	Elementary Statistics	Name:
	Study Guide 14	Class:
	Due Date:	Score:

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

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1. **(3 points)** Complete the table below for the discrete random variable x with the given probability distribution $p(x)$.

x	$p(x)$	$xp(x)$	$x^2p(x)$
1	0.3		
2	0.5		
3	0.2		

   (a) **(2 points)** Find μ using the formula.

   (a) _____

   (b) **(2 points)** Find σ^2 in reduced fraction using the formula.

   (b) _____

   (c) **(2 points)** Find σ using the formula.

   (c) _____

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2. **(2 points)** A probability distribution has a mean of 70 and the standard deviation of 7.5. Find its usual range.

   2. _____

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3. Let x be the number of text messages that you receive while you are in class, and $P(x)$ be the probability of x text messages that you receive while you are in class. Consider the probability distribution table given below:

x	1	2	3	4	5
$P(x)$	0.15	0.20	0.25	0.30	0.10

(a) (3 points) Draw the probability distribution histogram.
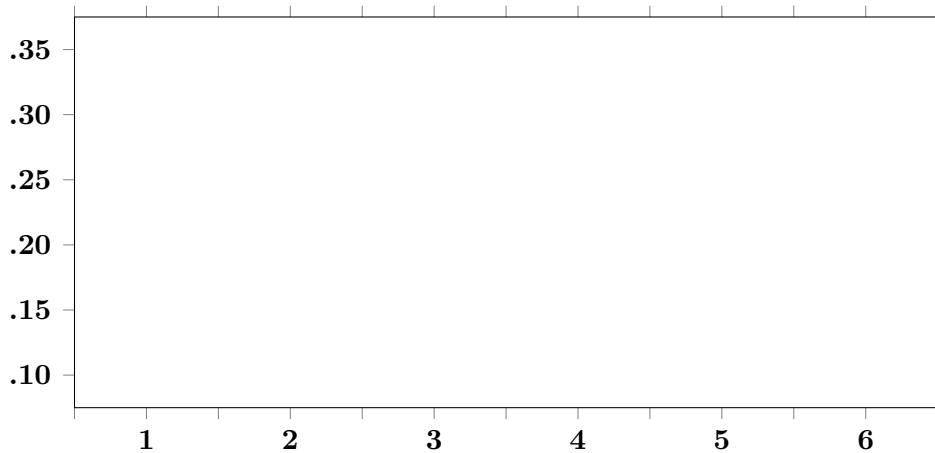
For the number of text messages that you receive while in class, find

(b) (2 points) the mean. Round to a whole number.

(b) _____

(c) (2 points) the standard deviation. Round to a whole number.

(c) _____

(d) (2 points) the value of variance in reduced fraction.

(d) _____

(e) (2 points) its 68% range by using the rounded answers.

(e) _____

4. The number of customers in line at a local supermarket self-checker is a random variable with the following probability distribution given below:

x	0	1	2	3	4	5
$P(x)$	0.10	0.25		0.20	0.10	0.05

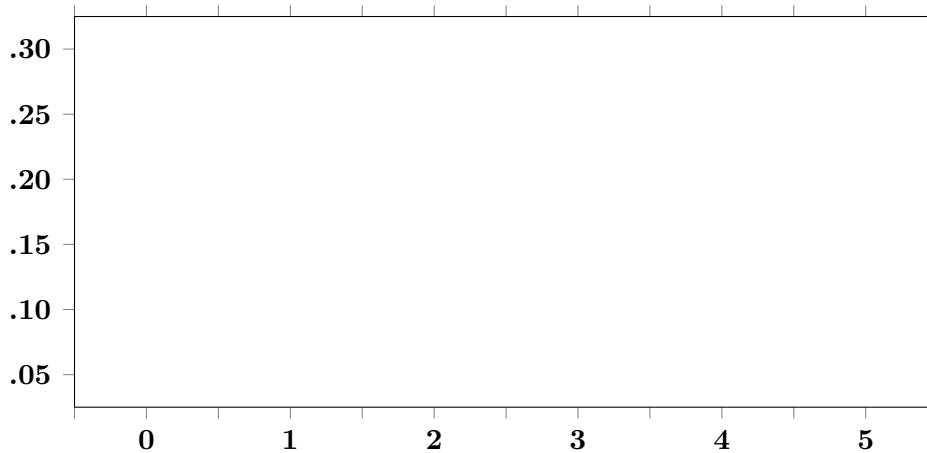(a) (2 points) Find $P(x = 2)$.

(a) _____

(b) (2 points) Find $P(x \leq 2)$.

(b) _____

(c) (2 points) Find $P(x \geq 2)$.

(c) _____

(d) (3 points) Draw the probability distribution histogram.

(e) (2 points) Find μ .

(e) _____

(f) (2 points) Find σ .

(f) _____

(g) (2 points) Find the exact value of σ^2.

(g) _____

5. **(3 points)** The General Social Survey asked 1000 people about how many hours per day they were able to relax. Consider these 1000 people to be a population, and let x be the number of hours of relaxation for a person at random from this population. The results are presented in the following table. Complete the probability distribution for the number of hours of relaxation time x.

Number of Hours	0	1	2	3	4	5	6	7
Frequency	54	96	166	245	175	135	85	44
Probability of Relaxation Time	$\dfrac{54}{1000} =$ .054		$\dfrac{166}{1000} =$ .166		$\dfrac{175}{1000} =$ .175			$\dfrac{44}{1000} =$ .044

(a) **(2 points)** Find the probability that a person relaxes at most 3 hours.

(a) _____

(b) **(2 points)** Find the probability that a person relaxes at least 3 hours.

(b) _____

(c) **(2 points)** Find μ. Round up to a whole number.

(c) _____

(d) **(2 points)** Find σ. Round up to a whole number.

(d) _____

(e) **(2 points)** Using the rounded answers, find the usual range according to the empirical rule.

(e) _____

Make a reference sheet of all formulas and how/when to use them.