

One Population Mean

Confidence Interval, Sample Size & TI

1. Final Answer: $\dots < \mu < \dots$

2. General Format: $\bar{x} - E < \mu < \bar{x} + E$

3. Formula for margin of error E :

• σ known

$$E = z_{\alpha/2} \cdot \frac{\sigma}{\sqrt{n}}$$

• σ unknown with $df=n-1$

$$E = t_{\alpha/2} \cdot \frac{s}{\sqrt{n}}$$

4. Finding $z_{\alpha/2}$ Using TI:

2ND > VARS > invNorm

5. Finding $t_{\alpha/2}$ Using TI:

2ND > VARS > invT

6. Finding Confidence Interval Using TI:

• σ known

STAT > TESTS > ZInterval

• σ unknown

STAT > TESTS > TInterval

7. Margin of error from CI:

$$E = \frac{\text{CI Upper Value} - \text{CI Lower Value}}{2}$$

8. Point estimate \bar{x} from CI:

$$\bar{x} = \frac{\text{CI Upper Value} + \text{CI Lower Value}}{2}$$

9. Minimum sample size by formula:

• σ known

$$n = \left(\frac{z_{\alpha/2} \cdot \sigma}{E} \right)^2$$

• σ unknown

$$n = \left(\frac{z_{\alpha/2} \cdot s}{E} \right)^2$$

• Always round up.
