

**STA2023**  
**Test # 2 Study Guide**

Name \_\_\_\_\_

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

**Express the indicated degree of likelihood as a probability value.**

- 1) "You have a 50-50 chance of choosing the correct answer." 1) \_\_\_\_\_  
A) 0.25                      B) 0.50                      C) 0.9                      D) 50
- 2) "It will definitely turn dark tonight." 2) \_\_\_\_\_  
A) 0.5                      B) 0.67                      C) 0.30                      D) 1
- 3) "Your mother could not have died two years before you were born." 3) \_\_\_\_\_  
A) 0.25                      B) 1                      C) 0                      D) 0.5
- 4) "You have one chance in ten of winning the race." 4) \_\_\_\_\_  
A) 0.5                      B) 0.90                      C) 1                      D) 0.10

**Answer the question.**

- 5) Which of the following cannot be a probability? 5) \_\_\_\_\_  
A) 0                      B) 1                      C) -1                      D)  $\frac{1}{2}$
- 6) Which of the following cannot be a probability? 6) \_\_\_\_\_  
A)  $\frac{3}{5}$                       B)  $\frac{5}{3}$                       C)  $\frac{1}{2}$                       D)  $\frac{2}{3}$
- 7) What is the probability of an impossible event? 7) \_\_\_\_\_  
A) -1                      B) 1                      C) 0.1                      D) 0
- 8) On a multiple choice test with four possible answers for each question, what is the probability of answering a question correctly if you make a random guess? 8) \_\_\_\_\_  
A)  $\frac{1}{2}$                       B) 1                      C)  $\frac{1}{4}$                       D)  $\frac{3}{4}$

**Find the indicated probability.**

- 9) A sample space consists of 38 separate events that are equally likely. What is the probability of each? 9) \_\_\_\_\_  
A) 1                      B) 0                      C)  $\frac{1}{38}$                       D) 38
- 10) On a multiple choice test, each question has 6 possible answers. If you make a random guess on the first question, what is the probability that you are correct? 10) \_\_\_\_\_  
A)  $\frac{1}{6}$                       B) 0                      C) 1                      D) 6

11) A die with 12 sides is rolled. What is the probability of rolling a number less than 11? 11) \_\_\_\_\_  
A)  $\frac{1}{12}$  B) 10 C)  $\frac{5}{6}$  D)  $\frac{11}{12}$

12) A bag contains 6 red marbles, 3 blue marbles, and 5 green marbles. If a marble is randomly selected from the bag, what is the probability that it is blue? 12) \_\_\_\_\_  
A)  $\frac{1}{11}$  B)  $\frac{1}{3}$  C)  $\frac{3}{14}$  D)  $\frac{1}{5}$

13) Two 6-sided dice are rolled. What is the probability that the sum of the two numbers on the dice will be 3? 13) \_\_\_\_\_  
A) 2 B)  $\frac{17}{18}$  C)  $\frac{1}{2}$  D)  $\frac{1}{18}$

14) If a person is randomly selected, find the probability that his or her birthday is in May. Ignore leap years. 14) \_\_\_\_\_  
A)  $\frac{1}{365}$  B)  $\frac{1}{31}$  C)  $\frac{1}{12}$  D)  $\frac{31}{365}$

**Estimate the probability of the event.**

15) Of 1232 people who came into a blood bank to give blood, 397 people had high blood pressure. Estimate the probability that the next person who comes in to give blood will have high blood pressure. 15) \_\_\_\_\_  
A) 0.29 B) 0.322 C) 0.373 D) 0.241

**Answer the question, considering an event to be "unlikely" if its probability is less than or equal to 0.05.**

16) Is it unlikely to get a 12 when a pair of dice is rolled? 16) \_\_\_\_\_  
A) Yes B) No

17) Assume that a study of 300 randomly selected school bus routes showed that 274 arrived on time. Is it unlikely for a school bus to arrive late? 17) \_\_\_\_\_  
A) Yes B) No

18) If you drew one card from a standard deck, would it be unlikely to draw an ace of hearts? 18) \_\_\_\_\_  
A) Yes B) No

**Determine whether the events are disjoint.**

19) Draw one ball colored red from a bag.  
Draw one ball colored blue from the same bag. 19) \_\_\_\_\_  
A) Yes B) No

20) Get a full time day job as a teller with a bank.  
Get a full time day job as a cashier at a store. 20) \_\_\_\_\_  
A) Yes B) No

