[ ]

import numpy as np



Scalar

[ ]

x = np.array(42)

print(x.shape)

x.ndim



()

0

Vector

[ ]

x = np.array([42,23,453,21,32,1,3,7])

print(x.shape)

import numpy as np

Scalar

[ ]

x = np.array(42)

print(x.shape)

x.ndim

()

0

Vector

[ ]

x = np.array([42,23,453,21,32,1,3,7])

print(x.shape)

x.ndim

(8,)

1

Matrix

[ ]

x = np.array([[42,23,453],

             [34,343,24]])

print(x.shape)

x.ndim

(2, 3)

2

Tensor

[ ]

x = np.array([[[42,23,453],

             [34,343,24]],

             [[42,23,453],

             [34,343,24]],

             [[42,23,453],

             [34,343,24]],

             [[42,23,453],

             [34,343,24]]])

print(x.shape)

x.ndim

(4, 2, 3)

3

Reshape

[ ]

x = np.array([[0,1],

             [2,3],

             [4,5],

             [6,7]])

x.shape

(4, 2)

[ ]

x.reshape(8,1)

array([[0],

       [1],

       [2],

       [3],

       [4],

       [5],

       [6],

       [7]])

[ ]

x.reshape(2,4)

array([[0, 1, 2, 3],

       [4, 5, 6, 7]])

[ ]

np.transpose(x)

array([[0, 2, 4, 6],

       [1, 3, 5, 7]])

[ ]

x.T

array([[0, 2, 4, 6],

       [1, 3, 5, 7]])

x.ndim



(8,)

1

Matrix

[ ]

x = np.array([[42,23,453],  
             [34,343,24]])  
print(x.shape)  
x.ndim

(2, 3)

2

Tensor

[ ]

x = np.array([[[42,23,453],  
             [34,343,24]],  
             [[42,23,453],  
             [34,343,24]],  
             [[42,23,453],  
             [34,343,24]],  
             [[42,23,453],  
             [34,343,24]]])  
print(x.shape)  
x.ndim

(4, 2, 3)

3

Reshape

[ ]

x = np.array([[0,1],  
             [2,3],  
             [4,5],  
             [6,7]])  
x.shape

(4, 2)

[ ]

x.reshape(8,1)

array([[0],

[1],

[2],

[3],

[4],

[5],

[6],

[7]])

[ ]

x.reshape(2,4)

array([[0, 1, 2, 3],

[4, 5, 6, 7]])

[ ]

np.transpose(x)

array([[0, 2, 4, 6],

[1, 3, 5, 7]])

[ ]

x.T



array([[0, 2, 4, 6],

[1, 3, 5, 7]])