Summary of Confidence Intervals

Model / Question	$\mathcal{N}(\mu, \sigma^2)$, σ known	$\mathcal{N}(\mu, \sigma^2)$, σ unknown	$\mathcal{B}(1, p)$, p unknown
Point estimator	$\bar{X}_n = \frac{1}{n}\sum_{k=1}^{n} X_k$	$\bar{X}_n = \frac{1}{n}\sum_{k=1}^{n} X_k$ $s_n = \sqrt{\frac{1}{n-1}\sum_{k=1}^{n}(X_k - \bar{X}_n)^2}$ or $s_n = \sqrt{\frac{1}{n-1}\left(\sum_{k=1}^{n} X_k^2 - n(\bar{X}_n)^2\right)}$	$\hat{p} = \frac{1}{n}\sum_{k=1}^{n} X_k$
$100(1-\alpha)\%$ confidence interval	for μ: $\bar{X}_n \pm \frac{\sigma}{\sqrt{n}} z_{\alpha/2}$	for μ: $\bar{X}_n \pm \frac{s_n}{\sqrt{n}} t_{n-1,\alpha/2}$	for p: $\hat{p} \pm \frac{\sqrt{\hat{p}(1-\hat{p})}}{\sqrt{n}} z_{\alpha/2}$ provided $n\hat{p}(1-\hat{p})$ big enough
Total number N of samples to have the estimate to within $\pm w$ with $100(1-\alpha)\%$ confidence	$w = \frac{\sigma}{\sqrt{N}} z_{\alpha/2}$ no need for preliminary sampling	$w = \frac{s_n}{\sqrt{N}} t_{n-1,\alpha/2}$ n preliminary samples $N - n$ additional samples	$w = \frac{\sqrt{\hat{p}(1-\hat{p})}}{\sqrt{N}} z_{\alpha/2}$ can avoid preliminary sampling by taking $\hat{p} = 0.5$

Here $t_{n-1,\alpha/2}$ and $z_{\alpha/2}$ are taken from the tables.
Remember that $t_{\infty,\alpha} = z_\alpha$ and, for large n, say, $n > 30$, $t_{n,\alpha} \approx z_\alpha$.