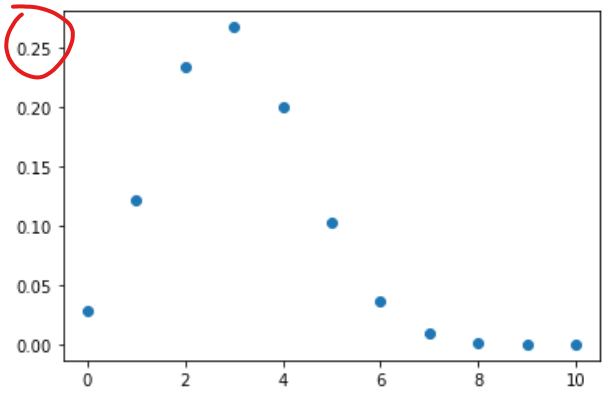
Exercise 3

Problem 3.1

In [74]:

```
import numpy as np
import seaborn as sns
import matplotlib.pyplot as plt
%matplotlib inline

def binomial_func():
    p_list = [0.3, 0.5, 0.8]
    n_list = [10, 50]
    for i in p_list:
        for j in n_list:
            print('i --',i,'-- j --',j)
            X = range(j+1)
            Y = binom.pmf(X, n = j, p = i)
            plt.plot(X,Y,'o')
            plt.show()

binomial_func()
```

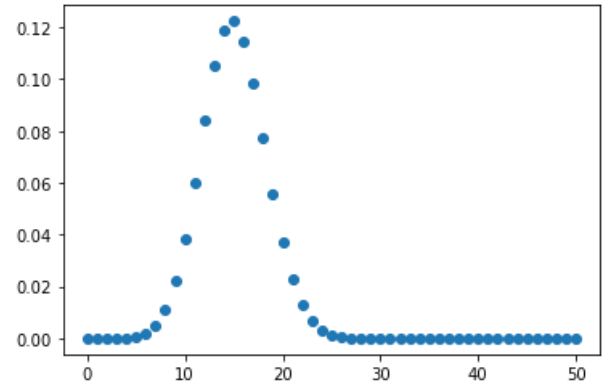
```
i -- 0.3 -- j -- 10
```



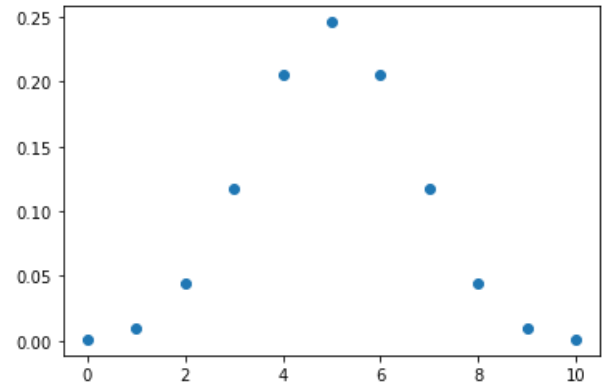
You should've plotted with the same range of Y-axis for a better comparison.

