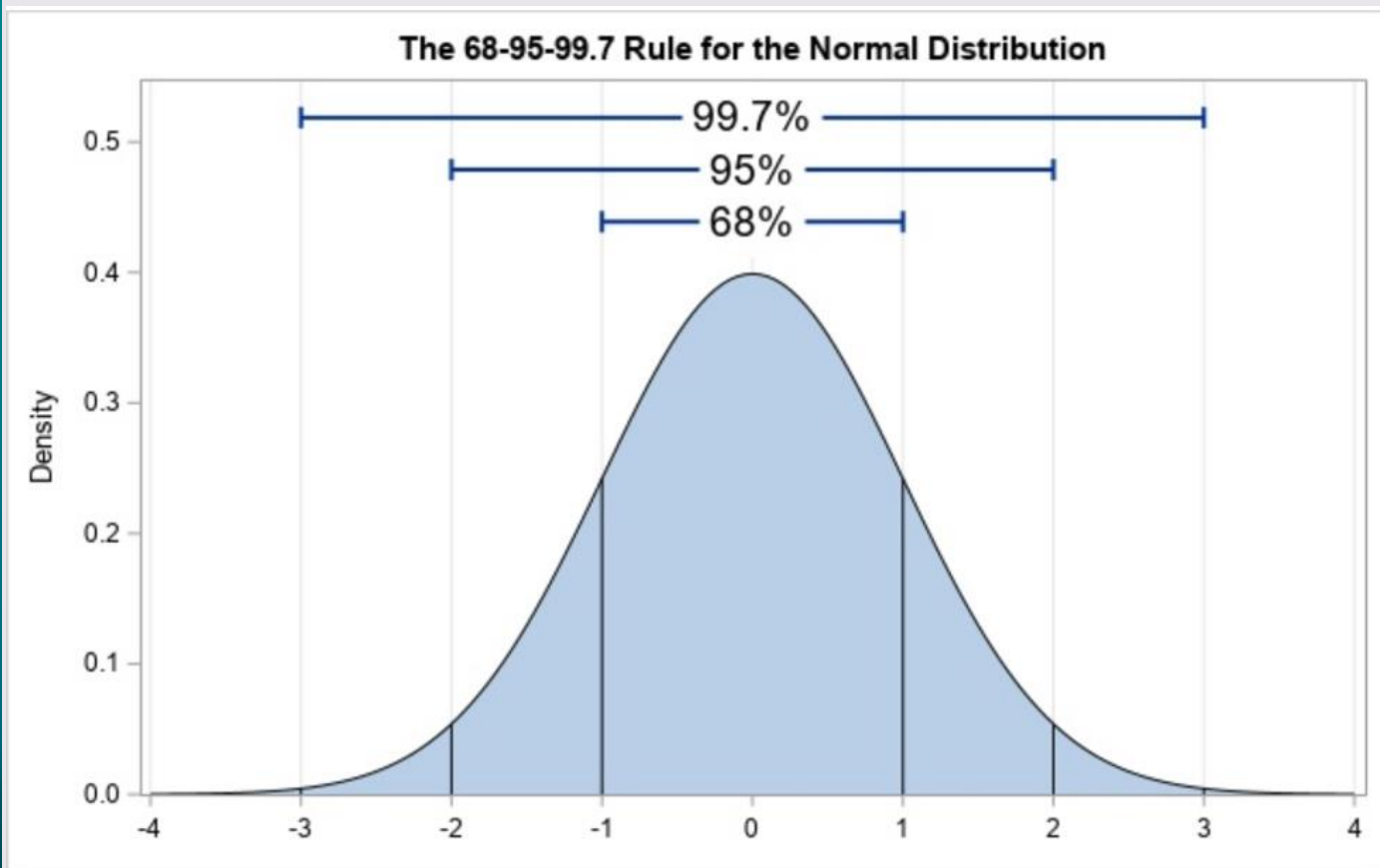


## 5.3.4 正态分布

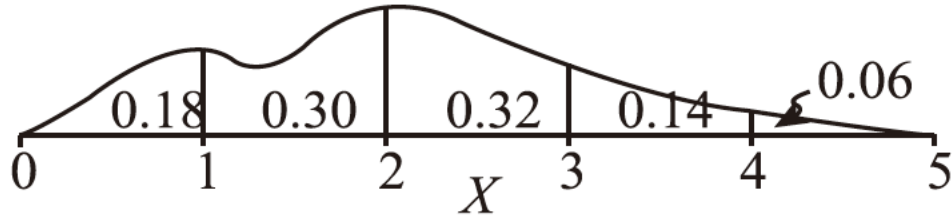
为什么叫“正态分布”，也有地方叫“常态分布”，这两个名字都不太直观，但如果我们各取一字变为“正常分布”，就很白话了，而这正是“正态分布”的本质含义，Normal Distribution。它太常见了，基本上能描述所有常见的事物和现象：正常人群的身高、体重、考试成绩、家庭收入等等。这里的描述是什么意思呢？就是说这些指标背后的数据都会呈现一种中间密集、两边稀疏的特征。以身高为例，服从正态分布意味着大部分人的身高都会在人群的平均身高上下波动，特别矮和特别高的都比较少见。

## 5.3.4正态分布



## 5.3.5正态分布练习

1. The figure below shows the probability distribution of a continuous random variable  $X$ . For each of the five intervals shown, the figure gives the probability that the value of  $X$  is in that interval. What is the probability that  $1 < X < 4$ ?



2. The distribution of the numbers of hours that students at a certain college studies for final exams has a mean of 12 hours and a standard deviation of 3 hours. Which of the following numbers of hours are within 2 standard deviations of the mean of the distribution? Indicate all such numbers.

3. A random variable  $Y$  is normally distributed with a mean of 200 and a standard deviation of 10.

Quantity A: The probability of the event that the value of  $Y$  is greater than 220

Quantity B:  $\frac{1}{6}$

4. The random variable  $X$  is normally distributed. The values 650 and 850 are at the 60<sup>th</sup> and 90<sup>th</sup> percentiles of the distribution of  $X$ , respectively.

Quantity A: The value at the 75<sup>th</sup> percentile of the distribution of  $X$

Quantity B: 750

Thanks

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