

## How to Determine Which Hypothesis Test or Confidence Interval to Use (chapters 8 & 9)

(given  $\alpha$  level like .01, .05, etc.)

What you are given in problem	Test name	Sec	Classical Method Critical value	p-value Method Test Name
one mean population standard deviation ( $\delta$ ) sample size (n) pop mean or standard for comparison, $\alpha$ level	HT for one mean, $\delta$ known	8.2	z value (handout)	z-test
one mean sample standard deviation (s) sample size (n) pop mean or standard for comparison, $\alpha$ level	HT for one mean, $\delta$ unknown	8.3	t value (book)	t-test
number (x) out of total sample (n) OR percent (p) pop proportion or percent for comparison, $\alpha$ level	HT for one proportion	8.4	z value (handout)	1-prop z test
two means two pop standard deviations , two sample sizes $\alpha$ level	HT for two means, $\delta$ known	9.1	z value (handout)	2 sample z-test
two means two sample standard deviations , two sample sizes $\alpha$ level	HT for two means, $\delta$ unknown	9.2	t value (book)	2 sample t-test
matched pairs of data (e.g. before/after, etc.) $\alpha$ level	HT for dependent or paired samples	9.3	t value (book)	t-test
two sets of values for proportions: numbers ( $x_1, x_2$ ) out of total samples ( $n_1, n_2$ ) OR percents ( $p_1, p_2$ ) $\alpha$ level	HT for two proportions	9.4	z value (handout)	2-prop z test

## CONFIDENCE INTERVALS (chapters 7 & 9)

(given level of confidence or significance like .95, .99, etc.)

What you are given in problem	Test name	Sec	Use z-value or t-value?
one mean population standard deviation ( $\delta$ ) sample size ( $n$ )	CI around mean, $\delta$ known	7.1	z value (handout)
one mean sample standard deviation ( $s$ ) sample size ( $n$ )	CI around mean, $\delta$ unknown	7.2	t value (book)
number ( $x$ ) out of total sample ( $n$ ) OR percent ( $p$ )	CI around proportion	7.3	z value (handout)
two means two pop standard deviations , two sample sizes	CI around difference of two means, $\delta$ known	9.1	z value (handout)
two means two sample standard deviations , two sample sizes	CI around difference of two means, $\delta$ unknown	9.2	t value (book)
matched pairs of data (e.g. before/after, etc.)	CI around difference of two means, dependent or paired samples	9.3	t value (book)
two sets of values for proportions: numbers ( $x_1, x_2$ ) out of total samples ( $n_1, n_2$ ) OR percents ( $p_1, p_2$ )	CI around difference of two proportions	9.4	z value (handout)

## SAMPLE SIZES (chapter 7)

What you are given in problem	Formula name	Notes
$\alpha$ level, standard deviation ( $\delta$ or $s$ ) error bound ( $\pm$ or "within")	Sample size estimation of mean	Round up to next integer Use Z score from handout
$\alpha$ level, error bound ( $\pm$ or "within") proportion may or may not be given	Sample size estimation of proportion	Round up to next integer Use Z score from handout If no proportion given use

