STA220H1 Practice Problems – Confidence Intervals Part 1 Module

1. What is the critical value needed for a:

   (a) 90% confidence interval?

   (b) 95% confidence interval?

   (c) 99% confidence interval?

   (d) 80% confidence interval?

2. (a) If we want to be very certain that we capture the population parameter of interest, should we use a larger confidence level or a smaller confidence level?

   (b) If we want to be very certain that we capture the population parameter of interest, should we use a wider confidence interval or a smaller interval?

   (c) Can you see any drawbacks in using a wider interval?

   (d) Wouldn't it be desirable to be 100% confident?

3. An epidemiologist wanted to estimate the prevalence of oral contraceptive use in a certain population. She chose a simple random sample of 200 women, 80 of whom were oral contraceptive users, so she estimated the prevalence to be 40%. At the 95% confidence level, this estimate has a margin of error of 7%. Based on this information, determine if the following statements are true or false, and explain your reasoning.

   (a) We are 95% confident that between 33% and 47% of the women in this sample are oral contra-