STA220H1 Practice Problems – Confidence Intervals Part 2 Module

1. What is the critical value needed for a:

   (a) 90% confidence interval when the degrees of freedom is 9?

   (b) 95% confidence interval when the degrees of freedom is 29?

   (c) 99% confidence interval when the degrees of freedom is 59?

   (d) 80% confidence interval when the degrees of freedom is 10?

   (e) 80% confidence interval when the degrees of freedom is 10,000?

2. A hospital administrator hoping to improve wait times decides to estimate the average emergency room waiting time at her hospital. She collects a simple random sample of 64 patients and determines the time (in minutes) between when they checked in to the ER until they were first seen by a doctor. A 95% confidence interval for the mean wait time based on this sample is (128 minutes, 147 minutes), calculated using the t distribution.

   (a) How could we decrease the width of the confidence interval without losing confidence?

   (b) Describe how you would check the validity of the application of the statistical methodology used to construct the confidence interval.

   (c) Determine whether the following statements are true or false.

      i. This confidence interval is not valid since we do not know if the population distribution of the ER wait times is nearly normal.