Statistical Reasoning   Name:_____
Margin of Error and Sampling Errors WS

1. What happens to the margin of error when you increase the sample size?

2. **Statistic** describes a _____. **Parameter** describes a _____.
3. Define a **sampling frame.**

4. In a survey of 5000 high school seniors, 80% said they work at least 10 hours a week.
   a. **HOW MANY** high school seniors said that they work at least 10 hours a week?

   b. What is the margin of error for the survey?

   c. Using a 95% confidence level, write a confidence statement for this data.

   d. Do you think these results accurately describe the true percentage of high school seniors who work at least 10 hours a week? Why or why not?

5. In a survey of 25 people, 27% replied that their favorite fast food restaurant was Chick-fil-a.
   a. **HOW MANY** people said that their favorite fast food restaurant was Chick-fil-a?

   b. What is the margin of error for the survey?

   c. Using a 95% confidence level, write a confidence statement for this data.

   d. Do you think these results accurately describe the true percentage of people whose favorite restaurant is Chick-fil-a? Why or why not?

6. A survey was conducted to find which sport is the most popular in the United States. They surveyed 8000 men and found that 6852 prefer football over any other sport.
   a. What percentage people prefer football over any other sport?

   b. What is the margin of error for the survey?

   c. Using a 95% confidence level, write a confidence statement for this data.

   d. What type of sampling error occurred here? Will your results accurately describe the true percentage of the favorite sport in the U.S.?

7. Identify the type of error or type of sample.
   a. A student forgets how long they spent studying for their unit 5 test.

   b. Dr. Stark wants to know if students like their new schedules. She asks the first 50 students who arrive to school their opinion.

   c. A student lies about turning in their linear regression project.

   d. Mr. Thornton asked his students, "How awful is the GA Tech Football team?"

   e. Nate types in his birthday as 10/51/2002.

   f. Daija is chosen to participate in a sample. She refuses to send back the questionnaire.

   g. Mrs. Brown takes a random sample of 5 students from each block.

   h. American Deli gives you a survey code on your receipt to go online and review your visit.

   i. Jocelyn wants to know how many students like math. She asks her 1st block statistics class.

   j. Mrs. Brattebo takes a random sample of 5 from each grade level in her classes.