- 21) Find a ten dollar bill on the sidewalk. 21) \_\_\_\_\_  
 Find a ten dollar bill on the grass.  
 A) Yes B) No

**Find the indicated complement.**

- 22) If  $P(A) = \frac{14}{15}$ , find  $P(\bar{A})$ . 22) \_\_\_\_\_  
 A)  $\frac{14}{29}$  B)  $\frac{1}{15}$  C)  $\frac{15}{14}$  D) 0
- 23) Find  $P(\bar{A})$ , given that  $P(A) = 0.493$ . 23) \_\_\_\_\_  
 A) 0.507 B) 1.493 C) 2.028 D) 0
- 24) The probability that Luis will pass his statistics test is 0.49. Find the probability that he will fail his statistics test. 24) \_\_\_\_\_  
 A) 0.96 B) 0.51 C) 0.25 D) 2.04
- 25) If a person is randomly selected, find the probability that his or her birthday is not in May. 25) \_\_\_\_\_  
 Ignore leap years.  
 A)  $\frac{31}{365}$  B)  $\frac{11}{12}$  C)  $\frac{334}{365}$  D)  $\frac{31}{334}$

**Find the indicated probability.**

- 26) A spinner has equal regions numbered 1 through 15. What is the probability that the spinner will stop on an even number or a multiple of 3? 26) \_\_\_\_\_  
 A) 12 B)  $\frac{2}{3}$  C)  $\frac{1}{3}$  D)  $\frac{7}{9}$
- 27) If you pick a card at random from a well shuffled deck, what is the probability that you get a face card or a spade? 27) \_\_\_\_\_  
 A)  $\frac{1}{22}$  B)  $\frac{25}{52}$  C)  $\frac{9}{26}$  D)  $\frac{11}{26}$

- 28) The table below describes the smoking habits of a group of asthma sufferers. 28) \_\_\_\_\_

	Nonsmoker	Occasional smoker	Regular smoker	Heavy smoker	Total
Men	431	50	71	49	601
Women	382	48	86	39	555
Total	813	98	157	88	1156

If one of the 1156 people is randomly selected, find the probability that the person is a man or a heavy smoker.

- A) 0.554 B) 0.557 C) 0.511 D) 0.596
- 29) Of the 64 people who answered "yes" to a question, 6 were male. Of the 70 people that answered "no" to the question, 8 were male. If one person is selected at random from the group, what is the probability that the person answered "yes" or was male? 29) \_\_\_\_\_  
 A) 0.094 B) 0.104 C) 0.537 D) 0.582

- 30) The manager of a bank recorded the amount of time each customer spent waiting in line during peak business hours one Monday. The frequency table below summarizes the results. 30) \_\_\_\_\_

Waiting Time (minutes)	Number of Customers
0-3	9
4-7	10
8-11	12
12-15	4
16-19	4
20-23	2
24-27	2

If we randomly select one of the customers represented in the table, what is the probability that the waiting time is at least 12 minutes or between 8 and 15 minutes?

- A) 0.093                      B) 0.651                      C) 0.558                      D) 0.727

- 31) A 6-sided die is rolled. Find  $P(3 \text{ or } 5)$ . 31) \_\_\_\_\_

- A) 2                      B)  $\frac{1}{36}$                       C)  $\frac{1}{6}$                       D)  $\frac{1}{3}$

- 32) A card is drawn from a well-shuffled deck of 52 cards. Find  $P(\text{drawing an ace or a } 9)$ . 32) \_\_\_\_\_

- A) 7                      B)  $\frac{7}{26}$                       C)  $\frac{2}{13}$                       D)  $\frac{13}{2}$

- 33) The table below describes the smoking habits of a group of asthma sufferers. 33) \_\_\_\_\_

	Nonsmoker	Occasional smoker	Regular smoker	Heavy smoker	Total
Men	334	50	68	32	484
Women	357	30	89	37	513
Total	691	80	157	69	997

If one of the 997 people is randomly selected, find the probability of getting a regular or heavy smoker.

- A) 0.157                      B) 0.227                      C) 0.100                      D) 0.442

- 34) A bag contains 6 red marbles, 3 blue marbles, and 1 green marble. Find  $P(\text{not blue})$ . 34) \_\_\_\_\_

- A)  $\frac{10}{7}$                       B)  $\frac{3}{10}$                       C) 7                      D)  $\frac{7}{10}$

- 35) The probability that an event will occur is 0.3. What is the probability that the event will not occur? 35) \_\_\_\_\_

- A)  $\frac{3}{7}$                       B) 0.7  
C) 0                      D) None of the above is correct.

