Practice 05

5.1 Probability Distributions

5.2 Mean, Variance, Standard Deviation, and Expected Value.

1) Continuous random variables are obtained from data that can be measured rather than counted. 1) _____

A) False B) True

2) The sum of the probabilities of all the events in the sample space of a probability distribution must equal 1. 2) _____

A) False B) True

3) Determine whether the table represents a discrete probability distribution. 3) _____

x	$P(x)$
4	0.35
5	0.2
6	0.2
7	0.25

A) No B) Yes

4) Determine whether the table represents a discrete probability distribution. 4) _____

x	$P(x)$
5	0.45
6	0.35
7	0.35
8	0.35

A) Yes B) No

5) The following distribution is not a probability distribution because 5) _____

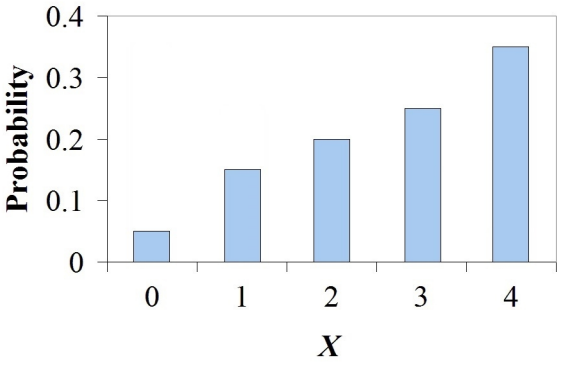
X	-2	-1	0	1	2
$P(X)$	0.16	0.14	-0.06	0.47	0.29

A) the probability values do not add to 1.
B) values of the variable are negative.
C) the probability values are not discrete.
D) a probability is negative.

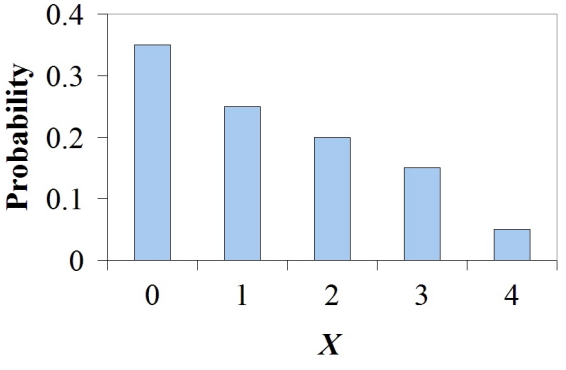
6) For the following data, construct a graph showing the probability distribution. 6) _____

X	0	1	2	3	4
$P(X)$	0.35	0.25	0.20	0.15	0.05

A)



B)



7) The following table presents the probability distribution of the number of vacations X taken last year for a randomly chosen family. Find P(1 or more). 7) _____

x	0	1	2	3	4
$P(x)$	0.09	0.68	0.15	0.06	0.02

A) 0.23 B) 0.91 C) 0.68 D) 0.77

8) The following table presents the probability distribution of the number of vacations X taken last year for a randomly chosen family. Find the probability that a family took at least 3 vacations last year. 8) _____

x	0	1	2	3	4
$P(x)$	0.05	0.73	0.13	0.05	0.04

A) 0.91 B) 0.05 C) 0.22 D) 0.09

9) The following table presents the probability distribution of the number of vacations X taken last year for a randomly chosen family. Compute the mean μ. 9) _____

x	0	1	2	3	4
$P(x)$	0.15	0.61	0.11	0.1	0.03

A) 0.87 B) 0.93 C) 1.4 D) 1.25

10) Give the variance of the following distribution? 10) _____

$\boldsymbol{X}$	0	1	2	3	4
$\boldsymbol{P(X)}$	0.20	0.35	0.10	0.25	0.10

A) 1.25 B) 1.83 C) 1.31 D) 1.71

11) Compute the standard deviation of the random variable with the given discrete probabili 11) _____ distribution.

x	$P(x)$
-5	0.45
5	0.1
20	0.4
25	0.05

A) 148.8 B) 11.25 C) 12.2 D) 7.5

12) If a gambler rolls two dice and gets a sum of 10, he wins $10, and if he gets a sum of three, he wins $20. The cost to play the game is $5. What is the expectation of this game? 12) _____

A) $2.78 B) –$3.06 C) –$2.78 D) $3.06

13) An investor is considering a $15,000 investment in a start-up company. She estimates that she has probability 0.15 of a $10,000 loss, probability 0.1 of a $10,000 profit, probability 0.3 of a $30,000 profit, and probability 0.45 of breaking even (a profit of $0). What is the expected value of the profit? 13) _____

A) $8,500 B) $10,000 C) $11,500 D) $15,250

14) A landscape contractor bids on jobs where he can make $2,700 profit. The probabilities of getting 1, 2, 3, or 4 jobs per month are shown. 14) _____

Number of Jobs	1	2	3	4
Probability	0.1	0.2	0.5	0.2

Find the contractor's expected profit per month.

A) $4,860 B) $1,350 C) $2,700 D) $7,560

15) A lottery offers one $1000 prize, one $500 prize, and four $200 prizes. One thousand tickets are sold at $3.00 each. Find the expectation if a person buys two tickets. 15) _____

A) -$2.60 B) -$0.70 C) $3.20 D) -$1.40

Answer Key
Testname: STA2023_PRACTICE05

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