

sign() — Sign and complex quadrant functions
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Description

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

| Argument range | sign(<i>arg</i>) |
|----------------|--------------------|
| $arg \geq .$ | . |
| $arg < 0$ | -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 | | quadrant(<i>arg</i>) |
|------------------|------------------|------------------------|
| Re(<i>arg</i>) | Im(<i>arg</i>) | |
| $Re \geq .$ | | . |
| $Re = 0$ | $Im = 0$ | . |
| $Re > 0$ | $Im \geq 0$ | 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`

Syntax

real matrix `sign(real matrix R)`

real matrix `quadrant(complex matrix Z)`

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