LAW OF LARGE NUMBERS

Homework Exercise

$$\bar{X}_n \longrightarrow E(X) \quad when \quad n \longrightarrow \infty$$

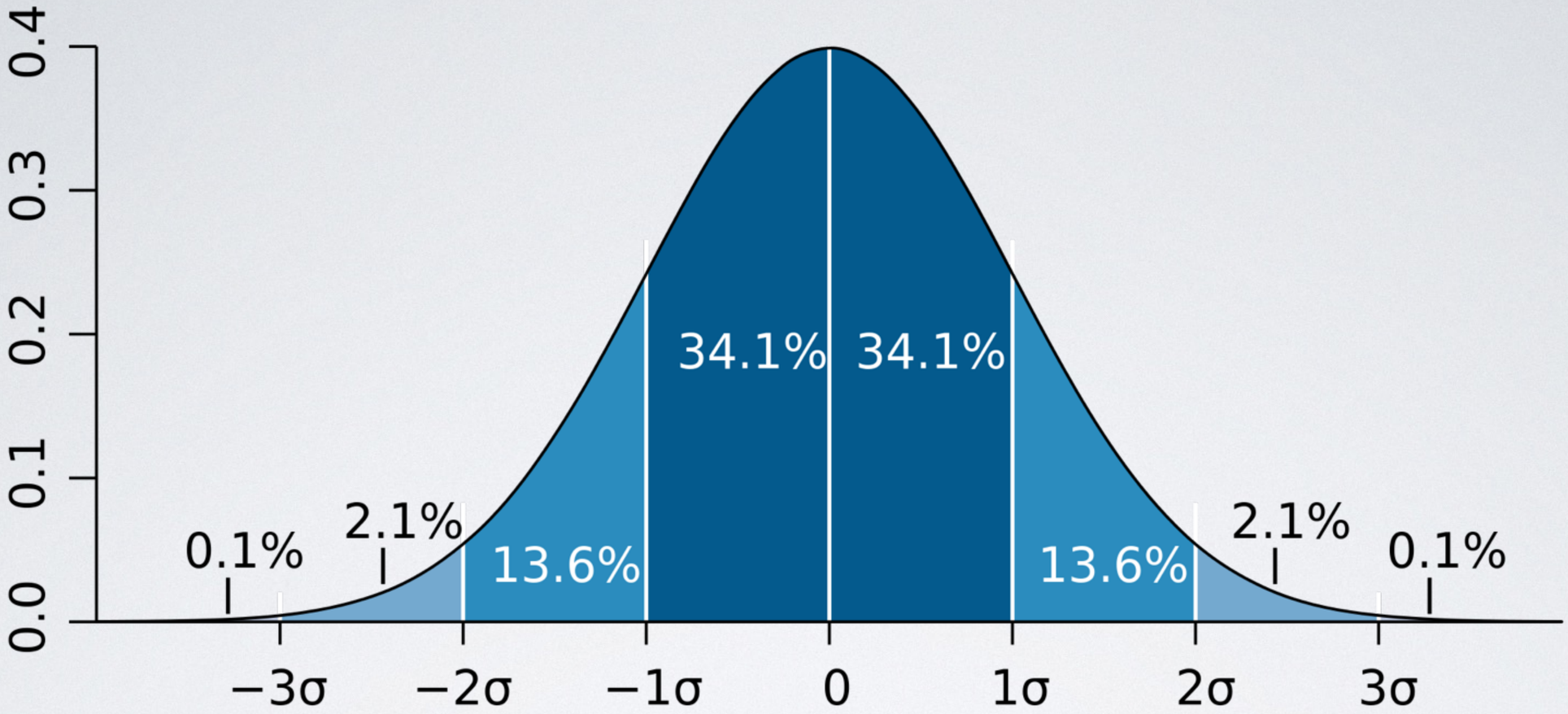
LLN

10: 7 / 3 70% / 30%

100: 52 / 48 52% / 48%

1000: 502 / 498 50.2% / 49.8%

...



NORMAL DISTRIBUTION

Test the Law Of Large Numbers for N random normally distributed numbers with mean = 0, stdev = 1:

Create a Python script that will count how many of these numbers fall between -1 and 1 and divide by the total quantity of N

You know that E(X) = 68.2%

Check that Mean(X_N) -> E(X) as you rerun your script while increasing N

HINT #1

```
for i in randn(100):
    #...
```

HINT #2

In [ ]:

```
import numpy as np
from numpy.random import randn
N = _                           #specify sample size
counter = _                     #reset counter
for _ _ randn(N):               #iterate over random values
    if(_ _ _ and _ _ _):        #check where iterated variable falls
        counter = _ _ _         #increase counter if condition is met
answer = counter / N            #calculate hit-ratio
print(answer)                   #print answer
```