- 36) A manufacturing process has a 70% yield, meaning that 70% of the products are acceptable and 30% are defective. If three of the products are randomly selected, find the probability that all of them are acceptable. 36) \_\_\_\_\_  
 A) 2.1                      B) 0.429                      C) 0.343                      D) 0.027
- 37) In one town, 44% of all voters are Democrats. If two voters are randomly selected for a survey, find the probability that they are both Democrats. Round to the nearest thousandth if necessary. 37) \_\_\_\_\_  
 A) 0.440                      B) 0.880                      C) 0.194                      D) 0.189
- 38) Find the probability of correctly answering the first 3 questions on a multiple choice test if random guesses are made and each question has 6 possible answers. 38) \_\_\_\_\_  
 A)  $\frac{1}{729}$                       B) 2                      C)  $\frac{1}{2}$                       D)  $\frac{1}{216}$
- 39) A batch consists of 12 defective coils and 88 good ones. Find the probability of getting two good coils when two coils are randomly selected if the first selection is replaced before the second is made. 39) \_\_\_\_\_  
 A) 0.7733                      B) 0.176                      C) 0.0144                      D) 0.7744
- 40) A study conducted at a certain college shows that 65% of the school's graduates find a job in their chosen field within a year after graduation. Find the probability that 11 randomly selected graduates all find jobs in their chosen field within a year of graduating. Round to the nearest thousandth if necessary. 40) \_\_\_\_\_  
 A) 0.013                      B) 7.150                      C) 0.169                      D) 0.009
- 41) Find the probability that 3 randomly selected people all have the same birthday. Ignore leap years. Round to eight decimal places. 41) \_\_\_\_\_  
 A) 0.00000002                      B) 0.0082                      C) 0.3333                      D) 0.00000751
- 42) You are dealt two cards successively (without replacement) from a shuffled deck of 52 playing cards. Find the probability that both cards are black. Express your answer as a simplified fraction. 42) \_\_\_\_\_  
 A)  $\frac{25}{51}$                       B)  $\frac{1}{2,652}$                       C)  $\frac{13}{51}$                       D)  $\frac{25}{102}$
- 43) You are dealt two cards successively (without replacement) from a shuffled deck of 52 playing cards. Find the probability that the first card is a King and the second card is a queen. Express your answer as a simplified fraction. 43) \_\_\_\_\_  
 A)  $\frac{4}{663}$                       B)  $\frac{2}{13}$                       C)  $\frac{13}{102}$                       D)  $\frac{1}{663}$
- 44) What is the probability that 4 randomly selected people all have different birthdays? Round to four decimal places. 44) \_\_\_\_\_  
 A) 0.9836                      B) 0.9918                      C) 0.9729                      D) 0.9891
- 45) A IRS auditor randomly selects 3 tax returns from 49 returns of which 7 contain errors. What is the probability that she selects none of those containing errors? Round to four decimal places. 45) \_\_\_\_\_  
 A) 0.0029                      B) 0.6297                      C) 0.6231                      D) 0.0019

46) The table below describes the smoking habits of a group of asthma sufferers.

46) \_\_\_\_\_

	Light Heavy			Total
	Nonsmoker	smoker	smoker	
Men	330	48	35	413
Women	361	45	46	452
Total	691	93	81	865

If two different people are randomly selected from the 865 subjects, find the probability that they are both heavy smokers. Round to six decimal places.

- A) 0.001637                      B) 0.008671                      C) 0.0001524                      D) 0.9913

47) The table below describes the smoking habits of a group of asthma sufferers.

47) \_\_\_\_\_

	Light Heavy			Total
	Nonsmoker	smoker	smoker	
Men	430	34	40	504
Women	408	49	44	501
Total	838	83	84	1005

If two different people are randomly selected from the 1005 subjects, find the probability that they are both women. Round to four decimal places.

- A) 0.2483                      B) 0.7517                      C) 0.1648                      D) 0.000003984

**Find the indicated probability. Round to the nearest thousandth.**

48) An unprepared student makes random guesses for the ten true–false questions on a quiz. Find the probability that there is at least one correct answer.

