

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

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

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)`:

A: $r \times c$
result: 1×1

`cond(A, p)`:

A: $r \times c$
p: 1×1
result: 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

Stata, Stata Press, Mata, NetCourse, and NetCourseNow are registered trademarks of StataCorp LLC. Stata and Stata Press are registered trademarks with the World Intellectual Property Organization of the United Nations. StataNow is a trademark of StataCorp LLC. Other brand and product names are registered trademarks or trademarks of their respective companies. Copyright © 1985–2025 StataCorp LLC, College Station, TX, USA. All rights reserved.



For suggested citations, see the FAQ on [citing Stata documentation](#).