

LAW OF LARGE NUMBERS

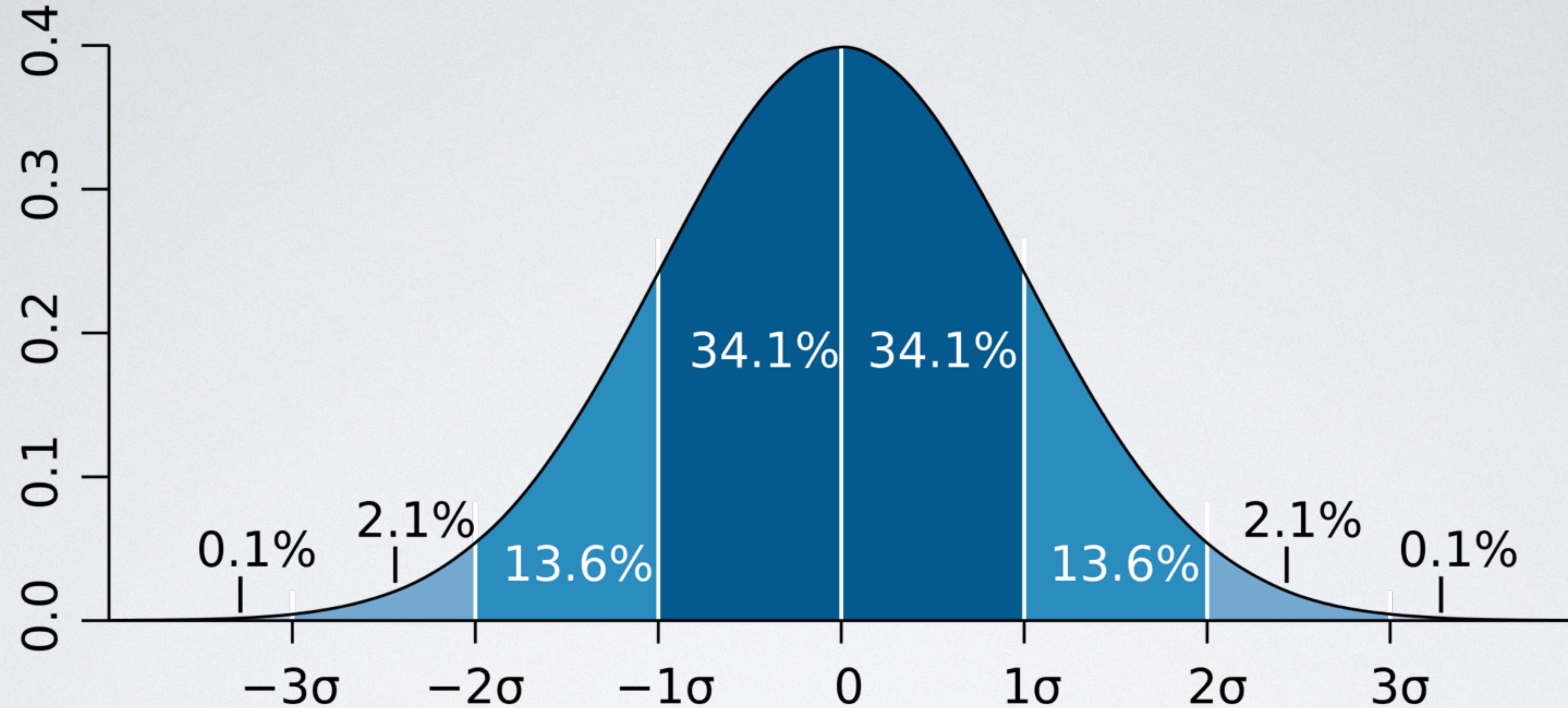
Homework Exercise

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

LLN

0:	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 an R 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 $\text{Mean}(X_N) \rightarrow E(X)$ as you rerun your script while increasing N

HINT #1

```
for(i in rnorm(100)){  
  #...  
}
```

HINT #2

```
1 N <- _                         #specify sample size
2 counter <- _                     #reset counter
3 for(_ _ rnorm(N)){               #iterate over vector of numbers
4   if(_ _ _ & _ _ _){              #check where iterated variable falls
5     counter <- _ _ _             #increase counter if condition is met
6   }
7 }
8 answer <- counter / N           #calculate hit-ratio
9 answer                           #print answer in console
```