Name: _____ Ch 4.1 Worksheet

1. Identify the following random variables as discrete or continuous.
   a. The number of viruses that can infect a computer system.
   b. The number of hours of sleep per night required by a college student.
   c. The number of people in Los Angeles who use pagers (or beepers).
   d. Your math teacher's age.

2. Can the following be a probability distribution for a random variable? If your answer is no, explain why.

Random Variable, x	Probability
0	0.26
1	0.18
2	0.14
3	0.33
4	0.09
5	0.19

3. Given the following probability distribution for the random variable x. What is the probability that the random variable has a value of 3?

Random Variable, x	Probability
1	0.23
2	0.09
3	?
4	0.26
5	0.04
6	0.18

4. A discrete random variable has the following probability distribution.

x	$p(x)$
2	0.32
3	0.04
4	0.38
5	0.17
6	0.09

   a. Find $p(x = 4)$.
   b. Find $p(x = 7)$.
   c. Find $p(x \leq 3)$.
   d. Find $p(x \leq 6)$.
   e. Find $p(x \leq 4 \text{ or } x > 5)$.

5. Francisco Benoit is in charge of maintenance for a large Florida rental agency. The following is the probability distribution for the number of customers who will call the car rental agency daily because of malfunctioning cars.

Number of Customers, x	Probability, $p(x)$
5	0.11
6	0.19
7	0.18
8	0.07
9	0.12
10	0.06
11	0.10
12	0.14
13	0.03

Suppose a day is randomly selected.
a. Find $p(x = 9)$.
b. Find $p(x > 7)$.
c. Find $p(x \leq 11)$.
d. Find $p(8 \leq x \leq 12)$.

6. A family is known to have four children. Let x be the number of boys in the family in the probability distribution table.

7. Make a probability distribution table using x to represent the number of questions you got correct on a 3 question assignments.

8. Make a probability table using x to represent the number of people who passed their quiz when looking at 6 students.

9. Thirty percent of American parents allow their children under age 13 to stay home alone after school. (*Source: United States Department of Labor*, Washington, D.C., 1994). Three parents are randomly selected. Let x be the number of these parents who allow their children under age 13 to stay home alone after school. Find the probability distribution of x.

10. According to an *American Automobile Association* survey, 6% of the drivers purchasing gas at a service station on the New York State Thruway will ask to have the oil checked. Three cars are observed pulling up to a gas pump of a service station on the New York State Thruway. Let x represent the number of drivers who will ask to have the oil checked. Find the probability distribution of x.