```
import numpy as np
```

numpy operations

```
arr = np.arange(0,10)
print(arr)
print(arr+arr)
print(arr*arr)
print(arr-arr)
print(arr/arr)
print(1/arr)
print(arr**3)
```

```
[0 1 2 3 4 5 6 7 8 9]
[ 0  2  4  6  8 10 12 14 16 18]
[ 0  1  4  9 16 25 36 49 64 81]
[0 0 0 0 0 0 0 0 0 0]
[nan  1.  1.  1.  1.  1.  1.  1.  1.  1.]
[       inf 1.         0.5        0.33333333 0.25       0.2
 0.16666667 0.14285714 0.125      0.11111111]
[  0   1   8  27  64 125 216 343 512 729]
<ipython-input-2-95cdb3e6d3d1>:6: RuntimeWarning: invalid value encountered in true_d
  print(arr/arr)
<ipython-input-2-95cdb3e6d3d1>:7: RuntimeWarning: divide by zero encountered in true_
  print(1/arr)
```

universal array functions

square root

```
print(np.sqrt(arr))
```

```
[0.         1.         1.41421356 1.73205081 2.         2.23606798
 2.44948974 2.64575131 2.82842712 3.        ]
```

e^n

```
print(np.exp(arr))
```

```
[1.00000000e+00 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]
```

max

```
print(np.max(arr))
```

```
9
```

sin

```
print(np.sin(arr))
```

```
[ 0.          0.84147098  0.90929743  0.14112001 -0.7568025  -0.95892427
 -0.2794155   0.6569866   0.98935825  0.41211849]
```

log

```
print(np.log(arr))
```

```
[      -inf 0.         0.69314718 1.09861229 1.38629436 1.60943791
 1.79175947 1.94591015 2.07944154 2.19722458]
<ipython-input-7-bf2b823815a7>:1: RuntimeWarning: divide by zero encountered in log
  print(np.log(arr))
```

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