

# March 8, 2020 Exponential Function Basic

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- In the give exponeitonal function what is convex function.
- What is the different expectation of exponetioal function and exponential function at mean.
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## 0.1 Related to Nonlinear Regression, Identification, GMM issues

```
[5]: import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
```

```
[11]: xs = []
ys = []
x = range(5)
for i in range(len(x)):
    xs.append(i+1)
    print('x values : ', i+1)
    ys.append(np.exp(i+1))
    print('y values : ', np.exp(i+1))
```

```
x values : 1
y values : 2.718281828459045
x values : 2
y values : 7.38905609893065
x values : 3
y values : 20.085536923187668
x values : 4
y values : 54.598150033144236
x values : 5
y values : 148.4131591025766
```

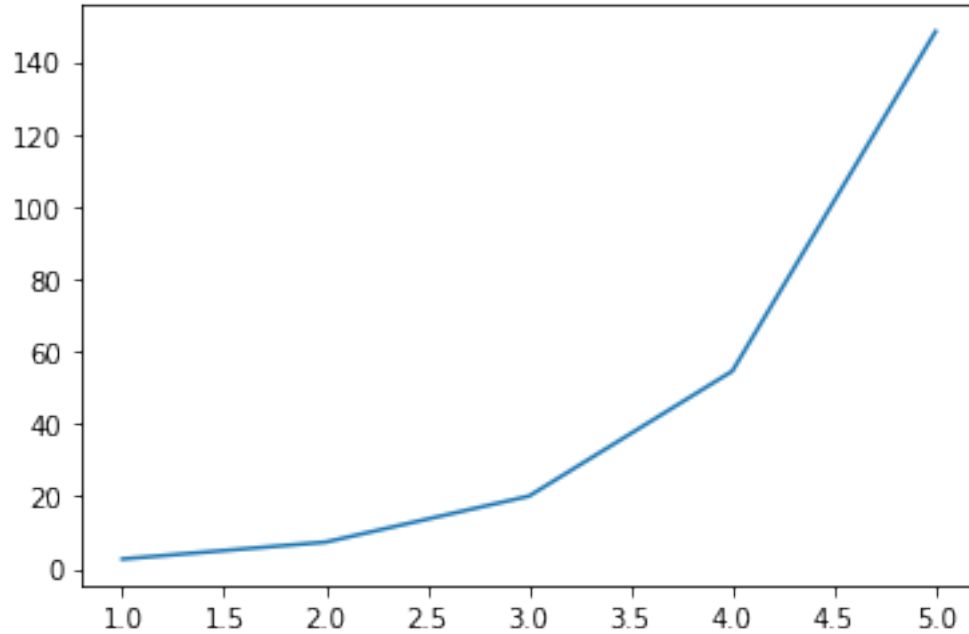
```
[12]: xs
```

```
[12]: [1, 2, 3, 4, 5]
```

```
[13]: ys
```

```
[13]: [2.718281828459045,  
       7.38905609893065,  
       20.085536923187668,  
       54.598150033144236,  
       148.4131591025766]
```

```
[14]: plt.plot(xs, ys)  
plt.show()
```



```
[16]: print( 'Exp(E(x)), where E(x) = 3, ', np.exp(3))
```

exp(E(x)), where E(x) = 3 20.085536923187668

```
[18]: print('E(exp(x)) from x = [1,2,3,4,5] : ', sum(ys)/len(ys))
```

E(exp(x)) from x = [1,2,3,4,5] : 46.64083679725964

```
[ ]:
```