48) \_\_\_\_\_

- A) 0.100                      B) 0.900                      C) 0.001                      D) 0.999

49) A study conducted at a certain college shows that 57% of the school's graduates find a job in their chosen field within a year after graduation. Find the probability that among 9 randomly selected graduates, at least one finds a job in his or her chosen field within a year of graduating.

49) \_\_\_\_\_

- A) 0.111                      B) 0.999                      C) 0.994                      D) 0.570

50) A sample of 4 different calculators is randomly selected from a group containing 18 that are defective and 40 that have no defects. What is the probability that at least one of the calculators is defective?

50) \_\_\_\_\_

- A) 0.785                      B) 0.774                      C) 0.180                      D) 0.215

**Find the indicated probability. Express your answer as a simplified fraction unless otherwise noted.**

51) The table below shows the soft drinks preferences of people in three age groups.

51) \_\_\_\_\_

	cola	root beer	lemon–lime
under 21 years of age	40	25	20
between 21 and 40	35	20	30
over 40 years of age	20	30	35

If one of the 255 subjects is randomly selected, find the probability that the person is over 40 years of age.

- A)  $\frac{2}{5}$                       B)  $\frac{1}{3}$                       C)  $\frac{1}{2}$                       D)  $\frac{3}{5}$

52) The table below shows the soft drinks preferences of people in three age groups.

52) \_\_\_\_\_

	cola	root beer	lemon-lime
under 21 years of age	40	25	20
between 21 and 40	35	20	30
over 40 years of age	20	30	35

If one of the 255 subjects is randomly selected, find the probability that the person drinks root beer given that they are over 40.

A)  $\frac{2}{5}$

B)  $\frac{2}{17}$

C)  $\frac{6}{17}$

D) None of the above is correct.

53) The table below shows the soft drinks preferences of people in three age groups.

53) \_\_\_\_\_

	cola	root beer	lemon-lime
under 21 years of age	40	25	20
between 21 and 40	35	20	30
over 40 years of age	20	30	35

If one of the 255 subjects is randomly selected, find the probability that the person is over 40 and drinks cola.

A)  $\frac{4}{17}$

B)  $\frac{4}{51}$

C)  $\frac{4}{19}$

D) None of the above is correct.

54) The table below describes the smoking habits of a group of asthma sufferers.

54) \_\_\_\_\_

	Light Heavy			Total
	Nonsmoker	smoker	smoker	
Men	391	61	65	517
Women	312	72	80	464
Total	703	133	145	981

If one of the 981 subjects is randomly selected, find the probability that the person chosen is a nonsmoker given that it is a woman. Round to the nearest thousandth.

A) 0.318

B) 0.672

C) 0.373

D) 0.444

55) The table below describes the smoking habits of a group of asthma sufferers.

55) \_\_\_\_\_

	Light Heavy			Total
	Nonsmoker	smoker	smoker	
Men	306	66	68	440
Women	355	66	68	489
Total	661	132	136	929

If one of the 929 subjects is randomly selected, find the probability that the person chosen is a nonsmoker given that it is a woman. Round to the nearest thousandth.

A) 0.382

B) 0.726

C) 0.426

D) 0.537

**Evaluate the expression.**

56)  $3!$  56) \_\_\_\_\_  
A) 3 B) 2 C) 9 D) 6

57)  $\frac{11!}{7!}$  57) \_\_\_\_\_  
A) 77,000 B)  $\frac{11}{7}$  C) 7920 D)  $2!$

58)  $5^P4$  58) \_\_\_\_\_  
A) 1 B) 24 C) 120 D) 5

59)  $10^P3$  59) \_\_\_\_\_  
A) 720 B) 7 C) 27 D) 120

60)  $10^C3$  60) \_\_\_\_\_  
A) 120 B) 3 C) 5040 D) 240

**Solve the problem.**

61) There are 8 members on a board of directors. If they must form a subcommittee of 6 members, how many different subcommittees are possible? 61) \_\_\_\_\_  
A) 20,160 B) 28 C) 262,144 D) 720

62) The library is to be given 3 books as a gift. The books will be selected from a list of 18 titles. If each book selected must have a different title, how many possible selections are there? 62) \_\_\_\_\_  
A) 5832 B) 4896 C) 54 D) 816

63) A state lottery involves the random selection of six different numbers between 1 and 31. If you select one six number combination, what is the probability that it will be the winning combination? 63) \_\_\_\_\_  
A)  $\frac{1}{530,122,320}$  B)  $\frac{1}{720}$  C)  $\frac{1}{887,503,681}$  D)  $\frac{1}{736,281}$

