NO TUTOR HELP

NAME _____

Take Home Quiz #4 – Due Tuesday, 10/15   **20 points**

You may use a calculator. Your work must be your own. Show work that leads to your answers.

For any Discrete Probability Distribution	For a Binomial Distribution
$\mu = \sum [x \cdot P(x)]$	$\mu = np$
$\sigma = \sqrt{\sum [x^2 \cdot P(x)] - \mu^2}$	$\sigma = \sqrt{npq}$

1.   In a survey, adults were asked how many credit card accounts they have. The random variable x represents the number of credit card accounts. Here is the distribution of the survey results:

Number of Credit Cards, x	$P(x)$
0	0.17
1	0.21
2	0.33
3	0.26
4	0.03

a.   Explain why this is a **probability distribution**. [hint: there are 2 requirements]

b.   If an adult is selected randomly, what is the probability that the adult has 2 or more credit cards?

c.   Find the **mean** number of credit cards. Show work.

d.   Find the **standard deviation**. Show work.

e.   Based on this survey data, is it **unusual** for an adult to have 4 credit cards? Explain.

You may need to use the calculator functions: binompdf(n, p, x)   or   binomcdf(n, p, x)

2. A study found that 59% of teenagers like riding roller coasters. A random sample of 20 teenagers is selected.

a.   The number of teenagers who like riding roller coasters out of 20 has a binomial distribution. What are *n, p* and *q*?

   $n = $ _____ $p = $ _____ $q = $ _____

b.   What is the probability that exactly 10 teenagers like riding roller coasters?

c.   What is the probability of more than 15 teenagers like riding roller coasters?

d.   Find the <u>mean</u> (expected value) and <u>standard deviation</u> of the number of teenagers who like roller coasters, out of 20 randomly selected teenagers.

e.   The rule of thumb is that anything beyond 2 standard deviations is unusual. In a random sample of 20 teenagers, only 8 like riding roller coasters. Is this result unusual? Why or why not?