The Central Limit Theorem

The most important aspect of probability theory concerns the behavior of sequence of random variable. This part of probability is called large sample theory, or limit theory, or asymptotic theory. The basic question is this: what can we say about the limiting behavior of a sequence of random variables $X_1, X_2, X_3, ...$?
The **central limit theorem** says that $\sqrt{n}(\bar{X}_n - \mu)$ **converges in distribution** to a Normal distribution. This means that the sample average has approximately a Normal distribution for large n.