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numpy.linalg.det

linalg.det(*a*) [source]

Compute the determinant of an array.

Parameters: **a** : *(..., M, M) array_like*
Input array to compute determinants for.

Returns: **det** : *(...) array_like*
Determinant of *a*.

See also

slogdet
Another way to represent the determinant, more suitable for large matrices where underflow/overflow may occur.

scipy.linalg.det
Similar function in SciPy.

Notes

New in version 1.8.0.

Broadcasting rules apply, see the **numpy.linalg** documentation for details.

The determinant is computed via LU factorization using the LAPACK routine `z/dgetrf`.

Examples

The determinant of a 2-D array [[a, b], [c, d]] is ad - bc:

```
>>> a = np.array([[1, 2], [3, 4]])
>>> np.linalg.det(a)
-2.0 # may vary
```

Computing determinants for a stack of matrices:

```
>>> a = np.array([ [[1, 2], [3, 4]], [[1, 2], [2, 1]], [[1, 3], [3, 1]] ])
>>> a.shape
(3, 2, 2)
>>> np.linalg.det(a)
array([-2., -3., -8.])
```

Previous numpy.linalg.cond
Next numpy.linalg.matrix_rank

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