64) How many 3-digit numbers can be formed using the digits 1, 2, 3, 4, 5, 6, 7 if repetition of digits is not allowed? 64) \_\_\_\_\_  
A) 210 B) 5 C) 6 D) 343

65) How many ways can 6 people be chosen and arranged in a straight line if there are 8 people to choose from? 65) \_\_\_\_\_  
A) 40,320 B) 20,160 C) 720 D) 48

66) In a certain lottery, five different numbers between 1 and 20 inclusive are drawn. These are the winning numbers. To win the lottery, a person must select the correct 5 numbers in the same order in which they were drawn. What is the probability of winning? 66) \_\_\_\_\_  
A)  $\frac{120}{1,860,480}$  B)  $\frac{1}{120}$  C)  $\frac{1}{20!}$  D)  $\frac{1}{1,860,480}$



Identify the given random variable as being discrete or continuous.

- 67) The cost of a randomly selected orange 67) \_\_\_\_\_  
A) Discrete B) Continuous
- 68) The number of phone calls between New York and California on Thanksgiving day 68) \_\_\_\_\_  
A) Discrete B) Continuous
- 69) The height of a randomly selected student 69) \_\_\_\_\_  
A) Discrete B) Continuous

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

Determine whether the following is a probability distribution. If not, identify the requirement that is not satisfied.

- 70) 70) \_\_\_\_\_
- | x | P(x)  |
|---|-------|
| 1 | 0.037 |
| 2 | 0.200 |
| 3 | 0.444 |
| 4 | 0.296 |

- 71) 71) \_\_\_\_\_
- | x | P(x)  |
|---|-------|
| 0 | 0.109 |
| 1 | 0.208 |
| 2 | 0.246 |
| 3 | 0.159 |
| 4 | 0.096 |
| 5 | 0.228 |

- 72) 72) \_\_\_\_\_
- | x | P(x)   |
|---|--------|
| 0 | 0.110  |
| 1 | 0.053  |
| 2 | -0.052 |
| 3 | 0.168  |
| 4 | 0.111  |
| 5 | 0.610  |

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

Find the mean of the given probability distribution.

- 73) 73) \_\_\_\_\_
- | x | P(x) |
|---|------|
| 0 | 0.26 |
| 1 | 0.11 |
| 2 | 0.16 |
| 3 | 0.05 |
| 4 | 0.42 |
- A)  $\mu = 2.26$       B)  $\mu = 2.42$       C)  $\mu = 2.52$       D)  $\mu = 2.16$

74) The number of golf balls ordered by customers of a pro shop has the following probability distribution. 74) \_\_\_\_\_

x	P(x)
3	0.14
6	0.29
9	0.36
12	0.11
15	0.10

- A)  $\mu = 9.3$                       B)  $\mu = 9$                       C)  $\mu = 8.22$                       D)  $\mu = 5.55$

75) The probabilities that a batch of 4 computers will contain 0, 1, 2, 3, and 4 defective computers are 0.4096, 0.4096, 0.1536, 0.0256, and 0.0016, respectively. Round answer to the nearest hundredth. 75) \_\_\_\_\_

- A)  $\mu = 2.00$                       B)  $\mu = 0.70$                       C)  $\mu = 1.21$                       D)  $\mu = 0.80$

**Provide an appropriate response. Round to the nearest hundredth.**

76) Find the standard deviation for the given probability distribution. 76) \_\_\_\_\_

x	P(x)
0	0.37
1	0.13
2	0.06
3	0.15
4	0.29

- A)  $\sigma = 2.52$                       B)  $\sigma = 2.90$                       C)  $\sigma = 1.70$                       D)  $\sigma = 1.81$

77) The random variable x is the number of houses sold by a realtor in a single month at the Sendsom's Real Estate Office. Its probability distribution is as follows. Find the standard deviation for the probability distribution. 77) \_\_\_\_\_

Houses Sold (x)	Probability P(x)
0	0.24
1	0.01
2	0.12
3	0.16
4	0.01
5	0.14
6	0.11
7	0.21

- A)  $\sigma = 2.25$                       B)  $\sigma = 6.86$                       C)  $\sigma = 4.45$                       D)  $\sigma = 2.62$

78) The probabilities that a batch of 4 computers will contain 0, 1, 2, 3, and 4 defective computers are 0.6274, 0.3102, 0.0575, 0.0047, and 0.0001, respectively. Find the standard deviation for the probability distribution. 78) \_\_\_\_\_

- A)  $\sigma = 0.76$                       B)  $\sigma = 0.56$                       C)  $\sigma = 0.39$                       D)  $\sigma = 0.63$

**Determine whether the given procedure results in a binomial distribution. If not, state the reason why.**

79) Rolling a single die 26 times, keeping track of the numbers that are rolled. 79) \_\_\_\_\_

- A) Not binomial: the trials are not independent.  
 B) Procedure results in a binomial distribution.  
 C) Not binomial: there are more than two outcomes for each trial.  
 D) Not binomial: there are too many trials.

