

Math 10 MPS - Homework 5

1. A researcher wanted to estimate the MPG for municipal busses in a large city. 100 busses were samples and the sample mean price was 9.8 MPG. For the following questions, assume the population standard deviation is 1.2 MPG.
 - a. Find a 95% confidence interval for the population mean. Explain what this interval means in the context of the problem.
 - b. Find a 99% confidence interval for the population mean. Why does the confidence interval have a larger margin of error?
 - c. Suppose you wanted to redo the sampling or the 95% confidence interval in order to get a margin of error of plus or minus 0.1 MPG. Determine the necessary sample size.

2. The department of education conducted a survey of 1100 undergraduate college students and determined that 761 have received some form of financial aid.
 - a. Determine the point estimate for the proportion of undergraduate college students who have received some form of financial aid.
 - b. Find a 95% confidence interval for the proportion of the undergraduate students who have received some form of financial aid. Explain what this interval means in the context of the problem.
 - c. Suppose you wanted to redo the sampling in order to get a margin of error of plus or minus 0.02. Determine the necessary sample size.

