In [10]:
```
import numpy as np
```

In [11]:
```
arr1 = np.array([1,2,3,4])
arr2 = np.array([[1,2],[3,4]])
arr3 = np.array([[[1,2,3],[3,4,5],[5,6,7]]])
arr4 = np.array([[[[1,2,3,4],[2,3,4,5],[3,4,5,6],[4,5,6,7]]]])
arr5 = np.array([[[[[1,2,3,4,5],[2,3,4,5,6],[4,5,6,7,8],[6,7,8,9,0],[7,8,9,0,1]]]]])
arr6 = np.array([[[[[[1,2,3,4,5,6],[2,3,4,5,6,7],[4,5,6,7,8,9],[5,6,7,8,9,0,1],[6,7,8,9,0,1,2],[7,8,9,0,1,2]]]]]])
```

In [18]:
```
print(arr1)
print(arr2)
print(arr3)
print(arr4)
print(arr5)
# print(arr6)
```

```
[1 2 3 4]
[[1 2]
 [3 4]]
[[[1 2 3]
  [3 4 5]
  [5 6 7]]]
[[[[1 2 3 4]
   [2 3 4 5]
   [3 4 5 6]
   [4 5 6 7]]]]
[[[[[1 2 3 4 5]
    [2 3 4 5 6]
    [4 5 6 7 8]
    [6 7 8 9 0]
    [7 8 9 0 1]]]]]
```

In [19]:
```
import numpy as np
from numpy import linalg as la
```

In [21]:
```
# print(la.det(arr1))
#print(la.det(arr1))
print(la.det(arr2))
#print(la.det(arr2))
print(la.det(arr3))
#print(la.det(arr3))
print(la.det(arr4))
#print(la.det(arr4))
print(la.det(arr5))
#print(la.det(arr5))
# print(la.det(arr6))
#print(la.det(arr6))
```

```
-2.0000000000000004
[0.]
[[0.]]
[[[0.]]]
```

In [24]:
```
# print(la.inv(arr1))
print(la.inv(arr2))
# print(la.inv(arr3))
#print(la.inv(arr4))
# print(la.inv(arr5))
```

```
[[-2.   1. ]
 [ 1.5 -0.5]]
```

In [26]:
```
print(la.matrix_rank(arr1))
print(la.matrix_rank(arr2))
print(la.matrix_rank(arr3))
print(la.matrix_rank(arr4))
print(la.matrix_rank(arr5))
# print(la.matrix_rank(arr6))
```

```
1
2
[2]
[[2]]
[[[4]]]
```

In [29]:
```
# print(np.diag(arr))
print(np.diag(arr1))
print(np.diag(arr2))
# print(np.diag(arr4))
```

```
[[1 0 0 0]
 [0 2 0 0]
 [0 0 3 0]
 [0 0 0 4]]
[1 4]
```