Advanced Math   Name:
Date:
Period:

I. 12.9 Sampling and Error Homework

The problems are the worksheet version of problems from a book.
The problem numbers match the problem numbers in the book.

1. Describe how sampling techniques can influence the results of a survey.

2. Give an example of a good sample and a bad sample. Explain your reasoning.

3. Explain what happens to the margin of sampling error when the size of the sample n increases. Why does this happen?

4-5: Determine whether each situation would produce a random sample. Write yes or no and explain your answer.

4. The government sending a tax survey to everyone whose social security number ends in a particular digit

5. Surveying students in the honors chemistry classes to determine the average time students in your school study each week

6-8: Find the margin of sampling error to the nearest percent.
Show the computation(s) used to get your answer.

6. p = 72%, n = 100   7. p = 31%, n = 500

8. In a survey of 520 randomly-selected high school students, 68% of those surveyed stated theat they were involved in extracurricular activities at their school.

9-10: According to a survey in *American Demographics*, 77% of Americans age 12 or older said they listen to the radio every day. Suppose the survey had a margin of error of 5%.

9. What does the 5% indicate in the results?

10. How many people were surveyed? Show the computation(s) used to get your answer.

21-24: Find the margin of sampling error to the nearest percent.
Show the computation(s) used to get your answer.

21. A poll asked people to name their favorite type of documentary. Forty-six percent of the 800 randomly selected people said true crime stories.

22. Although skim milk has as much calcium as whole milk, only 33% of 2406 adults surveyed in *Shape* magazine said skim milk is a good calcium source.

23. Three hundred sixty-seven of 425 high school students said pizza was their favorite food in the school cafeteria.

24. Nine hundred thirty-four of 2150 subscribers to a particular newspaper said their favorite sport was football.

25. In a poll conducted by a news group, 83% of the 1020 people said they supported a new law. What was the margin of error? Show the computation(s) used to get your answer.

26. In a recent poll, 61% of the 1010 people surveyed said they considered being a physician to be a very prestigious occupation. What was the margin of error?
Show the computation(s) used to get your answer.

27. According to a poll, 33% of shoppers planned to spend $1000 or more during a recent holiday season. The margin of error was 3%. How many people were surveyed?
Show the computation(s) used to get your answer.

28. One hundred people were asked a yes-or-no questions in an opinion poll. How many people said "yes" if the margin of error was 9.6%? (Hint: assume p = 50% since that would lead to the highest possible margin of error.) Show the computation(s) used to get your answer. (Level II)

I. 12.9 Homework Answers

1. AMV: If a sample is not random, the results of a survey may not be valid.

2. AMV:
Good Sample: Surveying every 20th person on a list of high school students at GHS what their favorite subject is at GHS.
Bad Sample: Surveying all of the Calculus students at GHS what their favorite subject is at GHS.

3. The margin of sampling error decreases when the size of n increases. As n increases, $\frac{p(1-p)}{n}$, decreases.

4. Yes, anyone with a social security number could be selected.

5. No, students in Honors Chemistry probably study more than average.

6. About 9%   7. About 4%   8. About 4%

9. The probability is 0.95 that the percent of Americans ages 12 or older who listen to the radio every day is between 72% and 82%.

10. 284 people

21. About 4%   22. About 1.4%   23. About 3%   24. About 2%

25. About 2%   26. About 2.6%   27. About 983   28. About 109