Worksheet 9 – Chapter 5 – Confidence Intervals

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Section: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Use DDXL for the following problems.

1. Bruce Leichtman is president of Leichtman Research Group, Inc. (LRG), which specializes in research and consulting on broadband, media, and entertainment industries. In a recent survey, the company determined the cost of extra high-definition (HD) gear needed to watch television in HD. The costs ranged from $5 a month for a set-top box to $200 for a new satellite receiver. The file titled **HDcosts** contains a sample of the costs of the extras whose purchase is required to watch television in HD.
   1. Produce a 95% confidence interval for the population mean cost of the extras whose purchase would be required to watch television in HD. Be sure to give appropriate conditions.
   2. Interpret the interval found in part (a).
   3. Calculate a margin of error for this experiment.
   4. If you were to view the sample used in part (a) to be a pilot sample, how many additional data values would be required to produce a margin of error of 5? Assume the population standard deviation is 50.353.
2. Neverslip, Inc., produces belts for industrial use. As part of its continuous process-improvement program, Neverslip has decided to monitor on-time shipments of its products. Suppose a random sample of 140 shipments was taken from shipping records for the last quarter and the shipment was recorded as being either “on time” or “late.” The results of the sample are contained in the file **Neverslip.** 
   1. Using the randomly sampled data, calculate a 90% confidence interval estimate for the true population proportion, p, for on-time shipments for Neverslip. Be sure to give appropriate conditions.
   2. Interpret the interval found in part (a).
   3. What is the margin of error for the confidence interval calculated in part (a).
   4. One of Neverslip’s commitments to its customers is that 95% of all shipments will arrive on time. Based on the confidence interval calculated in part a, is Neverslip meeting its on-time commitment?