

epsilon() — Unit roundoff error (machine precision)

Syntax	Description	Remarks and examples	Conformability
Diagnostics	Also see		

Syntax

real scalar `epsilon(real scalar x)`

Description

`epsilon(x)` returns the unit roundoff error in quantities of size `abs(x)`.

Remarks and examples

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On all computers on which Stata and Mata are currently implemented—which are computers following IEEE standards—`epsilon(1)` is 1.0X-34, or about 2.22045e-16. This is the smallest amount by which a real number can differ from 1.

`epsilon(x)` is `abs(x)*epsilon(1)`. This is an approximation of the smallest amount by which a real number can differ from *x*. The approximation is exact at integer powers of 2.

Conformability

`epsilon(x):`

<i>x</i> :	1×1
<i>result</i> :	1×1

Diagnostics

`epsilon(x)` returns . if *x* is missing.

Also see

[M-5] [mindouble\(\)](#) — Minimum and maximum nonmissing value

[M-5] [edittozero\(\)](#) — Edit matrix for roundoff error (zeros)

[M-4] [utility](#) — Matrix utility functions