Quiz 5 Math 15 Fall 2019 Jones Name_____

Provide an appropriate response.

1) The random variable x represents the number of credit cards that adults have along with the corresponding probabilities. This distribution is not Binomial.

a) Find the mean and standard deviation.

x	P(x)
0	0.07
1	0.68
2	0.21
3	0.03
4	0.01

b) Find the probability of at most 2 credit cards.

c) Find the probability of at least 3 credit cards.

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**

2) For each of the following write the correct probability notation and the correct calculator entry to use to get the answer without the above table. Probability notation = Calculator input = Probability

a) Find the probability of exactly 10 girls.

b) Find the probability of at most 4 girls.

c) Find the probability of at least 10 girls.

d) Find the probability of at least 12 girls.

e) What is the mean and standard deviation of this probability distribution?

f) Is it unusual to get at most 4 girls? Why?

Provide an appropriate response.

3) Suppose you pay $2.00 to roll a fair die with the understanding that you will get back $4.00 for rolling a 2 or a 3, nothing otherwise. What is your expected value?

Use the binomial distribution to find the desired probability.

4) Merta reports that 74% of its trains are on time. A communittee group questions this parameter. In a random sample of 60 trains 38 of them arrived on time.

a) Use a binomial distribution to find the probability of getting a random sample where among 60 trains, 38 or fewer arrive on time, if the overall ontime rate is 74%.

b) Based on the result, do you to believe or disbelieve that the "on–time" rate of 74% ?

Determine if the outcome is unusual. Consider as unusual any result that differs from the mean by more than 2 standard deviations. That is, unusual values are either less than $\mu - 2\sigma$ or greater than $\mu + 2\sigma$.

5) A survey it is determined that 68% of consumers avoid products that have excesive packaging. A survey of 700 randomly selected consumers is to be conducted.

a) For such groups of 700, would it be statistically significant to get 521 consumers who avoid products with excesive packaging?

b) Find the probability randomly selecting of at least 521 consumers out of 700 who avoid products with excesive packaging?

1) mean: 1.23; standard deviation: 0.66
2) 0.007
3) –$0.67
4) 0.0409, no
5) No