Math 160 - Quiz 6
Name_____
Due Thursday, March 21st

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Determine whether the following is a probability distribution. If not, identify the requirement that is not satisfied.

1) 1) _____

x	P(x)
0	0.079
1	0.173
2	-0.030
3	0.170
4	0.075
5	0.533

2) A police department reports that the probabilities that 0, 1, 2, 3, and 4 car thefts will be reported in a given day are 0.135, 0.271, 0.271, 0.180, and 0.090, respectively. 2) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Find the mean of the given probability distribution.

3) The number of golf balls ordered by customers of a pro shop has the following probability distribution. 3) _____

x	P(x)
3	0.14
6	0.25
9	0.36
12	0.15
15	0.10

A) $\mu = 5.79$ B) $\mu = 8.46$ C) $\mu = 9.06$ D) $\mu = 9$

Provide an appropriate response. Round to the nearest hundredth.

4) Find the standard deviation for the given probability distribution. 4) _____

x	P(x)
0	0.12
1	0.17
2	0.09
3	0.28
4	0.34

A) $\sigma = 1.99$ B) $\sigma = 2.91$ C) $\sigma = 1.41$ D) $\sigma = 1.45$

Answer the question.

5) Assume that there is a 0.05 probability that a sports playoff series will last four games, a 0.45 probability that it will last five games, a 0.45 probability that it will last six games, and a 0.05 probability that it will last seven games. Is it unusual for a team to win a series in 4 games? 5) _____

A) Yes B) No

6) Suppose that computer literacy among people ages 40 and older is being studied and that the accompanying tables describes the probability distribution for four randomly selected people, where x is the number that are computer literate. Is it unusual to find four computer literates among four randomly selected people? 6) _____

x	P(x)
0	0.16
1	0.25
2	0.36
3	0.15
4	0.08

A) Yes B) No

Assume that a researcher randomly selects 14 newborn babies and counts the number of girls selected, x. The probabilities corresponding to the 14 possible values of x are summarized in the given table. Answer the question using the table.

Probabilities of Girls

x(girls)	P(x)	x(girls)	P(x)	x(girls)	P(x)
0	0.000	5	0.122	10	0.061
1	0.001	6	0.183	11	0.022
2	0.006	7	0.209	12	0.006
3	0.022	8	0.183	13	0.001
4	0.061	9	0.122	14	0.000

7) Find the probability of selecting exactly 8 girls. 7) _____

A) 0.000 B) 0.183 C) 0.122 D) 0.022

8) Find the probability of selecting 9 or more girls. 8) _____

A) 0.122 B) 0.001 C) 0.212 D) 0.061

9) Find the probability of selecting exactly 4 girls. 9) _____

A) 0.122 B) 0.001 C) 0.061 D) 0.022

10) Find the probability of selecting 12 or more girls. 10) _____

A) 0.006 B) 0.022 C) 0.007 D) 0.001

Provide an appropriate response.

11) In a game, you have a 1/27 probability of winning $100 and a 26/27 probability of losing $4. What is your expected value? 11) _____

A) -$0.15 B) $7.56 C) $3.70 D) -$3.85

12) A 28-year-old man pays $200 for a one-year life insurance policy with coverage of $120,000. If the probability that he will live through the year is 0.9994, what is the expected value for the insurance policy? 12) _____

A) -$128.00 B) $72.00 C) -$199.88 D) $119,928.00

Determine whether the given procedure results in a binomial distribution. If not, state the reason why.

13) Choosing 6 marbles from a box of 40 marbles (20 purple, 12 red, and 8 green) one at a time with replacement, keeping track of the number of red marbles chosen. 13) _____

A) Not binomial: there are more than two outcomes for each trial.
B) Procedure results in a binomial distribution.
C) Not binomial: the trials are not independent.
D) Not binomial: there are too many trials.

Assume that a procedure yields a binomial distribution with a trial repeated n times. Use the binomial probability formula to find the probability of x successes given the probability p of success on a single trial. Round to three decimal places.

14) n = 5, x = 2, p = 0.70 14) _____

A) 0.198 B) 0.132 C) 0.700 D) 0.464

15) n = 14, x = 3 , p = 0.5 15) _____

A) 0.022 B) 0.029 C) 0.033 D) 0.125

Find the indicated probability. Round to three decimal places.

16) The participants in a television quiz show are picked from a large pool of applicants with approximately equal numbers of men and women. Among the last 11 participants there have been only 2 women. If participants are picked randomly, what is the probability of getting 2 or fewer women when 11 people are picked? 16) _____

A) 0.006 B) 0.033 C) 0.032 D) 0.027