

# For Test of Hypothesis for the population Mean

## Test Statistic:

Sample size (n)

Population normal or not normal

Population approximately normal

n large (n ≥ 30)

n small (n < 30)

σ is known

σ is unknown

σ is known

σ is unknown

$$Z = \frac{\bar{X} - \mu_0}{\sigma / \sqrt{n}}$$

$$Z = \frac{\bar{X} - \mu_0}{s / \sqrt{n}}$$

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$$T = \frac{\bar{X} - \mu_0}{s / \sqrt{n}}$$

# For Confidence Interval for the population mean

## Sample size (n)

- Population normal or not normal

n large (n ≥ 30)

σ is known

$$\bar{x} \pm Z_{1-\frac{\alpha}{2}} \frac{\sigma}{\sqrt{n}}$$

σ is unknown

$$\bar{x} \pm Z_{1-\frac{\alpha}{2}} \frac{S}{\sqrt{n}}$$

Population approximately normal

n small (n < 30)

σ is known

$$\bar{x} \pm Z_{1-\frac{\alpha}{2}} \frac{\sigma}{\sqrt{n}}$$

σ is unknown

$$\bar{x} \pm t_{1-\frac{\alpha}{2}, n-1} \frac{S}{\sqrt{n}}$$