Table Number:\_\_\_\_\_\_\_\_\_\_ Group Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Group Members:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Sampling Distributions of Sample Means

Consider the following quiz scores (out of 10 possible points) for 5 students in our class: 7, 8, 6, 10, 4. This set of five quiz scores is our population.

1. Find the following parameters of this population:
   1. Mean,  \_\_\_\_\_\_\_\_\_\_
   2. Standard Deviation, \_\_\_\_\_\_\_\_\_\_
2. **SAMPLING DISTRIBUTION FOR SIZE N = 3.** Suppose now we want to consider all samples of this population with sample size 3, i.e. . There are 10 different such samples. I’ve listed them in the table below.
   1. Find the mean, , of each sample.

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| --- | --- | --- |
| **SAMPLE** | **MEAN of the sample (*statistic*),** | **|Distance | of each from** |
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This distribution of all possible sample means (a statistic) is called a **sampling distribution.**

* 1. Find the mean of this distribution of sample means and write it here: \_\_\_\_\_\_\_\_\_\_ We use the symbol,  to represent this “mean of sample means.” What do you notice about and the population mean,?
  2. Find the standard deviation of the distribution of and write it here:\_\_\_\_\_\_\_\_\_\_\_\_. What do you notice about  and? \_\_\_\_\_\_\_\_\_\_\_\_\_

1. **SAMPLING DISTRIBUTION FOR SIZE N = 4.** Suppose now we want to consider all samples of this population with sample size 4, i.e. . There are 5 different such samples. I’ve listed them in the table below.
2. Find the mean, , of each sample.

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| **SAMPLE** | **MEAN of the sample (*statistic*),** | **|Distance| of each from** |
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1. Find the mean of this distribution of sample means and write it here: \_\_\_\_\_\_\_\_\_\_ We use the symbol,  to represent this “mean of sample means.” What do you notice about and the population mean,?
2. Find the standard deviation of the distribution of and write it here:\_\_\_\_\_\_\_\_\_\_\_\_. What do you notice about  and? \_\_\_\_\_\_\_\_\_\_\_\_\_
3. **SAMPLING DISTRIBUTION FOR SIZE N = 2.** Suppose now we want to consider all samples of this population with sample size 4, i.e.. There are 10 different such samples. List them in the table below.
4. Find the mean, , of each sample.

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| **SAMPLE** | **MEAN of the sample (*statistic*),** | **|Distance| of each from** |
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1. Find the mean of this distribution of sample means and write it here: \_\_\_\_\_\_\_\_\_\_ We use the symbol,  to represent this “mean of sample means.” What do you notice about and the population mean,?
2. Find the standard deviation of the distribution of and write it here:\_\_\_\_\_\_\_\_\_\_\_\_. What do you notice about  and? \_\_\_\_\_\_\_\_\_\_\_\_\_

CONCLUSION: Complete the following with either  : \_\_\_\_\_\_; \_\_\_\_\_\_\_;