

## Description

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

## Syntax

*real scalar* `epsilon(real scalar x)`

## Remarks and examples

On all computers on which Stata and Mata are currently implemented—which are computers following IEEE standards—`epsilon(1)` is  $1.0 \times 10^{-34}$ , or about  $2.22045 \times 10^{-16}$ . 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> :	$1 \times 1$
<i>result</i> :	$1 \times 1$

## Diagnostics

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

## Also see

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

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

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

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