

Elementary Statistics

Name: _____

Study Guide 14

Class: _____

Due Date: _____

Score: _____

No Work \Leftrightarrow No Points

Use Pencil Only \Leftrightarrow Be Neat & Organized

1. (2 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) _____

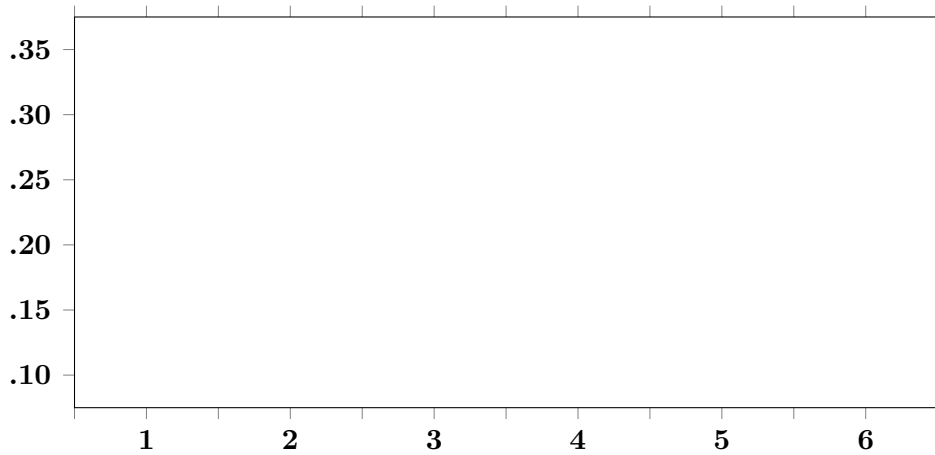
2. (2 points) A probability distribution has a mean of 70 and the standard deviation of 7.5. Find its usual range.

2. _____

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) _____

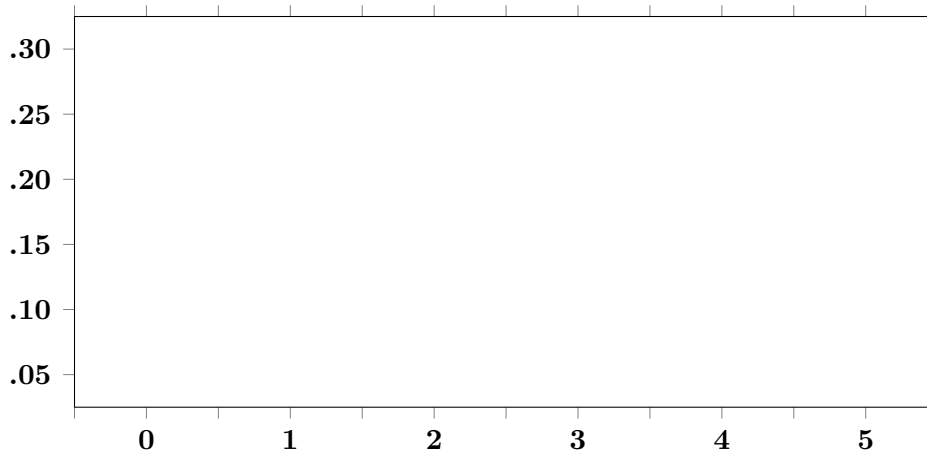
(b) (2 points) Find $P(x \leq 2)$.

(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. (2 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	$\frac{54}{1000} =$.054		$\frac{166}{1000} =$.166		$\frac{175}{1000} =$.175			$\frac{44}{1000} =$.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 the probability that a person relaxes from 3 to 5 hours.

(c) _____

- (d) (2 points) Find μ . Round to a whole number.

(d) _____

- (e) (2 points) Find σ . Round to a whole number.

(e) _____

- (f) (2 points) Find the usual range according to the empirical rule by using the rounded answers.

(f) _____