

sum() — Sums

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Description

`rowsum(Z)` and `rowsum(Z, missing)` return a column vector containing the sum over the rows of Z .

`colsum(Z)` and `colsum(Z, missing)` return a row vector containing the sum over the columns of Z .

`sum(Z)` and `sum(Z, missing)` return a scalar containing the sum over the rows and columns of Z .

`quadrowsum()`, `quadcolsum()`, and `quadsum()` are quad-precision variants of the above functions. The sum is accumulated in quad precision and then rounded to double precision and returned.

Argument *missing* determines how missing values are treated. If *missing* is not specified, results are the same as if *missing* = 0 were specified: missing values are treated as zero. If *missing* = 1 is specified, missing values are treated as missing values.

These functions may be used with real or complex matrix Z .

Syntax

numeric colvector `rowsum(numeric matrix Z [, missing])`

numeric rowvector `colsum(numeric matrix Z [, missing])`

numeric scalar `sum(numeric matrix Z [, missing])`

numeric colvector `quadrowsum(numeric matrix Z [, missing])`

numeric rowvector `quadcolsum(numeric matrix Z [, missing])`

numeric scalar `quadsum(numeric matrix Z [, missing])`

where optional argument *missing* is a real scalar that determines how missing values in Z are treated:

1. Specifying *missing* as 0 is equivalent to not specifying the argument; missing values in Z are treated as contributing 0 to the sum.
2. Specifying *missing* as 1 (or nonzero) specifies that missing values in Z are to be treated as missing values and to turn the sum to missing.

Remarks and examples

All functions return the same type as the argument, real if argument is real, complex if complex.

Conformability

`rowsum(Z, missing)`, `quadrowsum(Z, missing)`:

<i>Z</i> :	$r \times c$	
<i>missing</i> :	1×1	(optional)
<i>result</i> :	$r \times 1$	

`colsum(Z, missing)`, `quadcolsum(Z, missing)`:

<i>Z</i> :	$r \times c$	
<i>missing</i> :	1×1	(optional)
<i>result</i> :	$1 \times c$	

`sum(Z, missing)`, `quadsum(Z, missing)`:

<i>Z</i> :	$r \times c$	
<i>missing</i> :	1×1	(optional)
<i>result</i> :	1×1	

Diagnostics

If `missing = 0`, missing values are treated as contributing zero to the sum; they do not turn the sum to missing. Otherwise, missing values turn the sum to missing.

Also see

[M-5] [cross\(\)](#) — Cross products

[M-5] [mean\(\)](#) — Means, variances, and correlations

[M-5] [runningsum\(\)](#) — Running sum of vector

[M-4] [Mathematical](#) — Important mathematical functions

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