When was the central limit theorem proved?

- The standard version of the central limit theorem, first proved by the French mathematician Pierre-Simon Laplace in 1810, states that the sum or average of an infinite sequence of independent and identically distributed random variables, when suitably rescaled, tends to a normal distribution.

What is the Central Limit Theorem (CLT)?

- The Central Limit Theorem (CLT) is a statistical concept that states that the sample mean distribution of a random variable will assume a near-normal or normal distribution if the sample size is large enough.

- In simple terms, the theorem states that the sampling distribution of the mean approaches a normal distribution as the size of the sample increases, regardless of the shape of the original population distribution.

- there are three different components of the central limit theorem :
    1. Successive sampling from a population.
    2. Increasing sample size.
    3. Population distribution.

Why is central limit theorem called so?

1. "Central" means "very important" as it was central problem in probability for many decades, and CLT is a statement about Gaussian limit distribution.

2. "Central" comes from "fluctuations around centre =average", and any theorem about limit distribution of such fluctuations is called CLT.

Why is the central limit theorem important?

- The Central Limit Theorem is important for statistics because it allows us to safely assume that the sampling distribution of the mean will be normal in most cases.

- This means that we can take advantage of statistical techniques that assume a normal distribution .

How do you use central limit theorem?

- In other words, add up the means from all of your samples, find the average and that average will be your actual population mean. Similarly, if you find the average of all of the standard deviations in your sample, you'll find the actual standard deviation for your population.

When can you use central limit theorem?

- If you are being asked to find the probability of the mean, use the clt for the mean. If you are being asked to find the probability of a sum or total, use the clt for sums. This also applies to percentiles for means and sums.

- *NOTE :* If you are being asked to find the probability of an individual value, do not use the clt. Use the distribution of its random variable.