1. Find the following t critical values, $t_{n-1,\alpha/2}$, for the following values of n and confidence level C:

   (a) $n = 6$ and $C = 99\%$

   (b) $n = 31$ and $C = 70\%$

   (c) $n = 40$ and $C = 99.9\%$

   (d) $n = 1000$ and $C = 85\%$

2. The Threaded Screw Products Co., Inc. makes #8 wood screws that are intended to have a mean torque strength of 150 in-lbs. Engineers at the company routinely test screws in a destructive process to ensure the mean torque strength is at least 150 in-lbs. In the most recent batch, the engineers tested 50 random screws and found a sample mean torque strength of 149.5 in-lbs and sample standard deviation of 8.3 in-lbs.

   Assuming the torque strengths are normally distributed, construct confidence intervals for the population mean torque strength for the following confidence levels.

   (a) 70%

   (b) 95%

   (c) 81%

3. Iowa State University would like to understand student debt when graduating from the University. ISU takes a random sample of 80 graduating seniors and find that their average debt is \$17,500 and the standard deviation is \$8,000. Assuming debt is normally distributed, construct an 80% confidence interval for the mean student debt.

4. Proctor & Gamble is trying to understand usage of its Old Spice deodorant. They recruited a random sample of 121 customers to record how many days they use Old Spice in the coming year. At the conclusion of the survey, the average number of days a customer used Old Spice in the year was 205 days and the variance was 196 days^2. Construct a 96% confidence interval for the mean number of days Old Spice is used across its customers.