chapter 3.1–3.5

Name_____

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

Find the indicated probability.

1) On a multiple choice test, each question has 7 possible answers. If you make a random guess on the first question, what is the probability that you are correct?

A) 7 B) 0 C) 1 D) $\frac{1}{7}$

2) A die with 6 sides is rolled. What is the probability of rolling a number less than 5?

A) $\frac{2}{3}$ B) 4 C) $\frac{1}{6}$ D) $\frac{5}{6}$

3) A bag contains 4 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?

A) $\frac{1}{4}$ B) $\frac{1}{3}$ C) $\frac{1}{9}$ D) $\frac{1}{5}$

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

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

5) A survey resulted in the sample data in the given table. If one of the survey respondents is randomly selected, find the probability of getting someone who lives in a flat. Round to the nearest thousandth, if necessary.

Type of accommodation	Number
House	690
Flat	387
Apartment	543
Other	605

A) 0.239 B) 0.003 C) 0.174 D) 387

Answer the question.

6) 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) 24 : 25 B) 24 : 1 C) 1 : 24 D) 1 : 25

7) If $P(A) = \frac{1}{6}$ then find the odds against A happening.

A) 1 : 6 B) 5 : 1

C) 1 : 5 D) None of the above is correct.

8) Find the odds against correctly guessing the answer to a multiple choice question with 3 possible answers.

A) 3 : 1 B) 2 : 3 C) 2 : 1 D) 3 : 2

Find the indicated probability.

9) Based on meteorological records, the probability that it will snow in a certain town on January 1st is 0.342. Find the probability that in a given year it will not snow on January 1st in that town.

A) 2.924 B) 0.658 C) 1.342 D) 0.520

10) Find $P(\bar{A})$, given that $P(A) = 0.223$.

A) 0.777 B) 4.484 C) 0 D) 1.223

11) The probability that Luis will pass his statistics test is 0.58. Find the probability that he will fail his statistics test.

A) 1.38 B) 1.72 C) 0.42 D) 0.29

12) A spinner has equal regions numbered 1 through 21. What is the probability that the spinner will stop on an even number or a multiple of 3?

A) $\frac{1}{3}$ B) $\frac{10}{9}$ C) 17 D) $\frac{2}{3}$

13) A sample of 100 wood and 100 graphite tennis rackets are taken from the warehouse. If 15 wood and 20 graphite are defective and one racket is randomly selected from the sample, find the probability that the racket is wood or defective.

A) 0.175

B) 0.575

C) 0.6

D) There is insufficient information to answer the question.

14) A study of consumer smoking habits includes 193 people in the 18–22 age bracket (60 of whom smoke), 127 people in the 23–30 age bracket (35 of whom smoke), and 96 people in the 31–40 age bracket (23 of whom smoke). If one person is randomly selected from this sample, find the probability of getting someone who is age 23–30 or smokes.

A) 0.589 B) 0.276 C) 0.505 D) 0.084

15) A card is drawn from a well-shuffled deck of 52 cards. What is the probability of drawing an ace or a 9?

A) $\frac{5}{13}$ B) $\frac{2}{13}$ C) 10 D) $\frac{13}{2}$

16) A card is drawn from a well-shuffled deck of 52 cards. What is the probability of drawing a face card or a 4?

A) $\frac{2}{13}$ B) $\frac{12}{13}$ C) 16 D) $\frac{4}{13}$

17) In one town, 51% of all voters are Democrats. If two voters are randomly selected for a survey, find the probability that they are both Democrats.

A) 1.020 B) 0.260 C) 0.255 D) 0.510

18) Find the probability of correctly answering the first 2 questions on a multiple choice test if random guesses are made and each question has 6 possible answers.

A) $\frac{1}{3}$ B) $\frac{1}{36}$ C) $\frac{1}{64}$ D) 3

19) A bin contains 60 light bulbs of which 8 are defective. If 6 light bulbs are randomly selected from the bin with replacement, find the probability that all the bulbs selected are good ones.

A) 0.47 B) 0.867 C) 0.42 D) 0

20) In one town, 64% of adults have health insurance. What is the probability that 10 adults selected at random from the town all have health insurance?

A) 6.4 B) 0.64 C) 0.012 D) 0.156

21) You are dealt two cards successively (without replacement) from a shuffled deck of 52 playing cards. Find the probability that both cards are black.

A) $\frac{25}{102}$ B) $\frac{1}{2,652}$ C) $\frac{25}{51}$ D) $\frac{13}{51}$

22) A IRS auditor randomly selects 3 tax returns from 52 returns of which 8 contain errors. What is the probability that she selects none of those containing errors?

A) 0.0025 B) 0.6058 C) 0.5993 D) 0.0036

23) A sample of 4 different calculators is randomly selected from a group containing 44 that are defective and 22 that have no defects. What is the probability that all four of the calculators selected are defective?

A) 18.5579 B) 0.0625 C) 0.1975 D) 0.1884

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

	Nonsmoker	Light smoker	Heavy smoker	Total
Men	401	48	42	491
Women	420	50	39	509
Total	821	98	81	1000

If two different people are randomly selected from the 1000 subjects, find the probability that they are both women.

A) 0.2588 B) 0.1764 C) 0.000003860 D) 0.2591

25) In a batch of 8,000 clock radios 4% are defective. A sample of 7 clock radios is randomly selected without replacement from the 8,000 and tested. The entire batch will be rejected if at least one of those tested is defective. What is the probability that the entire batch will be rejected?

A) 0.0400 B) 0.249 C) 0.751 D) 0.143

26) A sample of 4 different calculators is randomly selected from a group containing 18 that are defective and 35 that have no defects. What is the probability that at least one of the calculators is defective?

A) 0.821 B) 0.180 C) 0.810 D) 0.179

27) A study conducted at a certain college shows that 53% of the school's graduates find a job in their chosen field within a year after graduation. Find the probability that among 5 randomly selected graduates, at least one finds a job in his or her chosen field within a year of graduating.

A) 0.200 B) 0.530 C) 0.958 D) 0.977

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

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

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

D) None of the above is correct.

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

	Nonsmoker	Light smoker	Heavy smoker	Total
Men	373	76	90	539
Women	375	86	89	550
Total	748	162	179	1089

If one of the 1089 subjects is randomly selected, find the probability that the person chosen is a woman given that the person is a light smoker.

A) 0.531 B) 0.156 C) 0.079 D) 0.249

30) 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) $\frac{43}{76}$

B) $\frac{11}{76}$

C) $\frac{43}{87}$

D) None of the above is correct.