Take Test: HW #4 on Chapter 7

Test Information

Description

Question Completion Status:

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QUESTION 1 **20 points** Saved

An auto-maker does quality control tests on the paint thickness at different points on its car parts since there is some variability in the painting process. A certain part has a target thickness of 2 mm. The distribution of thicknesses on this part is skewed to the right with a mean 2 mm and a standard deviation of 0.5 mm. A quality control check on this part involves taking a random sample of 100 points and calculating the mean thickness of those points.

1. What is the shape of the sampling distribution of the sample mean thickness? since the distribution of the thiknesses is Skewed to the right and the sample size is 100, then by Central Limit Theorem the shape of the sampling distribution of the sample thikness is Approximately Normal

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- the mean of the sample mean
  2

- the standard deviation of the sample mean

3. Assuming the stated mean and standard deviation of the thicknesses are correct, what is the approximate probability that the mean thickness in the sample of 100 points is within 0.1 mm of the target value?
0.9545

QUESTION 2 **15 points** Saved

Random samples of size 80 are drawn from a population with mean 150 and standard deviation 45 .

1. Find the mean of the sample mean. 150

2. the standard deviation of the sample mean. 5.031

QUESTION 3 **15 points** Saved

Random samples of size 40 are drawn from a population with mean 110 and standard deviation 25 . Find the probability that the sample mean is more than 108

0.6936

QUESTION 4 **15 points** Saved

Suppose speeds of vehicles on a particular stretch of roadway are normally distributed with mean 43.1 mph and standard deviation 1.7 mph. Find the probability that the mean speed of 20 randomly selected vehicles is between 42.6 and 43.5 mph.
0.7595

QUESTION 5 **15 points** Saved

Suppose speeds of vehicles on a particular stretch of roadway are normally distributed with mean 43.1 mph and standard deviation 1.7 mph. Find the probability that the total speed of 20 randomly selected vehicles less than 852 mph.

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An automobile battery manufacturer claims that his midgrade battery has an exponential distribution with a mean life of 50 months, find the probability that the mean of a random sample of 30 such batteries will be less than 40 months.

0.27425

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