Chapter 3.1–3.4

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 3 possible answers. If you make a random guess on the first question, what is the probability that you are correct?

A) 3 B) $\frac{1}{3}$ C) 1 D) 0

2) A die with 8 sides is rolled. What is the probability of rolling a number less than 7?

A) $\frac{3}{4}$ B) $\frac{1}{8}$ C) $\frac{7}{8}$ D) 6

3) 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?

A) $\frac{1}{11}$ B) $\frac{3}{14}$ C) $\frac{1}{3}$ 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 4?

A) $\frac{2}{3}$ B) $\frac{11}{12}$ C) 3 D) $\frac{1}{12}$

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

5) Is it "unusual" to get 10 when a pair of dice is rolled?

A) No B) Yes

6) Assume that a study of 300 randomly selected school bus routes showed that 275 arrived on time. Is it "unusual" for a school bus to arrive late?

A) Yes B) No

7) If you drew one card from a standard deck, would it be "unusual" to draw a 2?

A) No B) Yes

Use the relative frequency approach to estimate the probability of the event.

8) In a certain class of students, there are 8 boys from Wilmette, 5 girls from Kenilworth, 9 girls from Wilmette, 5 boys from Glencoe, 5 boys from Kenilworth and 7 girls from Glencoe. If the teacher calls upon a student to answer a question, what is the probability that the student will be from Kenilworth?

A) 0.128 B) 0.37 C) 0.278 D) 0.256

9) 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) .4 B) .65 C) .6 D) .5

Answer the question.

10) If $P(A) = \frac{8}{9}$ then find the odds in favor of A happening.

A) 8 : 9
B) 8 : 1
C) 1 : 8
D) None of the above is correct.

11) In a certain town, 20% 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 : 4
B) 4 : 1
C) 4 : 5
D) 1 : 5

12) Find the odds against correctly guessing the answer to a multiple choice question with 7 possible answers.

A) 7 : 1
B) 6 : 7
C) 6 : 1
D) 7 : 6

Find the indicated probability.

13) If $P(A) = \frac{2}{5}$, find $P(\overline{A})$.

A) $\frac{5}{2}$
B) 0
C) $\frac{2}{7}$
D) $\frac{3}{5}$

14) The probability that Luis will pass his statistics test is 0.29. Find the probability that he will fail his statistics test.

A) 0.15
B) 0.41
C) 0.71
D) 3.45

15) 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?

A) 12
B) $\frac{1}{3}$
C) $\frac{7}{9}$
D) $\frac{2}{3}$

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

	Nonsmoker	Occasional smoker	Regular smoker	Heavy smoker	Total
Men	383	37	89	35	544
Women	444	44	78	42	608
Total	827	81	167	77	1152

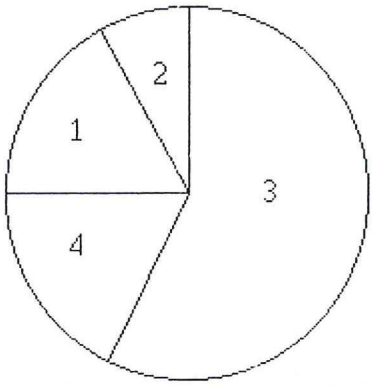
If one of the 1152 people is randomly selected, find the probability that the person is a man or a heavy smoker.

A) 0.478
B) 0.509
C) 0.539
D) 0.455

17) A sample of 100 wood and 100 graphite tennis rackets are taken from the warehouse. If 15 wood and 19 graphite are defective and one racket is randomly selected from the sample, find the probability that the racket is wood or defective.

A) 0.17
B) 0.595
C) 0.575
D) There is insufficient information to answer the question.

18) 100 employees of a company are asked how they get to work and whether they work full time or part time. The figure below shows the results. If one of the 100 employees is randomly selected, find the probability of getting someone who carpools or someone who works full time.



1. Public transportation: 7 full time, 10 part time
2. Bicycle: 3 full time, 3 part time
3. Drive alone: 32 full time, 26 part time
4. Carpool: 9 full time, 10 part time

A) 0.29 B) 0.53 C) 0.17 D) 0.61

19) A 6-sided die is rolled. What is the probability of rolling a 3 or a 4?

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

20) 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) $\frac{4}{13}$ C) 16 D) $\frac{12}{13}$

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

	Nonsmoker	Occasional smoker	Regular smoker	Heavy smoker	Total
Men	366	50	71	36	523
Women	420	47	86	35	588
Total	786	97	157	71	1111

If one of the 1111 people is randomly selected, find the probability of getting someone who is a regular or heavy smoker.

A) 0.096 B) 0.141 C) 0.469 D) 0.205

22) In one town, 22% of all voters are Democrats. If two voters are randomly selected for a survey, find the probability that they are both Democrats.

A) 0.440 B) 0.046 C) 0.048 D) 0.220

23) A bin contains 66 light bulbs of which 7 are defective. If 5 light bulbs are randomly selected from the bin with replacement, find the probability that all the bulbs selected are good ones.

A) 0.60 B) 0.57 C) 0 D) 0.894

24) In one town, 70% of adults have health insurance. What is the probability that 6 adults selected at random from the town all have health insurance?

A) 0.086 B) 0.7 C) 4.2 D) 0.118

25) In a homicide case 7 different witnesses picked the same man from a line up. The line up contained 5 men. If the identifications were made by random guesses, find the probability that all 7 witnesses would pick the same person.

A) 1.4 B) 0.0000128 C) 0.0000595 D) 0.000064

26) 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) $\frac{25}{51}$ C) $\frac{13}{51}$ D) $\frac{1}{2,652}$

27) A IRS auditor randomly selects 3 tax returns from 49 returns of which 14 contain errors. What is the probability that she selects none of those containing errors?

A) 0.0198 B) 0.3644 C) 0.3552 D) 0.0233

28) A sample of 4 different calculators is randomly selected from a group containing 37 that are defective and 23 that have no defects. What is the probability that all four of the calculators selected are defective?

A) 0.1493 B) 0.1354 C) 0.1446 D) 7.4585

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

	Nonsmoker	Light smoker	Heavy smoker	Total
Men	415	47	37	499
Women	366	48	33	447
Total	781	95	70	946

If two different people are randomly selected from the 946 subjects, find the probability that they are both women.

A) 0.2233 B) 0.2230 C) 0.000005005 D) 0.1497

30) Among the contestants in a competition are 39 women and 25 men. If 5 winners are randomly selected, what is the probability that they are all men?

A) 0.00697 B) 0.08403 C) 0.10824 D) 0.09228