In [1]:
```
import numpy as np
a=np.array([5,5,5])
a
```

Out[1]:
```
array([5, 5, 5])
```

In [2]:
```
type(a)
```

Out[2]:
```
numpy.ndarray
```

In [5]:
```
b=np.array([[5,5,5],[5,5,5],[5,5,5]])
b
```

Out[5]:
```
array([[5, 5, 5],
       [5, 5, 5],
       [5, 5, 5]])
```

In [6]:
```
len(b)
```

Out[6]:
```
3
```

In [7]:
```
len(a)
```

Out[7]:
```
3
```

In [8]:
```
b=np.zeros(2)
b
```

Out[8]:
```
array([0., 0.])
```

In [11]:
```
b=np.ones(3)
b
```

Out[11]:
```
array([1., 1., 1.])
```

In [12]:
```
b=np.empty(3)
b
```

Out[12]:
```
array([1., 1., 1.])
```

In [14]:
```
b=np.arange(6)
b
```

Out[14]:
```
array([0, 1, 2, 3, 4, 5])
```

In [15]:
```
b=np.arange(2,20)
b
```

Out[15]:
```
array([ 2,  3,  4,  5,  6,  7,  8,  9, 10, 11, 12, 13, 14, 15, 16, 17, 18,
       19])
```

In [16]:
```
g=np.arange(2,20,4)
g
```

Out[16]:
```
array([ 2,  6, 10, 14, 18])
```

In [23]:
```
h=np.linspace(0,10,num=14)
h
```

Out[23]:
```
array([ 0.        ,  0.76923077,  1.53846154,  2.30769231,  3.07692308,
        3.84615385,  4.61538462,  5.38461538,  6.15384615,  6.92307692,
        7.69230769,  8.46153846,  9.23076923, 10.        ])
```

In [26]:
```
i=np.ones(5,dtype=np.float64)
i
```

Out[26]:
```
array([1., 1., 1., 1., 1.])
```

In [36]:
```
c=np.arange(20).reshape(5,4)
c
```

Out[36]:
```
array([[ 0,  1,  2,  3],
       [ 4,  5,  6,  7],
       [ 8,  9, 10, 11],
       [12, 13, 14, 15],
       [16, 17, 18, 19]])
```

In [37]:
```
type(c)
```

Out[37]:
```
numpy.ndarray
```

In [38]:
```
len(c)
```

Out[38]:
```
5
```

In [39]:
```
c.mean()
```

Out[39]:
```
9.5
```

In [40]:
```
a=np.array([10,12,15,2,4,6,100,45,78,4.5,5.6])
a
```

Out[40]:
```
array([ 10. ,  12. ,  15. ,   2. ,   4. ,   6. , 100. ,  45. ,  78. ,
         4.5,   5.6])
```

In [43]:
```
a.sort()
a
```

Out[43]:
```
array([  2. ,   4. ,   4.5,   5.6,   6. ,  10. ,  12. ,  15. ,  45. ,
        78. , 100. ])
```

In [44]:
```
a.ndim
```

Out[44]:
```
1
```

In [45]:
```
a.size()
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
Cell In[45], line 1
----> 1 a.size()

TypeError: 'int' object is not callable
```

In [46]:
```
a.shape()
```

```
---------------------------------------------------------------------------
TypeError                                 Traceback (most recent call last)
Cell In[46], line 1
----> 1 a.shape()

TypeError: 'tuple' object is not callable
```

In [55]:
```
v=np.arange(6)
v
```

Out[55]:
```
array([0, 1, 2, 3, 4, 5])
```

In [60]:
```
c=a[np.newaxis,:]
c
```

Out[60]:
```
array([[  2. ,   4. ,   4.5,   5.6,   6. ,  10. ,  12. ,  15. ,  45. ,
         78. , 100. ]])
```

In [61]:
```
c.shape
```

Out[61]:
```
(1, 11)
```

In [65]:
```
c=a[:,np.newaxis]
c
```

Out[65]:
```
array([[  2. ],
       [  4. ],
       [  4.5],
       [  5.6],
       [  6. ],
       [ 10. ],
       [ 12. ],
       [ 15. ],
       [ 45. ],
       [ 78. ],
       [100. ]])
```

In [66]:
```
a
```

Out[66]:
```
array([  2. ,   4. ,   4.5,   5.6,   6. ,  10. ,  12. ,  15. ,  45. ,
        78. , 100. ])
```

In [67]:
```
a[2:8]
```

Out[67]:
```
array([ 4.5,  5.6,  6. , 10. , 12. , 15. ])
```

In [68]:
```
a*6
```

Out[68]:
```
array([ 12. ,  24. ,  27. ,  33.6,  36. ,  60. ,  72. ,  90. , 270. ,
       468. , 600. ])
```

In [69]:
```
a.sum()
```

Out[69]:
```
282.1
```

In [70]:
```
a.mean()
```

Out[70]:
```
25.645454545454548
```

In [56]:
```
b=v.reshape(2,3)
b
```

Out[56]:
```
array([[0, 1, 2],
       [3, 4, 5]])
```