

CHAPTER 4 FORM B

Name _____ Course Number: _____ Section Number: _____

Directions: Circle the correct choice for each response set. If required, show calculations in the blank spaces near the problems.

Find the indicated probability.

- 1) On a multiple choice test, each question has 4 possible answers. If you make a random guess on the first question, what is the probability that you are correct?

A) $\frac{1}{4}$ B) 0 C) 4 D) 1

- 2) Two 6-sided dice are rolled. What is the probability that the sum of the two numbers on the dice will be 3?

A) $\frac{1}{18}$ B) $\frac{1}{2}$ C) 2 D) $\frac{17}{18}$

Estimate the probability of the event.

- 3) A polling firm, hired to estimate the likelihood of the passage of an up-coming referendum, obtained the set of survey responses to make its estimate. The encoding system for the data is: 0 = FOR, 1 = AGAINST. If the referendum were held today, estimate the probability that it would pass.

0, 1, 1, 0, 0, 1, 0, 1, 1, 0, 0, 0, 1, 0, 1, 0, 0, 0, 1, 0

A) 0.4 B) 0.5 C) 0.65 D) 0.6

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

- 4) Assume that one student in your class of 22 students is randomly selected to win a prize. Would it be "unusual" for you to win?

A) Yes B) No

Answer the question.

- 5) In a certain town, 4% of people commute to work by bicycle. If a person is selected randomly from the town, what are the odds against selecting someone who commutes by bicycle?

A) 1 : 24 B) 24 : 1 C) 1 : 25 D) 24 : 25

Find the indicated complement.

- 6) Based on meteorological records, the probability that it will snow in a certain town on March 15th is 0.107. Find the probability that in a given year it will not snow on March 15th in that town.

A) 0.675 B) 0.793 C) 0.893 D) 1.107

Find the indicated probability.

- 7) A study of consumer smoking habits includes 155 people in the 18–22 age bracket (57 of whom smoke), 136 people in the 23–30 age bracket (37 of whom smoke), and 87 people in the 31–40 age bracket (24 of whom smoke). If one person is randomly selected from this sample, find the probability of getting someone who is age 18–22 or does not smoke.

A) 0.839 B) 0.259 C) 1.098 D) 0.632

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

	Nonsmoker	Occasional smoker	Regular smoker	Heavy smoker	Total
Men	394	32	77	46	549
Women	367	35	75	50	527
Total	761	67	152	96	1076

If one of the 1076 people is randomly selected, find the probability of getting a regular or heavy smoker.

A) 0.141 B) 0.230 C) 0.114 D) 0.496

- 9) A bin contains 63 light bulbs of which 6 are defective. If 4 light bulbs are randomly selected from the bin with replacement, find the probability that all the bulbs selected are good ones. Round to the nearest thousandth if necessary.

A) 0 B) 0.905 C) 0.695 D) 0.67

- 10) Among the contestants in a competition are 43 women and 21 men. If 5 winners are randomly selected, what is the probability that they are all men? Round to five decimal places.

A) 0.00267 B) 0.02778 C) 0.02114 D) 0.13691

Provide a written description of the complement of the given event.

- 11) When 100 engines are shipped, all of them are free of defects.

A) At least one of the engines is defective.
 B) None of the engines are defective.
 C) All of the engines are defective.
 D) At most one of the engines is defective.

Find the indicated probability. Round to the nearest thousandth.

- 12) A sample of 4 different calculators is randomly selected from a group containing 12 that are defective and 37 that have no defects. What is the probability that at least one of the calculators is defective?

A) 0.688 B) 0.675 C) 0.120 D) 0.312

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

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

	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) $\frac{2}{17}$ B) $\frac{2}{5}$
 C) $\frac{6}{17}$ D) None of the above is correct.

- 14) The following table contains data from a study of two airlines which fly to Small Town, USA.

	Number of flights which were on time	Number of flights which were late
Podunk Airlines	33	6
Upstate Airlines	43	5

If one of the 87 flights is randomly selected, find the probability that the flight selected is an Upstate Airlines flight which was on time.

- A) $\frac{11}{76}$ B) $\frac{43}{87}$
 C) $\frac{43}{76}$ D) None of the above is correct.

Solve the problem.

- 15) A firm uses trend projection and seasonal factors to simulate sales for a given time period. It assigns "0" if sales fall, "1" if sales are steady, "2" if sales rise moderately, and "3" if sales rise a lot. The simulator generates the following output.

0 1 1 2 0 0 1 1 0 3 2 1 0 1 0 2 1 2 3 1 2 0 2 0 3 1 0 2 1 0 1

Estimate the probability that sales will rise at least moderately.

- A) 0.419 B) 0.323 C) 0.258 D) 0.512

Evaluate the expression.

- 16) 5^P4

- A) 1 B) 15 C) 120 D) 0

Solve the problem.

- 17) 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?
- A) 4896 B) 5832 C) 816 D) 54
- 18) 8 basketball players are to be selected to play in a special game. The players will be selected from a list of 27 players. If the players are selected randomly, what is the probability that the 8 tallest players will be selected?
- A) $\frac{8}{27}$ B) $\frac{1}{40,320}$ C) $\frac{1}{213,127,200}$ D) $\frac{1}{2,220,075}$
- 19) A pollster wants to minimize the effect the order of the questions has on a person's response to a survey. How many different surveys are required to cover all possible arrangements if there are 5 questions on the survey?
- A) 25 B) 120 C) 5 D) 24
- 20) A tourist in France wants to visit 6 different cities. If the route is randomly selected, what is the probability that she will visit the cities in alphabetical order?
- A) 720 B) $\frac{1}{36}$ C) $\frac{1}{720}$ D) $\frac{1}{6}$

Answer Key

Testname: CHAPTER 4 FORM B

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