Modern Business Statistics Interval Estimation Cheat Sheet

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Margin of Error and the Interval Estimate

A point estimator cannot be expected to provide the exact value of the population parameter.	An interval estimate can be computed by adding and subtracting a margin of error to the point estimate. Point Estimate +/- Margin of Error
The purpose of an interval estimate is to provide information about how close the point estimate is to the value of the parameter.	The general form of an interval estimate of a population mean is: $\bar{x}$ + Margin of Error

Interval Estimate of a Pop. Mean:

Interval Estimate: $\bar{x}$± ☐ ☐$(\alpha/2)$ s/$\sqrt{n}$	$\bar{x}$=the sample mean, 1-a=the confidence coefficient, t(a/2)=the t value providing an area of a/2 in the upper tail of a t distribution with n-1 degrees of freedom, s=the sample standard deviation, n=the sample size
n=30 is usually an adequate sample size	

Interval Estimate of a Pop. Mean:

Interval Estimate of Mean: $\bar{x}$± ☐ ☐$(\alpha/2)$ ☐ ☐$/\sqrt{n}$	$\bar{x}$ is the sample mean, 1-a is the confidence coefficient, z(a/2) is the z value providing an area of a/2 in the upper tail of the standard normal probability distribution, σ is the population standard deviation, n is the sample size

Sample Size for an Int.l Estimate of a Pop. Mean

Margin of Error: ☐ ☐=$z(\alpha/2)\ \sigma/\sqrt{n}$	Necessary Sample Size: n = $z(\alpha/2))^{2\ \sigma}$ 2)/E^2

Interval Estimateof a Population Proportion

The general form of an interval estimate of a population proportion is: $\bar{p}$ + Margin of Error	Interval Estimate: ☐ ☐±$z(\alpha/2)\ \sqrt{\bar{p}(1-\bar{p})/n})$
Margin of Error: E = $z(\alpha/2)\ \sqrt{\bar{p}(1-\bar{p})/n}$	Necessary Sample Size: n=$z(\alpha/2)^{2\ p*}$ $(1-p*)/E_2$
$p*$=.5	