Elementary Statistics	**Name:** _____
Study Guide 19	**Class:** _____
Due Date: _____	**Score:** _____

Your solutions must be consistent with class notes & resources.

Be Neat, Organized, and No Work $\Leftrightarrow$ No Points

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1. Consider the data $2, 4, 6, 8, 10, 12,$ and 14. Store them in L_1, and then

(a) (2 points) find μ.

(a) _____

(b) (2 points) find σ.

(b) _____

(c) (3 points) find σ^2.

(c) _____

(d) (2 points) Take all samples of size 2 with replacement from this population, list all your samples in the table below:

$2, 2$	$2, 4$	$2, 6$	$2, 8$	$2, 10$	$2, 12$	
$4, 2$	$4, 4$					
$6, 2$						
$8, 2$						
$10, 2$						

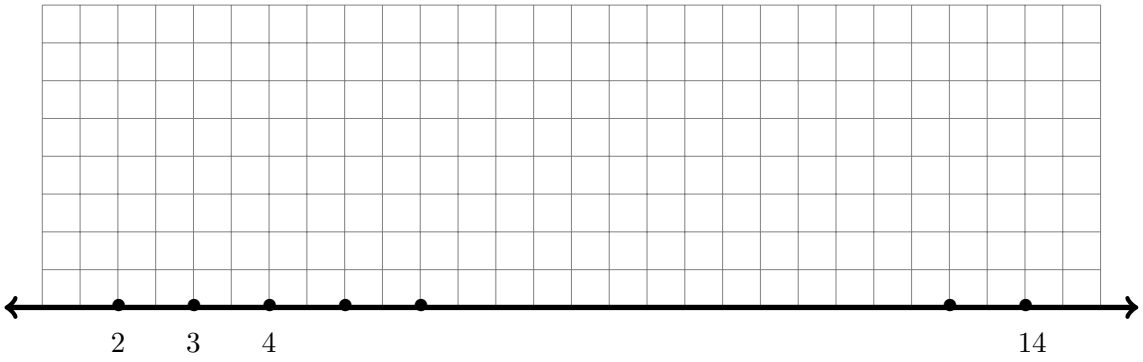
(e) (2 points) Now find the mean of each sample, and place all the sample means in the table below:

2	3	4	5	6	7	
3	4					
4						

(f) (3 points) Complete the following probability distribution table for all the sample means: Write $P(\overline{x})$, in fractions(do not reduce).

$\overline{x}$	$P(\overline{x})$		$\overline{x}$	$P(\overline{x})$		$\overline{x}$	$P(\overline{x})$
1	$\frac{0}{49}$						
2	$\frac{1}{49}$						
3	$\frac{2}{49}$						
4							
						15	$\frac{0}{49}$

(g) (6 points) Draw the probability distribution histogram using $\bar{x}$ and $p(\bar{x})$ superimposed with a bell curve. Clearly label and mark your graph.



Now enter all the sample means $\overline{x}$ in L_2, and corresponding probabilities $P(\overline{x})$ in L_3.

(h) (2 points) find $\mu_{\overline{x}}$.

(h) _____

(i) (2 points) find $\sigma_{\overline{x}}$.

(i) _____

(j) (3 points) find $\sigma^2_{\overline{x}}$.

(j) _____

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2. With a sample size $n = 16$ of the normally distributed population with the mean of $\mu = 6500$ and standard deviation of $\sigma = 275$,

(a) (2 points) find $\mu_{\overline{x}}$.

(a) _____

(b) (3 points) find $\sigma_{\overline{x}}$.

(b) _____

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3. With a sample size $n = 25$ of the normally distributed population with the mean of $\mu = 125$ and standard deviation of $\sigma = 10$,

(a) (2 points) find $\mu_{\overline{x}}$.

(a) _____

(b) (3 points) find $\sigma_{\overline{x}}$.

(b) _____

Drawing, Labeling, Shading & Full TI Command Required for Every Problem.

4. **The heights of a certain breed of dogs has a normal distribution with a mean of 28 inches and a standard deviation of 4 inches. If we randomly select 64 of these dogs, what is probability that the mean height of 64 dogs is**

   (a) **(3 points) less than 27 inches?**

   (a) _____

   (b) **(3 points) greater than 28.5 inches?**

   (b) _____

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5. **The average life of a certain blender is 4.5 years with a standard deviation of 1.25 years. Assuming that the lives of these blenders follow approximately a normal distribution, find**

   (a) **(3 points) the probability that the mean life of a random sample of 8 such blenders fall between 4 and 6 years.**

   (a) _____

   (b) **(4 points) the value of $\bar{x}$ that separates the top 15% from the rest for a random sample of 8 such blenders. Round your answer to one decimal place.**

   (b) _____

Knowing the course expectations should be a high priority.