Statistics II Lab 2

Submission Instructions: Welcome to Lab 2. Upon completion, you *should upload* your **Word Document** and **Minitab Project files** to Blackboard by 11:59 PM of the due date.

Problems

Chapter 7 Lab - Sampling Distribution and Central Limit Theorem.

Answer the following questions using Minitab. Copy your results to a Word document with the questions stated clearly using statistical symbols where necessary. Also provide explanations as needed.

1. **Question 1**
   One of the top-selling video games is *Call of Duty: Black Ops*. While prices vary widely depending on store or website, the suggested retail price for this video game is $59.95. The file titled **Black Ops** contains a random sample of the retail prices paid for *Call of Duty: Black Ops*.

   (a) Calculate the sample mean and standard deviation of retail prices for *Call of Duty: Black Ops*.

   (b) To determine if the average retail price has fallen, assume the population mean is $59.95 and calculate the probability that a sample of size 200 would result in a sample mean no larger than the one calculated in part a. Assume that the sample standard deviation is representative of the population standard deviation.

   (c) In part b, you used $59.95 as the population mean. Calculate the probability required in part b assuming that the population mean is $59.50.

   (d) On the basis of your calculations in parts b and c, does it seem likely that the average retail price for *Call of Duty: Black Ops* has decreased? Explain.

2. **Question 2**
   The capacity of an elevator is 12 people or 1884 pounds. This capacity will be exceeded if 12 people have weights with a mean greater than $1884/12 = 157$ pounds. Suppose the people have weights that are normally distributed with a mean of 162 lb. and a standard deviation of 26 lb.

   (a) Find the probability that if a person is randomly selected, his weight will be greater than 157 pounds. (Round to 4 decimal places.)

   (b) Find the probability that 12 randomly selected people will have a mean that is greater than 157 pounds. (Round to 4 decimal places.)

   (c) Does the elevator appear to have the correct weight limit? Why or why not?