-1

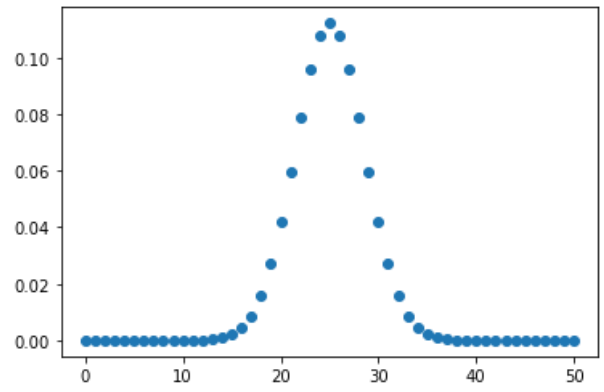
```
i -- 0.3 -- j -- 50
```



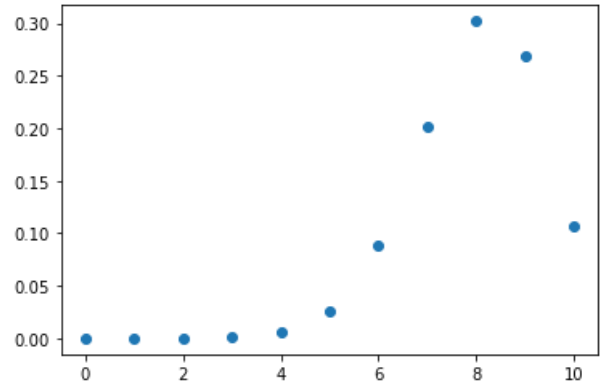

```
i -- 0.5 -- j -- 10
```



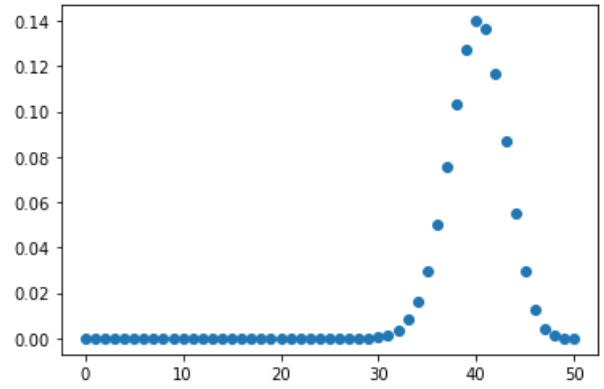

```
i -- 0.5 -- j -- 50
```




```
i -- 0.8 -- j -- 10
```




```
i -- 0.8 -- j -- 50
```



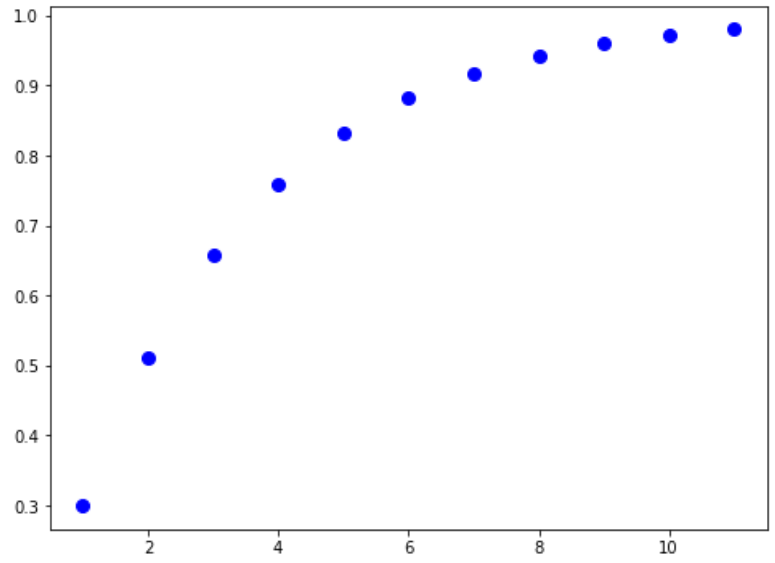
Discussion? (-1)

Problem 3.2

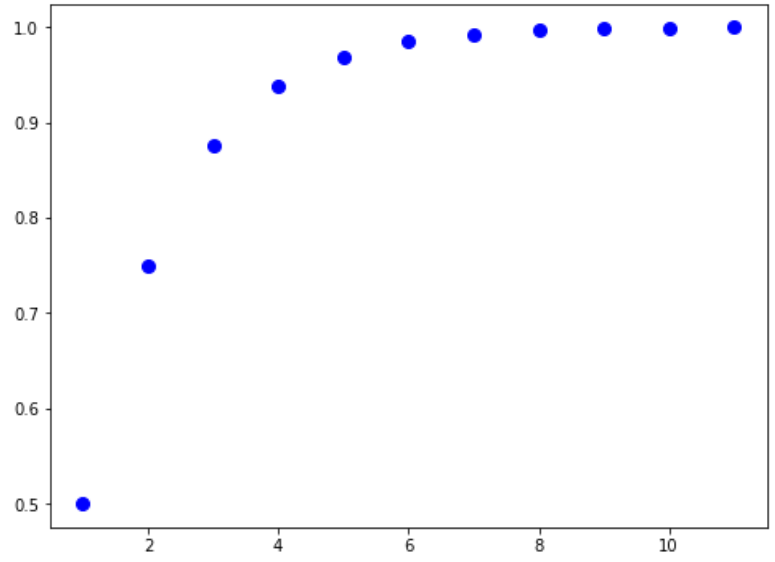
In [75]:

```
from scipy.stats import geom
import matplotlib.pyplot as plt
import seaborn as sns

X = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11]

def geom_func():
    p_list = [0.3, 0.5, 0.8]
    for i in p_list:
        print('p --',i)
        geom_pd = geom.cdf(X, i)
        fig, ax = plt.subplots(1, 1, figsize=(8, 6))
        ax.plot(X, geom_pd, 'bo', ms=8, label='geom cdf')
        plt.show()

geom_func()
```

