Formula

Desired Confidence Interval Z Score

90% 95% 99% 1.645 1.96 2.576

1. Below is the formula for standard deviation SD $\sigma = \sqrt{\frac{1}{N}\sum_{i=1}^{N}(x_i - \mu)^2}$
2. Standard error (SE) = Standard Deviation / Sqrt of Total Sample = SD/Sqrt(n)
3. Z score= (Sample mean – Population Mean) /SE
4.

Confidence Level	Area between 0 and z-score	Area in one tail (alpha/2)	z-score
50%	0.2500	0.2500	0.674
80%	0.4000	0.1000	1.282
90%	**0.4500**	**0.0500**	**1.645**
95%	**0.4750**	**0.0250**	**1.960**
98%	0.4900	0.0100	2.326
99%	**0.4950**	**0.0050**	**2.576**