- 80) Rolling a single "loaded" die 11 times, keeping track of the "fives" rolled. 80) \_\_\_\_\_
- A) Not binomial: there are too many trials.  
 B) Not binomial: there are more than two outcomes for each trial.  
 C) Not binomial: the trials are not independent.  
 D) Procedure results in a binomial distribution.

**Assume that a procedure yields a binomial distribution with a trial repeated  $n$  times. Use the binomial probability formula to find the probability of  $x$  successes given the probability  $p$  of success on a single trial. Round to three decimal places.**

- 81)  $n = 4, x = 3, p = \frac{1}{6}$  81) \_\_\_\_\_
- A) 0.012                      B) 0.004                      C) 0.023                      D) 0.015

- 82)  $n = 10, x = 2, p = \frac{1}{3}$  82) \_\_\_\_\_
- A) 0.003                      B) 0.216                      C) 0.195                      D) 0.193

- 83)  $n = 30, x = 12, p = 0.20$  83) \_\_\_\_\_
- A) 0.006                      B) 0.003                      C) 0.108                      D) 0.014

**Find the indicated probability.**

- 84) In a survey of 300 college graduates, 56% reported that they entered a profession closely related to their college major. If 8 of those survey subjects are randomly selected without replacement for a follow-up survey, what is the probability that 3 of them entered a profession closely related to their college major? 84) \_\_\_\_\_
- A) 0.0637                      B) 0.176                      C) 0.162                      D) 0.838

- 85) A multiple choice test has 12 questions each of which has 5 possible answers, only one of which is correct. If Judy, who forgot to study for the test, guesses on all questions, what is the probability that she will answer exactly 3 questions correctly? 85) \_\_\_\_\_
- A) 0.764                      B) 0.236                      C) 0.283                      D) 0.00800

- 86) The brand name of a certain chain of coffee shops has a 46% recognition rate in the town of Coffleton. An executive from the company wants to verify the recognition rate as the company is interested in opening a coffee shop in the town. He selects a random sample of 8 Coffleton residents. Find the probability that exactly 4 of the 8 Coffleton residents recognize the brand name. 86) \_\_\_\_\_
- A) 0.250                      B) 0.267                      C) 0.00381                      D) 0.0448

**Find the indicated probability. Round to three decimal places.**

- 87) A test consists of 10 true/false questions. To pass the test a student must answer at least 6 questions correctly. If a student guesses on each question, what is the probability that the student will pass the test? 87) \_\_\_\_\_
- A) 0.377                      B) 0.205                      C) 0.828                      D) 0.172

- 88) In a certain college, 33% of the physics majors belong to ethnic minorities. If 10 students are selected at random from the physics majors, that is the probability that no more than 6 belong to an ethnic minority? 88) \_\_\_\_\_
- A) 0.055                      B) 0.982                      C) 0.985                      D) 0.913

- 89) Find the probability of at least 2 girls in 6 births. Assume that male and female births are equally likely and that the births are independent events. 89) \_\_\_\_\_  
 A) 0.234                      B) 0.656                      C) 0.109                      D) 0.891
- 90) An airline estimates that 94% of people booked on their flights actually show up. If the airline books 73 people on a flight for which the maximum number is 71, what is the probability that the number of people who show up will exceed the capacity of the plane? 90) \_\_\_\_\_  
 A) 0.011                      B) 0.062                      C) 0.051                      D) 0.179
- 91) In a study, 44% of adults questioned reported that their health was excellent. A researcher wishes to study the health of people living close to a nuclear power plant. Among 14 adults randomly selected from this area, only 3 reported that their health was excellent. Find the probability that when 14 adults are randomly selected, 3 or fewer are in excellent health. 91) \_\_\_\_\_  
 A) 0.053                      B) 0.073                      C) 0.020                      D) 0.046

