**Description**

isreal($X$) returns 1 if $X$ is a real and returns 0 otherwise.

iscomplex($X$) returns 1 if $X$ is a complex and returns 0 otherwise.

isstring($X$) returns 1 if $X$ is a string and returns 0 otherwise.

ispointer($X$) returns 1 if $X$ is a pointer and returns 0 otherwise.

**Syntax**

real scalar isreal(transmorphic matrix $X$)

real scalar iscomplex(transmorphic matrix $X$)

real scalar isstring(transmorphic matrix $X$)

real scalar ispointer(transmorphic matrix $X$)

**Remarks and examples**

These functions base their results on storage type. isreal() is not the way to check whether a number is real, since it might be stored as a complex and yet still be a real number, such as $2 + 0i$. To determine whether $x$ is real, you want to use isrealvalues($X$); see [M-5] isrealvalues().

**Conformability**

isreal($X$), iscomplex($X$), isstring($X$), ispointer($X$):

$X$: $r \times c$

result: $1 \times 1$

**Diagnostics**

These functions return 1 or 0; they cannot fail.
Also see

[M-5] **eltype()** — Element type, organizational type, and type name of object

[M-5] **isrealvalues()** — Whether matrix contains only real values

[M-4] **Utility** — Matrix utility functions