In [1]:
```
import numpy as np
arr1=np.array([1,2,3])
print(arr1)
```

```
[1 2 3]
```

In [4]:
```
import numpy as np
arr1=np.array([[1,2,3],[4,5,6]])
print(arr1)
```

```
[[1 2 3]
 [4 5 6]]
```

In [5]:
```
zeros=np.zeros((2,3))
print(zeros)
```

```
[[0. 0. 0.]
 [0. 0. 0.]]
```

In [6]:
```
zeros=np.ones((2,3))
print(zeros)
```

```
[[1. 1. 1.]
 [1. 1. 1.]]
```

In [7]:
```
zeros=np.random.random((2,3))
print(zeros)
```

```
[[0.7795202  0.23783707 0.15484072]
 [0.37893516 0.0107956  0.13295169]]
```

In [8]:
```
zeros=np.arange(0,10,2)
print(zeros)
```

```
[0 2 4 6 8]
```

In [10]:
```
arr1=np.array([[1,2,3],[4,5,6]])
print('shape',arr1.shape)
print('size',arr1.size)
print('data type',arr1.dtype)
print('dimensions',arr1.ndim)
```

```
shape (2, 3)
size 6
data type int32
dimensions 2
```

In [13]:
```
print(arr1[0,1])
print(arr1[1,2])
```

```
2
6
```

In [19]:
```
print(arr1[:,1:])
```

```
[[2 3]
 [5 6]]
```

In [20]:
```
arr2=np.array([2,3,4])
print(arr2)
```

```
[2 3 4]
```

In [21]:
```
arr1=np.array([3,4,5])
print(arr1+arr2)
```

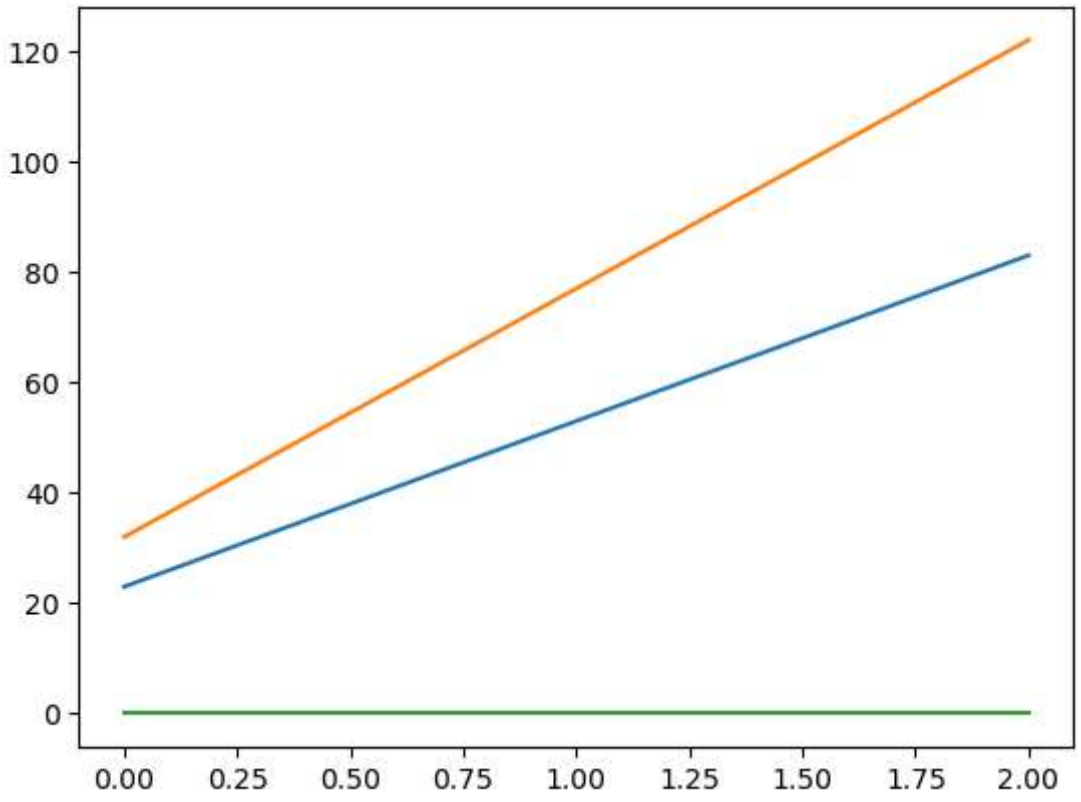
```
[5 7 9]
```

In [26]:
```
import numpy as np

arr1 = np.array([[[1, 2, 3], [4, 5, 6], [7, 8, 9]]])
arr2 = np.array([[2, 3, 5], [4, 5, 6], [0, 0, 0]])
result=np.dot(arr1[0],arr2.T)
print(result)
```

```
[[ 23  32   0]
 [ 53  77   0]
 [ 83 122   0]]
```

In [27]:
```
import matplotlib.pyplot as plt
plt.plot(result)
plt.show()
```



In [29]:
```
print(np.exp(arr1))
print(np.log(arr1))
print(np.sqrt(arr1))
```

```
[[[2.71828183e+00 7.38905610e+00 2.00855369e+01]
  [5.45981500e+01 1.48413159e+02 4.03428793e+02]
  [1.09663316e+03 2.98095799e+03 8.10308393e+03]]]
[[[0.         0.69314718 1.09861229]
  [1.38629436 1.60943791 1.79175947]
  [1.94591015 2.07944154 2.19722458]]]
[[[1.         1.41421356 1.73205081]
  [2.         2.23606798 2.44948974]
  [2.64575131 2.82842712 3.        ]]]
```

In [30]:
```
print('sum',np.sum(arr1))
print('mean',np.mean(arr1))
print('sd',np.std(arr1))
print('max',np.max(arr1))
print('min',np.min(arr1))
```

```
sum 45
mean 5.0
sd 2.581988897471611
max 9
min 1
```

In [33]:
```
a=np.array([1,2])
b=np.array([3,4])
print(np.vstack((a,b)))
print(np.hstack((a,b)))
```

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

In [34]:
```
a=np.array([1,2,3,4,5,6])
print(np.array_split(a,3))
```

```
[array([1, 2]), array([3, 4]), array([5, 6])]
```

In [36]:
```
a=np.array([1,2,3])
v=a.view()
v[0]=10
print(a)
copy=a.copy()
copy[0]=100
print(a)
```

```
[10  2  3]
[10  2  3]
```

In [37]:
```
a=np.array([1,2,3])
np.save('arr.npy',a)
```

In [38]:
```
load=np.load('arr.npy')
print(load)
```

```
[1 2 3]
```

In [ ]:
```

```