In [48]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
import math
from scipy.stats import poisson,binom,expon
```

In [2]:
```
poisson.cdf(k=1,mu=3/20)
```

Out[2]:
```
0.9898141728888165
```

In [3]:
```
poisson.pmf(k=3,mu=1.2)
```

Out[3]:
```
0.08674393303071422
```

In [5]:
```
binom.pmf(n=80,k=3,p=0.015)
```

Out[5]:
```
0.08660120920447566
```

In [38]:
```
n = 1000
p =0.015
k = 10
```

In [39]:
```
x_values = np.arange(10)
x_values
```

Out[39]:
```
array([0, 1, 2, 3, 4, 5, 6, 7, 8, 9])
```

In [40]:
```
y_values = binom.pmf(n=n,p=p,k=x_values)
y_values
```

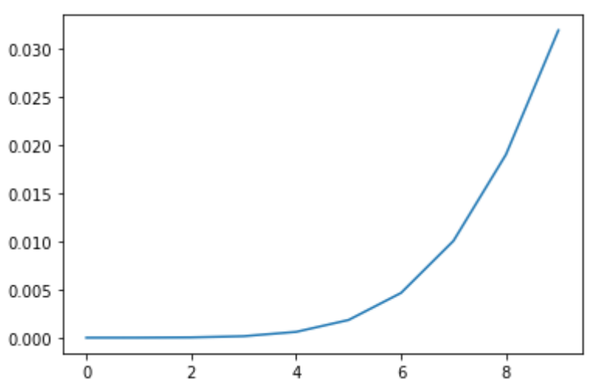
Out[40]:
```
array([2.73042655e-07, 4.15800997e-06, 3.16283144e-05, 1.60228720e-04,
       6.08177793e-04, 1.84490888e-03, 4.65909729e-03, 1.00750023e-02,
       1.90440557e-02, 3.19656569e-02])
```

In [41]:
```
y_values1 = poisson.pmf(mu=n*p,k=x_values)
y_values1
```

Out[41]:
```
array([3.05902321e-07, 4.58853481e-06, 3.44140111e-05, 1.72070055e-04,
       6.45262707e-04, 1.93578812e-03, 4.83947030e-03, 1.03702935e-02,
       1.94443003e-02, 3.24071672e-02])
```

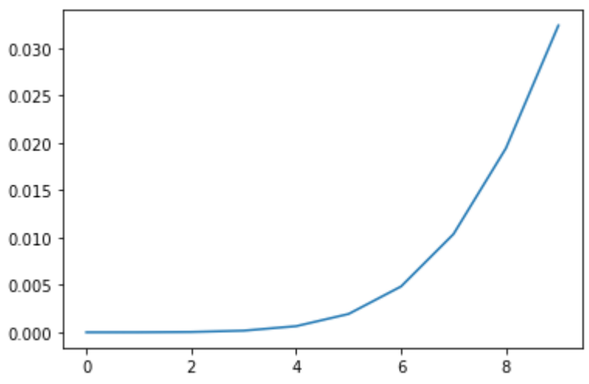
In [42]:
```
sns.lineplot(x=x_values,y=y_values)
```

Out[42]:
```
<AxesSubplot:>
```

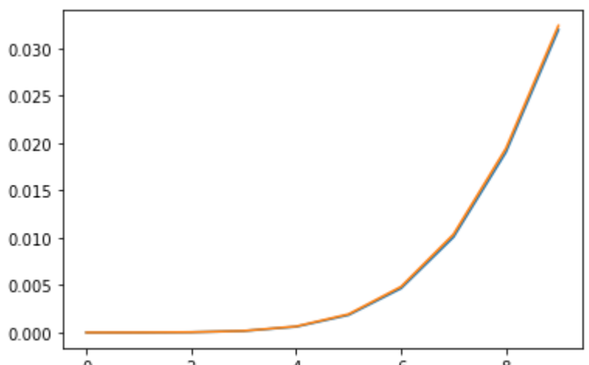


In [43]:
```
sns.lineplot(x=x_values,y=y_values1)
```

Out[43]:
```
<AxesSubplot:>
```



In [44]:
```
sns.lineplot(x=x_values,y=y_values)
sns.lineplot(x=x_values,y=y_values1)
plt.show()
```



In [45]:
```
poisson.pmf(k=0,mu=24/36)
```

Out[45]:
```
0.5134171190325 92
```

In [46]:
```
math.exp(-0.66)
```

Out[46]:
```
0.5168513344916992
```

In [49]:
```
1-expon.cdf(x=10,scale=15)
```

Out[49]:
```
0.5134171190325 92
```

In [50]:
```
expon.cdf(x=10,scale=15)
```

Out[50]:
```
0.486582880967408
```

In [51]:
```
expon.cdf(x=5,scale=5)-expon.cdf(x=4,scale=5)
```

Out[51]:
```
0.08144952294577923
```

In [52]:
```
1-expon.cdf(x=6,scale=5)
```

Out[52]:
```
0.3011942119122022
```

In [53]:
```
(1-expon.cdf(x=9,scale=5))/(1-expon.cdf(x=3,scale=5))
```

Out[53]:
```
0.3011942119122021
```

In [54]:
```
(1-expon.cdf(x=46,scale=5))/(1-expon.cdf(x=40,scale=5))
```

Out[54]:
```
0.30119421191234935
```

In [55]:
```
(1-expon.cdf(x=106,scale=5))/(1-expon.cdf(x=100,scale=5))
```

Out[55]:
```
0.30119420609105596
```

In [56]:
```
(1-expon.cdf(x=6,scale=5))/(1-expon.cdf(x=0,scale=5))
```

Out[56]:
```
0.3011942119122022
```

In [57]:
```
(1-expon.cdf(x=12,scale=5))/(1-expon.cdf(x=6,scale=5))
```

Out[57]:
```
0.30119421191220186
```

In [58]:
```
(1-expon.cdf(x=18,scale=5))/(1-expon.cdf(x=12,scale=5))
```

Out[58]:
```
0.3011942119122019
```

In [59]:
```
1-expon.cdf(x=30,scale=60/3.5)
```

Out[59]:
```
0.17377394345044517
```

In [60]:
```
1-expon.cdf(x=0.5,scale=1/3.5)
```

Out[60]: 0.17377394345044517

In [ ]: