Unit 8 Review

1) Classify the situation as a sample survey, an observational study, or an experiment. Then identify the population, the sample, and the characteristic of interest.

A nationwide survey of 1500 students showed that about 60% of 18- to 21-year-old college students take at least one science lab class.

a) Sample survey, an observational study, or an experiment? _____-

b) Population: _____   **c)** Sample: _____

d) Characteristic of interest: _____

2) Determine the type of sampling technique that is described in each scenario.
  clustered sample, convenience sample, simple random sample, stratified random sample, subjective sample, systemic sample, volunteer sample

 a) Assign each high school student a number. Choose every tenth high school student based on that number.

b) Assign each data entry a unique number, and use a random number generator to choose data values.

c) Jenna divides the population of students in her school into groups based on the town in which they live, and then randomly chooses some students from each group to survey

d) Choose the first 100 high school students who enter the gym.

3) A survey of 425 high school students reports that 43% of the students would like to be able to take one additional course each semester.

a) Calculate the standard deviation of the sampling distribution to the nearest thousandth.

b) Determine the 95% confidence interval for the population proportion.

4) A local pet shop claims that more people in your community like dogs than cats. The pet shop supports its claim by conducting a survey of 250 randomly selected people in the community. Of the people surveyed, 132 people said they like dogs better. Is the claim valid? Justify your answer.

Exemplary

5) A survey conducted at Roosevelt High School asked student how many hours per week they spend on social media. In a sample of 70 freshmen, the sample mean was 8.6 hours and the sample standard deviation was 2.2 hours. In a sample of 70 seniors, the sample mean was 9.8 hours and the sample standard deviation was 3.7 hours.

a) Estimate the margin of error for each grade level. Use a 95% confidence interval when making your calculations.

b) Calculate the 95% confidence interval for each population.

c) Do the results of the survey suggest a possible link between grade level and number of hours spent on homework? Explain your reasoning.