

```
In [4]: import math as m
import numpy as np
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
from scipy.stats import binom, geom, norm
import math
```

```
In [6]: norm.ppf(q=0.01, loc=50, scale=2)
```

```
Out[6]: 45.34730425191832
```

```
In [7]: norm.cdf(x=92, loc=90, scale=(15/np.sqrt(35)))-norm.cdf(x=85, loc=90, scale=(15/np.sqrt(35)))
```

```
Out[7]: 0.7605853690971865
```

```
In [8]: norm.cdf(x=5.5, loc=5, scale=(0.5/np.sqrt(5)))
```

```
Out[8]: 0.9873263406612659
```

```
In [9]: norm.ppf(0.025)
```

```
Out[9]: -1.9599639845400545
```

```
In [11]: norm.interval(0.95, loc=24, scale=(8/np.sqrt(100)))
```

```
Out[11]: (22.432028812367957, 25.567971187632043)
```

```
In [12]: norm.interval(0.90, loc=75, scale=(10/np.sqrt(100)))
```

```
Out[12]: (73.35514637304853, 76.64485362695147)
```

```
In [13]: (math.comb(5,1)*math.comb(6,1))/math.comb(13,2)
```

```
Out[13]: 0.38461538461538464
```

```
In [14]: math.perm(5,1)
```

```
Out[14]: 5
```

```
In [15]: (10**2)*(26**3)
```

```
Out[15]: 1757600
```

```
In [16]: (math.comb(5,2)*math.comb(4,1)*math.comb(6,2))/math.comb(15,5)
```

```
Out[16]: 0.1998001998001998
```

```
In [17]: (2*math.factorial(10)*math.factorial(10))/math.factorial(20)
```

```
Out[17]: 1.082508822446903e-05
```

```
In [18]: binom.pmf(n=5, k=3, p=0.6)
```

```
Out[18]: 0.3455999999999997
```

```
In [19]: binom.pmf(n=40, k=10, p=0.25)
```

```
Out[19]: 0.14436434635625664
```

```
In [20]: binom.cdf(n=4, k=3, p=0.5)
```

```
Out[20]: 0.9375
```

```
In [21]: binom.cdf(n=6, k=4, p=0.6)
```

```
Out[21]: 0.7667200000000001
```

```
In [22]: binom.pmf(n=6, k=0, p=0.6)+binom.pmf(n=6, k=1, p=0.6)+binom.pmf(n=6, k=2, p=0.6)+binom.pmf(n=6, k=3, p=0.6)+binom.pmf(n=6, k=4, p=0.6)
```

```
Out[22]: 0.7667200000000003
```

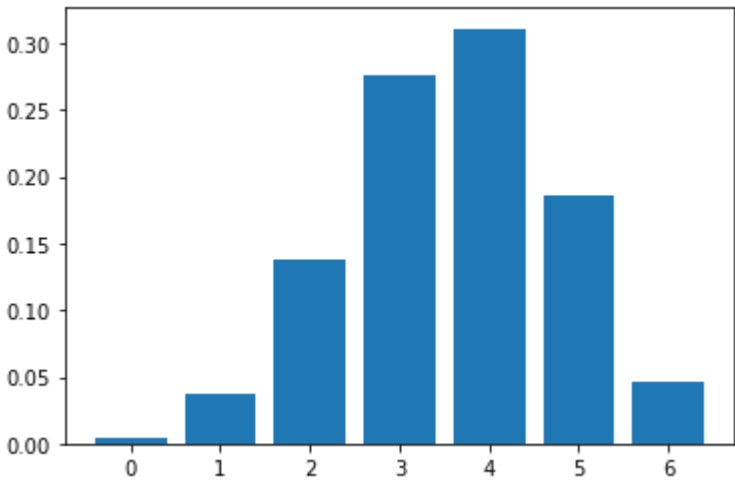
```
In [27]: prob=[]
b=[]
for i in range(0,7):
    b.append(i)
    prob.append(binom.pmf(n=6, k=i, p=0.6))
```

```
In [28]: prob
```

```
Out[28]: [0.0040960000000000015,
0.036864000000000002,
0.13824000000000001,
0.27648000000000001,
0.31104000000000001,
0.18662400000000001,
0.04665599999999999]
```

```
In [31]: plt.bar(x=b, height=prob)
```

```
Out[31]: <BarContainer object of 7 artists>
```



```
In [36]: binom.pmf(n=15000, k=0, p=0.0002)
```

```
Out[36]: 0.049772132496380066
```

```
In [33]: 1-(0.02/100)
```

```
Out[33]: 0.9998
```

```
In [38]: binom.cdf(n=10, k=3, p=0.12)
```

```
Out[38]: 0.9760611779412912
```

```
In [39]: binom.pmf(n=4, k=0, p=0.1)
```

```
Out[39]: 0.6561
```

```
In [40]: 1-binom.pmf(n=4, k=0, p=0.1)
```

```
Out[40]: 0.3439
```

```
In [41]: binom.cdf(n=4, k=0, p=0.1)
```

```
Out[41]: 0.6561
```

```
In [42]: 1-binom.cdf(n=4, k=0, p=0.1)
```

```
Out[42]: 0.3439
```

```
In [43]: (1*0.6561)+(5*0.3439)
```

