Practice(chapter4)

Name_____

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

Solve the problem.

1) Classify the following random variable according to whether it is discrete or continuous.   1) _____
The height of a player on a basketball team
   A) discrete   B) continuous

2) Classify the following random variable according to whether it is discrete or continuous.   2) _____
The number of cups of coffee sold in a cafeteria during lunch
   A) discrete   B) continuous

3) Consider the given discrete probability distribution. Find the probability that x exceeds 5.   3) _____

x	3	5	7	9
$P(x)$	0.24	?	0.26	0.01

   A) 0.76   B) 0.73   C) 0.27   D) 0.49

4) Consider the given discrete probability distribution. Find the probability that x equals 5.   4) _____

x	2	5	6	9
$P(x)$	0.09	?	0.23	0.21

   A) 0.53   B) 2.65   C) 0.47   D) 2.35

5) A local bakery has determined a probability distribution for the number of cheesecakes it sells in a   5) _____
given day. The distribution is as follows:

Number sold in a day	0	5	10	15	20
Prob (Number sold)	0.21	0.15	0.06	0.07	0.51

Find the number of cheesecakes that this local bakery expects to sell in a day.
   A) 12.6   B) 20   C) 12.81   D) 10

6) A dice game involves rolling three dice and betting on one of the six numbers that are on the dice.   6) _____
The game costs $8 to play, and you win if the number you bet appears on any of the dice. The
distribution for the outcomes of the game (including the profit) is shown below:

Number of dice with your number	Profit	Probability
0	–$8	125/216
1	$8	75/216
2	$10	15/216
3	$24	1/216

Find your expected profit from playing this game.
   A) –$1.07   B) $0.50   C) $4.42   D) $8.19

7) In a pizza takeout restaurant, the following probability distribution was obtained for the number of toppings ordered on a large pizza. Find the mean and standard deviation for the random variable.

x	$P(x)$
0	.30
1	.40
2	.20
3	.06
4	.04

A) mean: 1.14; standard deviation: 1.04   B) mean: 1.30; standard deviation: 1.54
C) mean: 1.30; standard deviation: 2.38   D) mean: 1.54; standard deviation: 1.30

7) _____

8) Compute $\dfrac{7!}{3!(7-3)!}$.

A) 210   B) 35   C) 70   D) 840

8) _____

9) Compute $\binom{9}{4}$.

A) 84   B) 126   C) 3024   D) 15,120

9) _____

10) We believe that 90% of the population of all Business Statistics I students consider statistics to be an exciting subject. Suppose we randomly and independently selected 33 students from the population. If the true percentage is really 90%, find the probability of observing 32 or more students who consider statistics to be an exciting subject.
A) 0.144215   B) 0.113312   C) 0.030903   D) 0.855785

10) _____

11) According to a recent study, 1 in every 9 women has been a victim of domestic abuse at some point in her life. Suppose we have randomly and independently sampled twenty–five women and asked each whether she has been a victim of domestic abuse at some point in her life. Find the probability that at least 2 of the women sampled have been the victim of domestic abuse.
A) 0.217076   B) 0.782924   C) 0.246677   D) 0.536248

11) _____

12) The probability that an individual is left–handed is 0.16. In a class of 10 students, what is the mean and standard deviation of the number of left–handed students?
A) mean: 10; standard deviation: 1.16   B) mean: 1.6; standard deviation: 1.26
C) mean: 10; standard deviation: 1.26   D) mean: 1.6; standard deviation: 1.16

12) _____

13) A recent survey found that 63% of all adults over 50 wear glasses for driving. In a random sample of 10 adults over 50, what is the mean and standard deviation of the number who wear glasses?
A) mean: 6.3; standard deviation: 1.53   B) mean: 3.7; standard deviation: 2.51
C) mean: 6.3; standard deviation: 2.51   D) mean: 3.7; standard deviation: 1.53

13) _____

14) The number of traffic accidents that occur on a particular stretch of road during a month follows a Poisson distribution with a mean of 7.4. Find the probability that fewer than three accidents will occur next month on this stretch of road.
A) 0.021871   B) 0.978129   C) 0.063153   D) 0.936847

14) _____

15) The number of traffic accidents that occur on a particular stretch of road during a month follows a Poisson distribution with a mean of 7.9. Find the probability of observing exactly five accidents on this stretch of road next month.

    A) 0.095067   B) 1.727754   C) 18.672798   D) 1.027438

16) Suppose the number of babies born each hour at a hospital follows a Poisson distribution with a mean of 2. Find the probability that exactly five babies will be born during a particular 1–hour period at this hospital.

    A) 0.004511   B) 0.001739   C) 0.036089   D) 0.000006

17) Suppose a Poisson probability distribution with $\lambda = 1.4$ provides a good approximation of the distribution of a random variable x.. Find μ for x.

    A) $\sqrt{1.4}$ B) 1.4   C) 0.7   D) 1.96

18) Suppose a Poisson probability distribution with $\lambda = 5.1$ provides a good approximation of the distribution of a random variable x. Find σ for x.

    A) 2.6   B) 5.1   C) $\sqrt{5.1}$ D) 26.01

1) B
2) A
3) C
4) C
5) A
6) A
7) A
8) B
9) B
10) A
11) B
12) D
13) A
14) A
15) A
16) C
17) B
18) C