

### **3.5 – Margin of Error (MOE)**

– **margin of (sampling) error (MOE)** → represents a \_\_\_\_\_ on the difference between how a \_\_\_\_\_ and how the \_\_\_\_\_

**Margin of Error (MOE) “Formula”** → If the percent of people in a sampling respond in a certain way is  $p$  and the size of the sample  $n$ , then \_\_\_\_\_ of the time, the percent of the population responding in that same way will be between \_\_\_\_\_ and \_\_\_\_\_, where  $MOE =$  \_\_\_\_\_

**Example 1:** Find the margin of error (MOE) where round it to the nearest percent.

a.) $p = 72\%$ and $n = 100$	b.) $p = 31\%$ and $n = 500$
c.) In a survey of 1000 randomly selected adults, 37% answered “yes” to a particular question.	d.) In a survey of 520 randomly-selected high school students, 68% of those surveyed stated that they were involved in extracurricular activities.

**Example 2:** Find the number of people surveyed in each situation.

a.) $p = 67\%$ and $MOE = 2\%$	b.) In a recent Gallup Poll, 25% of the people surveyed said they had smoked cigarettes in the past week. The margin of error was 3%.
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**Example 3:** Find the percent of people surveyed who said “yes” in each situation.

a.) $n = 1000$ and $MOE = 3\%$	b.) According to a survey in American Demographics, 283 Americans age 12 or older said they listen to the radio every day. The survey had a margin of error of 5%.
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