

7.8: Formula Review

7.1 The Central Limit Theorem for Sample Means

The Central Limit Theorem for Sample Means:

$$\bar{X} \sim N\left(\mu_{\bar{x}}, \frac{\sigma}{\sqrt{n}}\right)$$

$$Z = \frac{\bar{X} - \mu_{\bar{x}}}{\sigma_{\bar{x}}} = \frac{\bar{X} - \mu}{\sigma/\sqrt{n}}$$

The Mean $\bar{X} : \mu_{\bar{x}}$

Central Limit Theorem for Sample Means z-score $z = \frac{\bar{x} - \mu_{\bar{x}}}{\left(\frac{\sigma}{\sqrt{n}}\right)}$

Standard Error of the Mean (Standard Deviation (\bar{X})) : $\frac{\sigma}{\sqrt{n}}$

Finite Population Correction Factor for the sampling distribution of means: $Z = \frac{\bar{x} - \mu}{\frac{\sigma}{\sqrt{n}} \cdot \sqrt{\frac{N-n}{N-1}}}$

Finite Population Correction Factor for the sampling distribution of proportions: $\sigma_{p'} = \sqrt{\frac{p(1-p)}{n}} \times \sqrt{\frac{N-n}{N-1}}$

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