Show all your work

Problem 1)

A sample of nine students is selected from among the students taking a particular exam. The nine students were asked how much time they had spent studying for the exam and the responses (in hours) were as follows:

 18, 7, 10, 13 12, 16, 5, 20, 21

Estimate the mean study time of all students taking the exam. Round your answer to the nearest tenth of an hour, if necessary.

Problem 2)

Scores on a particular test have a mean of 64.6. The distribution of sample means for samples of size 100 is normal with a mean of 64.6 and a standard deviation of 1.9. Suppose you take a sample of size 100 of test scores and find that the mean is 63. What is the z-score corresponding to this sample mean?

Problem 3)

There are 349 teachers at a college. Among a sample of 110 teachers from this college, 66 have doctorates. Based on this sample, estimate the number of teachers at this college without doctorates.

Problem 4)

Sample size = 400; sample mean = 44; sample standard deviation = 16. What is the margin of error?

Problem 5)

A sample of 64 statistics students at a small college had a mean mathematics ACT score of 28 with a standard deviation of 4. Estimate the mean mathematics ACT score for all statistics students at this college. Give the 95% confidence interval.

Problem 6)

A government survey conducted to estimate the mean price of houses in a metropolitan area is designed to have a margin of error of $10,000. Pilot studies suggest that the population standard deviation is $70,000. Estimate the minimum sample size needed to estimate the population mean with the stated accuracy.

Problem 7)

A researcher wishes to estimate the proportion of college students who cheat on exams. A poll of 490 college students showed that 33% of them had, or intended to, cheat on examinations. Find the margin of error for the 95% confidence interval.