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

Provide an appropriate response.

1) State whether the variable is discrete or continuous.
   The height of a player on a basketball team
   A) continuous          B) discrete

2) State whether the variable is discrete or continuous.
   The number of cups of coffee sold in a cafeteria during lunch
   A) continuous          B) discrete

3) The random variable x represents the number of cars per household in a town of 1000 households. Find the probability of randomly selecting a household that has between one and three cars, inclusive.

   Cars | Households |
   0   | 125        |
   1   | 428        |
   2   | 256        |
   3   | 108        |
   4   | 83         |
   A) 0.256 B) 0.125 C) 0.792 D) 0.208

4) Determine the probability distribution's missing value.
   The probability that a tutor will see 0, 1, 2, 3, or 4 students

   \[ x \begin{array}{c|c|c|c|c|c}
   \hline
   0 & 1 & 2 & 3 & 4 \\
   \hline
   P(x) & 0.01 & 0.04 & 0.37 & ? \\
   \hline
   A) -0.29 B) 0.24 C) 0.95 D) 0.76

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

5) Determine whether the distribution represents a probability distribution. If not, identify any requirements that are not satisfied.

   \[ x | P(x) \]
   \[ \begin{array}{c}
   3 \begin{array}{c}
   -0.3 \\
   6 \begin{array}{c}
   0.5 \\
   9 \begin{array}{c}
   0.1 \\
   12 \begin{array}{c}
   0.3 \\
   15 \begin{array}{c}
   0.4 \\
   \hline
   \end{array}\end{array}\end{array}\end{array}\end{array}\end{array}\]
6) Determine whether the distribution represents a probability distribution. If not, identify any requirements that are not satisfied. Also, the sum of the probabilities does not equal one.

<table>
<thead>
<tr>
<th>x</th>
<th>P(x)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.2</td>
</tr>
<tr>
<td>2</td>
<td>1.2</td>
</tr>
<tr>
<td>3</td>
<td>1.4</td>
</tr>
<tr>
<td>4</td>
<td>1.1</td>
</tr>
<tr>
<td>5</td>
<td>1.1</td>
</tr>
</tbody>
</table>

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

7) The random variable x represents the number of credit cards that adults have along with the corresponding probabilities. Find the mean and standard deviation.

<table>
<thead>
<tr>
<th>x</th>
<th>P(x)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.07</td>
</tr>
<tr>
<td>1</td>
<td>0.68</td>
</tr>
<tr>
<td>2</td>
<td>0.21</td>
</tr>
<tr>
<td>3</td>
<td>0.03</td>
</tr>
<tr>
<td>4</td>
<td>0.01</td>
</tr>
</tbody>
</table>

A) mean: 1.23; standard deviation: 0.44  
B) mean: 1.23; standard deviation: 0.66  
C) mean: 1.30; standard deviation: 0.32  
D) mean: 1.30; standard deviation: 0.44

8) In a recent survey, 80% of the community favored building a police substation in their neighborhood. If 15 citizens are chosen, what is the mean number favoring the substation?

A) 10  
B) 12  
C) 8  
D) 15

9) The probability that an individual is left-handed is 0.15. In a class of 70 students, what is the mean and standard deviation of the number of left-handers in the class?

A) mean: 10.5; standard deviation: 3.24  
B) mean: 10.5; standard deviation: 2.99  
C) mean: 70; standard deviation: 3.24  
D) mean: 70; standard deviation: 2.99

10) A test consists of 10 true or false questions. To pass the test a student must answer at least eight questions correctly. If the student guesses on each question, what is the probability that the student will pass the test?

A) 0.8  
B) 0.08  
C) 0.20  
D) 0.055

11) A test consists of 10 multiple choice questions, each with five possible answers, one of which is correct. To pass the test a student must get 60% or better on the test. If a student randomly guesses, what is the probability that the student will pass the test?

A) 0.006  
B) 0.060  
C) 0.205  
D) 0.377

12) The probability that a tennis set will go to a tie-breaker is 20%. What is the probability that two of three sets will go to tie-breakers?

A) 0.2  
B) 0.04  
C) 0.096  
D) 0.384
Answer Key
Testname: WS4

1) A
2) B
3) C
4) B
5) Not a probability distribution. A probability value cannot be negative.
6) Not a probability distribution. A probability value cannot be greater than one.
7) B
8) B
9) B
10) D
11) A
12) C