

## CHAPTER 18: CONFIDENCE INTERVALS FOR PROPORTIONS

Confidence Interval: “We are 95% confident that \_\_\_\_\_  
between \_\_\_\_\_ and \_\_\_\_\_.”

Use \_\_\_\_\_ standard deviations, instead of 2.

Critical Value:

### **Confidence Interval Conditions (Things to check/assume)**

1. Plausible Independence Condition
2. Randomization
3. 10% condition
4. Success/Failure Condition

A May 2002 Gallup Poll found that 38% of a random sample of 1012 adults believe in ghosts. Determine and interpret a 95% confidence interval.

**Pew Research surveyed 1002 American Adults and found that 51% of Americans feel that Apple should assist the FBI to unlock the San Bernardino attacker's iPhone.**

1. Determine and interpret a 95% confidence interval (check conditions also); what is the margin of error?
2. Determine and interpret a 90% confidence interval; what is the margin of error?
3. Determine the sample size needed to have a margin of error for  $\pm 1\%$  , based on a 95% confidence level
4. Determine the sample size needed to have a margin error for  $\pm 1\%$  , based on a 90% confidence level