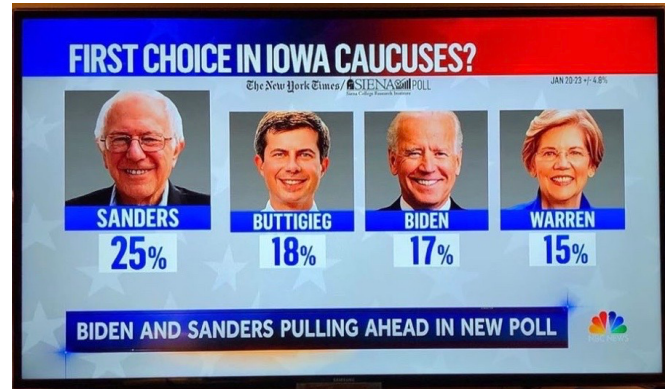Name: _____ Hour: _____ Date: _____

Who Will Win the Iowa Caucus?

During a news broadcast about one week before the 2020 Democratic Iowa caucus, NBC displayed these results which came from the New York Times poll. So who's going to win the Iowa Caucus?

1. Explain what you think this report is showing. If you saw this on the news, what conclusion would you make and why?

2. About 180,000 registered Democrats in Iowa usually vote in the Iowa Caucus. Do you think the pollsters asked every single one of these registered Democrats in Iowa who they were planning on voting for? Why or why not?

3. The New York Times poll actually consisted of a sample of 584 people. The percentages given are the **results from that sample**. Do you think the percentage of people in this sample who are planning on voting for Bernie Sanders is exactly the same as the percentage of the population that are planning on voting for Sanders? Explain.

An important piece of information is hidden in the upper right corner. It says +/- 4.8%. This is called a **margin of error**. Since every random sample will produce a different estimate, we don't expect the estimate to be perfect. We expect the sample percentage could be off by as much as 4.8% in either direction.

4. Use the margin of error to create an interval for where the true population percentage of people voting for Sanders might fall.

5. Use the margin of error to create an interval for where the true population percentage of people voting for Buttigieg might fall.

6. Based on the results of this poll, are you certain that Sanders will win the Iowa Caucus? Explain.

Margin of Error

Important Ideas:

Check Your Understanding:

A researcher wondered what the average SAT score is for all current students at the University of Michigan. Based on a random sample of 30 students, she reports that the average SAT score for all current students at the University of Michigan is 1222 with a margin of error of 30.

1. Is the average of 1222 reported by the student calculated from a sample or the whole population?

2. Use the margin of error to give an interval of possible values for the true mean of the whole population.

3. Do we know that every current student at the University of Michigan has an SAT score within the interval you constructed in #2? Explain.

4. Why do we need to report a margin of error along with the estimate? Answer each item with a yes or no.

- Some students might have lied when asked about their SAT score.

- The researcher may have recorded the wrong values for some of the SAT scores.

- Due to sampling variability. Every random sample produces different estimates.

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