1. **What does symmetrical distribution mean?**

A symmetrical distribution occurs when the values of variables appear at regular frequencies and often the [mean](https://www.investopedia.com/terms/m/mean.asp), [median](https://www.investopedia.com/terms/m/median.asp), and [mode](https://www.investopedia.com/terms/m/mode.asp) all occur at the same point. If a line were drawn dissecting the middle of the graph, it would reveal two sides that mirror one other. In graphical form, symmetrical distributions may appear as a [normal distribution](https://www.investopedia.com/terms/n/normaldistribution.asp) (i.e., [bell curve](https://www.investopedia.com/terms/b/bell-curve.asp)). Symmetrical distribution is a core concept in technical trading as the price action of an asset is assumed to fit a symmetrical distribution curve over time.

1. **What is left skewed distribution and right skewed distribution?**

A **left skewed distribution** has a long left tail. Left-skewed distributions are also called positive skewed distributions. That’s because there is a  long tail in the negative direction on the number line. The mean is also to the left of the peak.

A **right skewed distribution** has a long right tail. Right-skewed distributions are also called positive-skew distributions. That’s because there is a long tail in the positive direction on the number line. The mean is also to the right of the peak.

1. **Where are long-tailed distributions are used?**

The long tail of distribution represents **a period in time when sales for less common products can return a profit due to reduced marketing and distribution costs**. Overall, long tail occurs when sales are made for goods not commonly sold. These goods can return a profit through reduced marketing and distribution costs. It is used to **model many internet-era phenomena such as the frequency distribution of book titles sold at Amazon.com** or the frequency of internet search terms.

1. **What is the central limit theorem?**

* The central limit theorem (CLT) states that the distribution of sample means approximates a normal distribution as the sample size gets larger, regardless of the population's distribution.
* Sample sizes equal to or greater than 30 are often considered sufficient for the CLT to hold.
* A key aspect of CLT is that the average of the sample means and standard deviations will equal the population mean and standard deviation.
* A sufficiently large sample size can predict the characteristics of a population more accurately.

1. **What are observational and experimental data in statistics?**

Observational data correlates to the data that is obtained from observational studies, where variables are observed to see if there is any correlation between them.  
  
Experimental data is derived from experimental studies, where certain variables are held constant to see if any discrepancy is raised in the working.