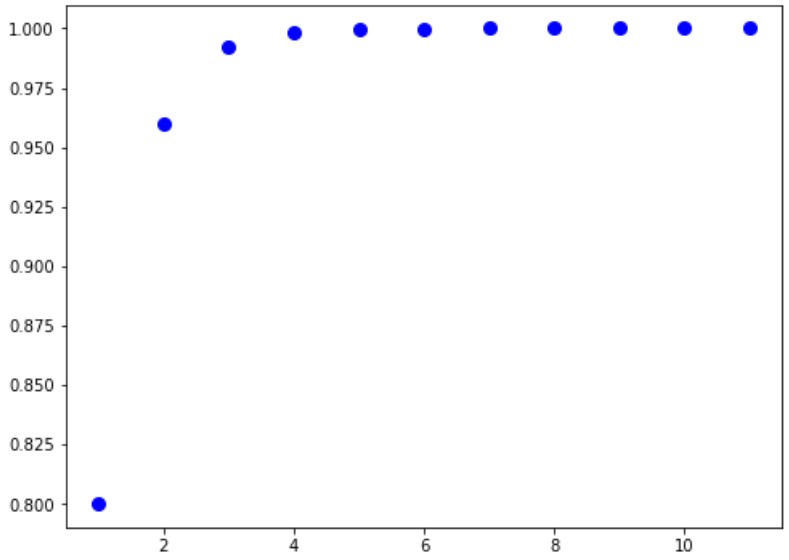
```
p -- 0.3
```




```
p -- 0.5
```




```
p -- 0.8
```



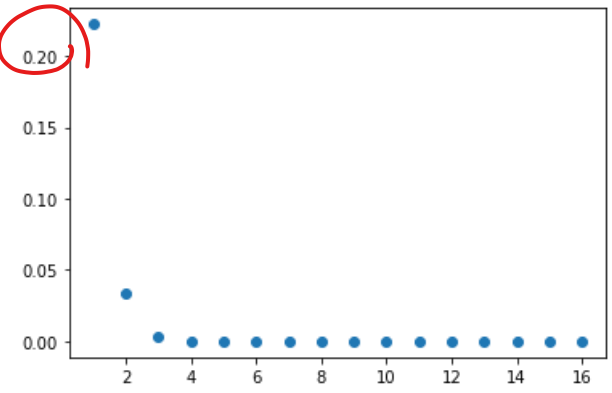
PMF? -2
discussion? -1

Problem 3.3

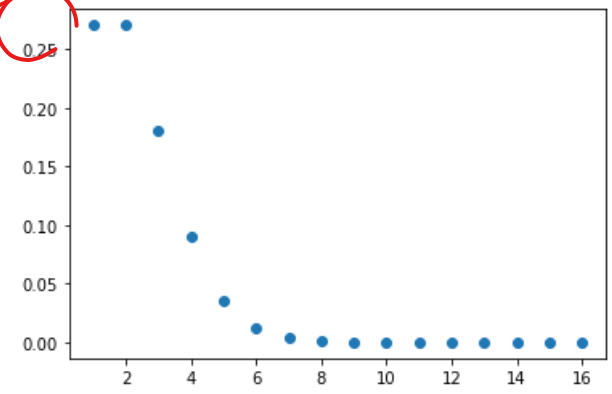
In [76]:

```
import numpy as np
import seaborn as sns
import matplotlib.pyplot as plt
%matplotlib inline

X = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16]

def poisson_func():
    lambdas = [0.3, 2, 6]
    for i in lambdas:
        print('Lambdas --',i)
        Y = poisson.pmf(X, i)
        plt.plot(X,Y,'o')
        plt.show()

poisson_func()
```

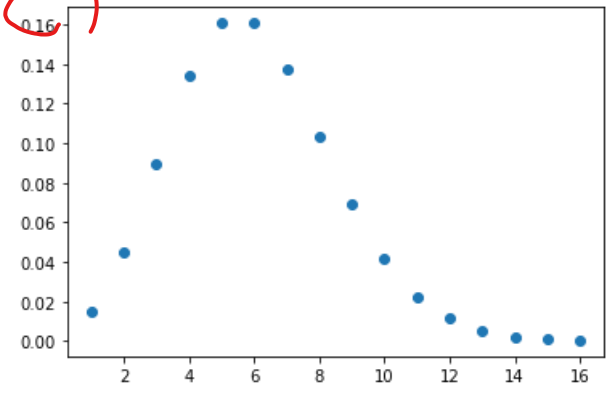
```
Lambdas -- 0.3
```




```
Lambdas -- 2
```




```
Lambdas -- 6
```



not a good comparison. -1

Discussion? -1

In [ ]:

Have you checked the updates in Discussion Forum?

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