

Description

`cond(A)` returns `cond(A, 2)`.

`cond(A, p)` returns the value of the condition number of *A* for the specified [norm](#) *p*, where *p* may be 0, 1, 2, or . (missing).

Syntax

real scalar `cond(numeric matrix A)`

real scalar `cond(numeric matrix A, real scalar p)`

Remarks and examples

The condition number of a matrix *A* is

$$cond = \text{norm}(A, p) \times \text{norm}(A^{-1}, p)$$

These functions return missing when *A* is singular.

Values near 1 indicate that the matrix is well conditioned, and large values indicate ill conditioning.

Conformability

`cond(A):`

<i>A</i> :	$r \times c$
<i>result</i> :	1×1

`cond(A, p):`

<i>A</i> :	$r \times c$
<i>p</i> :	1×1
<i>result</i> :	1×1

Diagnostics

`cond(A, p)` aborts with error if *p* is not 0, 1, 2, or . (missing).

`cond(A)` and `cond(A, p)` return missing when *A* is singular or if *A* contains missing values.

`cond(A)` and `cond(A, p)` return 1 when *A* is void.

`cond(A)` and `cond(A, 2)` return missing if the SVD algorithm fails to converge, which is highly unlikely; see [\[M-5\]](#) `svd()`.

Also see

[M-5] **norm()** — Matrix and vector norms

[M-4] **Matrix** — Matrix functions

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