

## 5-1 数值上溢和下溢

- 上溢：当大量级的数字被近似为无穷时发生上溢，进一步计算会导致这些无限值变为非数字
- 下溢：当接近零的数字被四舍五入为零时发生下溢

```
a=
0.0000000000000000000000000000000000087953242100000000000000000000
000000000000000000000000000000000001

b=
0.000000000000000000000000000000000021435545400000000000000000000000013000
000000000000000000000000000000000001

c=
0.00000000000000578900000000000000000000000000000000000000000000000000430
000000000000000000000000000000000001

d=
0.00000000000000000000000000000000000000000000000000000000000000000043500000000876
530000000000000000000000000000000001

print(abcdaaa*a)
```

2.84110058165e-312

```
a=0.000000000000000000000000000000000879532421000000000000000000  
0000000000000000000000000000000001
```

```
b=0.00000000000000000000000002143554540000000000000000000000000013000  
0000000000000000000000000000000001
```

```
c=0.00000000000057890000000000000000000000000000000000000000000430  
00000000000000000000000000000001
```

```
d=0.000000000000000000000000000000000000000000000000004350000000876  
53000000000000000000000000000001
```

```
print(abcdaaaa)
```

0.0