

Test	Sampling Statistic	Population Variance	Standard Error (SE)
1-sample t test	$\bar{x} - \mu_0$	$s^2 = \frac{\sum (x - \bar{x})^2}{n - 1}$	$\frac{s}{\sqrt{n}}$
2-sample t test <sup>1</sup> (difference of means)	$\bar{x}_A - \bar{x}_B$	$s_p^2 = \frac{\sum_{x \in A} (x - \bar{x}_A)^2 + \sum_{x \in B} (x - \bar{x}_B)^2}{n_A + n_B - 2}$ $= \frac{(n_A - 1)s_A^2 + (n_B - 1)s_B^2}{n_A + n_B - 2}$	$s_p \sqrt{\frac{1}{n_A} + \frac{1}{n_B}}$
2-sample z test (difference of proportion)	$p_A - p_B$		$\sqrt{\hat{p}(1 - \hat{p}) \left( \frac{1}{n_A} + \frac{1}{n_B} \right)}$
2-sample paired difference	$\frac{\sum d}{n} - \mu_0$	$s^2 = \frac{\sum (d - \bar{d})^2}{n - 1}$	$\frac{s}{\sqrt{n}}$

Confidence interval: sampling statistic  $\pm t \cdot SE$

z-score (or t-score) : sampling statistic/ $SE$

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<sup>1</sup> Can also use non-pooled SE:  $\sqrt{\frac{s_A^2}{n_A} + \frac{s_B^2}{n_B}}$