University of Texas at Austin

Quiz # 4

Confidence intervals (the normal distribution).

Provide your **final answer only** to the following questions.

Problem 4.1. (5 points) The Midsomer Worthy Middle School has calculated a 95% confidence interval for the population mean height μ of 11−year-old boys at their school. They found it to be 57 ± 2 inches.

If we took many additional random samples of the same size and from each computed a 95% confidence interval for μ, approximately 95% of these intervals would contain the population mean μ. *True or false?*

Please, provide your **complete solution** to the following problem.

Problem 4.2. (10 points) To estimate a population mean, our resident statistician Martyn Rivera plans to pick two independent simple random samples, each of size 100, from the population. He also plans to calculate the confidence interval with level C for each sample. What is the probability that **exactly one** of his confidence intervals will cover the population mean?