**Find the mean,  $\mu$ , for the binomial distribution which has the stated values of  $n$  and  $p$ . Round answer to the nearest tenth.**

- 92)  $n = 38; p = 0.2$  92) \_\_\_\_\_  
 A)  $\mu = 7.1$                       B)  $\mu = 7.9$                       C)  $\mu = 7.6$                       D)  $\mu = 8.3$
- 93)  $n = 38; p = 3/5$  93) \_\_\_\_\_  
 A)  $\mu = 22.8$                       B)  $\mu = 23.5$                       C)  $\mu = 23.1$                       D)  $\mu = 22.3$
- 94)  $n = 676; p = 0.7$  94) \_\_\_\_\_  
 A)  $\mu = 471.7$                       B)  $\mu = 473.2$                       C)  $\mu = 474.5$                       D)  $\mu = 474.9$

**Find the standard deviation,  $\sigma$ , for the binomial distribution which has the stated values of  $n$  and  $p$ . Round your answer to the nearest hundredth.**

- 95)  $n = 29; p = 0.2$  95) \_\_\_\_\_  
 A)  $\sigma = -0.26$                       B)  $\sigma = 2.15$                       C)  $\sigma = 6.27$                       D)  $\sigma = 5.42$
- 96)  $n = 503; p = 0.7$  96) \_\_\_\_\_  
 A)  $\sigma = 14.40$                       B)  $\sigma = 10.28$                       C)  $\sigma = 13.55$                       D)  $\sigma = 7.87$
- 97)  $n = 38; p = 0.4$  97) \_\_\_\_\_  
 A)  $\sigma = 7.14$                       B)  $\sigma = 6.29$                       C)  $\sigma = 0.61$                       D)  $\sigma = 3.02$

**Solve the problem.**

- 98) According to a college survey, 22% of all students work full time. Find the mean for the number of students who work full time in samples of size 16. 98) \_\_\_\_\_  
 A) 2.8                      B) 0.2                      C) 3.5                      D) 4.0
- 99) On a multiple choice test with 17 questions, each question has four possible answers, one of which is correct. For students who guess at all answers, find the mean for the number of correct answers. 99) \_\_\_\_\_  
 A) 8.5                      B) 12.8                      C) 4.3                      D) 5.7

100) A company manufactures batteries in batches of 15 and there is a 3% rate of defects. Find the standard deviation for the number of defects per batch.

A) 0.2

B) 43.7

C) 0.4

D) 0.7

100) \_\_\_\_\_

Answer Key

Testname: UNTITLED1

- 1) B
- 2) D
- 3) C
- 4) D
- 5) C
- 6) B
- 7) D
- 8) C
- 9) C
- 10) A
- 11) C
- 12) C
- 13) D
- 14) D
- 15) B
- 16) A
- 17) B
- 18) A
- 19) A
- 20) A
- 21) B
- 22) B
- 23) A
- 24) B
- 25) C
- 26) B
- 27) D
- 28) A
- 29) C
- 30) C
- 31) D
- 32) C
- 33) B
- 34) D
- 35) B
- 36) C
- 37) C
- 38) D
- 39) D
- 40) D
- 41) D
- 42) D
- 43) A
- 44) A
- 45) C
- 46) B
- 47) A
- 48) D
- 49) B

Answer Key

Testname: UNTITLED1

- 50) A
- 51) B
- 52) C
- 53) B
- 54) B
- 55) B
- 56) D
- 57) C
- 58) C
- 59) A
- 60) A
- 61) B
- 62) D
- 63) D
- 64) A
- 65) B
- 66) D
- 67) A
- 68) A
- 69) B
- 70) Not a probability distribution. The sum of the  $P(x)$ 's is not 1, since  $0.977 \neq 1.000$ .
- 71) Not a probability distribution. The sum of the  $P(x)$ 's is not 1, since  $1.046 \neq 1.000$ .
- 72) Not a probability distribution. One of the  $P(x)$ 's is negative.
- 73) A
- 74) C
- 75) D
- 76) C
- 77) D
- 78) D
- 79) C
- 80) D
- 81) D
- 82) C
- 83) A
- 84) C
- 85) B
- 86) B
- 87) A
- 88) B
- 89) D
- 90) B
- 91) B
- 92) C
- 93) A
- 94) B
- 95) B
- 96) B
- 97) D
- 98) C

Answer Key

Testname: UNTITLED1

99) C

100) D