](#)

Syntax

real matrix `sign(real matrix R)`

real matrix `quadrant(complex matrix Z)`

Description

`sign(R)` returns the elementwise sign of *R*. `sign()` is defined

| Argument range | <code>sign(<i>arg</i>)</code> |
|----------------|-------------------------------|
| $arg \geq .$ | . |
| $arg < 0$ | -1 |
| $arg = 0$ | 0 |
| $arg > 0$ | 1 |

`quadrant(Z)` returns a real matrix recording the quadrant of each complex entry in *Z*. `quadrant()` is defined

| Argument range | | <code>quadrant(<i>arg</i>)</code> |
|-----------------------------|-----------------------------|-----------------------------------|
| <code>Re(<i>arg</i>)</code> | <code>Im(<i>arg</i>)</code> | |
| $Re \geq .$ | | . |
| $Re = 0$ | $Im = 0$ | . |
| $Re > 0$ | $Im \geq 0$ | 1 |
| $Re \leq 0$ | $Im > 0$ | 2 |
| $Re < 0$ | $Im \leq 0$ | 3 |
| $Re \geq 0$ | $Im < 0$ | 4 |

`quadrant(1+0i)==1, quadrant(-1+0i)==3`
`quadrant(0+1i)==2, quadrant(0-1i)==4`

Conformability

`sign(R):`

R: $r \times c$
result: $r \times c$

`quadrant(Z):`

Z: $r \times c$
result: $r \times c$

Diagnostics

`sign(R)` returns missing when *R* is missing.

`quadrant(Z)` returns missing when *Z* is missing.

Also see

[M-5] `dsign()` — FORTRAN-like `DSIGN()` function

[M-4] `scalar` — Scalar mathematical functions