**CONFIDENCE INTERVAL**

* Decreases in width if sample size increases
* Decreases in width if alpha error increases
* Z is symmetrical X2 is not simetrical
* Confidence intervals for the mean are independent of the population distribution IF the sample size is large, because as N goes high, the interval decreases or disappear.

If a sample size of 16 yields an average of 12 and standard deviation of 3,

Estimate the 95% confidence interval



Mean is 30.2 for 6 samples, with standard deviation S= 5 what is the 90% interval. DF = n-1 - 5



**One hundred people were surveyed, their average debt was $3100 with a standard deviation of $500.**

**Last years mean average debt was $2990. At the 95% confidence level, what can be concluded?**

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Conclusion: The mean average debt has increased, $2990 is not in the confidence interval

What is the sigma? 1 sigma = 50 for 2990 sigma = ( 3100 – 2990 ) / 50 = 2.2

=> 0.4861 => 97.22% would include 2990 in the interval.

Data ( 22, 23, 19, 17, 29, 25) **normally distributed**, and the standard deviation is 3.1, what is the 90% confidence interval for the mean. (Don't use t distribution because it is normally distributed)



Determine a 95% confidence interval for a population proportion if 6 defectives were found in a sample size of 100 units (if it were n < 30 it would be Z, never t student for proportions)



Sample of 900 80% had anti lock brakes, what is the 95% confidence interval for the percent of cars with anti lock brakes?



What is the upper confidence limit (3 sigma) for proportion defective when the average daily production is 2500 units with an establish fraction defective of 0.05

Diagram

Description automatically generated