

Name _____

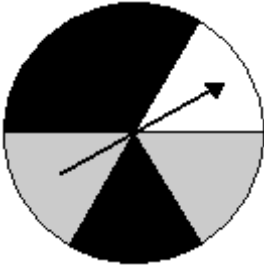
Section _____

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

Give the probability that the spinner shown would land on the indicated color.

1) black

1) _____



A) $\frac{2}{3}$

B) $\frac{1}{3}$

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

D) $\frac{1}{2}$

Find the probability.

2) A bag contains 6 red marbles, 3 blue marbles, and 1 green marble. What is the probability that a randomly selected marble is not blue?

2) _____

A) $\frac{7}{10}$

B) 7

C) $\frac{3}{10}$

D) $\frac{10}{7}$

3) Two fair 6-sided dice are rolled. What is the probability that the sum of the two numbers on the dice is greater than 10?

3) _____

A) $\frac{1}{18}$

B) $\frac{1}{12}$

C) $\frac{5}{18}$

D) 3

4) Three fair coins are tossed. Find the probability of getting exactly two tails.

4) _____

A) $\frac{1}{2}$

B) $\frac{3}{8}$

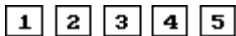
C) $\frac{1}{4}$

D) $\frac{5}{8}$

Solve the problem.

5)

5) _____



What are the odds in favor of drawing an even number from these cards?

A) 3:2

B) 2:3

C) 2:5

D) 5:2

- 6) A number cube labeled with numbers 1, 2, 3, 4, 5, and 6 is tossed. What are the odds in favor of the cube showing an odd number? 6) _____
 A) 3:2 B) 1:2 C) 2:1 D) 1:1

- 7) The table shows the number of college students who prefer a given pizza topping. 7) _____

toppings	freshman	sophomore	junior	senior
cheese	12	12	27	28
meat	19	28	12	12
veggie	12	12	19	28

- Find the empirical probability that a randomly selected junior prefers meat toppings.
 A) 0.169 B) 0.271 C) 0.207 D) 0.054

- 8) The table shows the number of college students who prefer a given pizza topping. 8) _____

toppings	freshman	sophomore	junior	senior
cheese	14	14	20	19
meat	22	19	14	14
veggie	14	14	22	19

- Find the empirical probability that a randomly selected student prefers meat toppings.
 A) 0.327 B) 0.337 C) 0.107 D) 0.319

- 9) Mr. Larsen's third grade class has 22 students, 12 girls and 10 boys. Two students must be selected at random to be in the fall play. What is the probability that no boys will be chosen? Order is not important. 9) _____
 A) $\frac{1}{6}$ B) $\frac{6}{11}$ C) $\frac{2}{7}$ D) $\frac{5}{6}$

Find the probability of the following card hands from a 52-card deck. In poker, aces are either high or low. A bridge hand is made up of 13 cards.

- 10) In poker, a flush (5 in same suit) in any suit 10) _____
 A) 0.000347 B) 0.00198 C) 0.00122 D) 0.000495

Decide whether or not the events are mutually exclusive.

- 11) Events A and B defined as follows 11) _____
A card is drawn at random from a deck of cards. Event A is that the card obtained is a face card and B is the event that the card obtained is a spade.
A) No B) Yes

Find the probability.

- 12) A fair die is rolled. What is the probability of rolling an odd number or a number less than 3? 12) _____
A) $\frac{5}{6}$ B) $\frac{2}{3}$ C) $\frac{1}{2}$ D) 1

- 13) When two balanced dice are rolled, there are 36 possible outcomes. What is the probability that the sum of the numbers on the dice is 6 or 10? 13) _____
A) $\frac{2}{9}$ B) $\frac{4}{9}$ C) $\frac{4}{3}$ D) $\frac{1}{60}$

- 14) A card is drawn at random from a well-shuffled deck of 52 cards. What is the probability of drawing a face card or a spade? 14) _____
A) $\frac{1}{2}$ B) $\frac{6}{13}$ C) $\frac{11}{26}$ D) $\frac{25}{52}$

- 15) A card is drawn at random from a well-shuffled deck of 52 cards. What is the probability of drawing a face card or a red card? 15) _____
A) $\frac{9}{13}$ B) $\frac{15}{26}$ C) $\frac{19}{26}$ D) $\frac{8}{13}$

Find the indicated probability.

- 16) The table shows the distribution of family size in a certain U.S. city 16) _____

<u>Family Size</u>	<u>Probability</u>
2	0.432
3	0.223
4	0.199
5	0.090
6	0.036
7+	0.020

A family is selected at random from the city. Find the probability that the size of the family is between 2 and 5 inclusive. Round approximations to three decimal places.

- A) 0.422 B) 0.944 C) 0.854 D) 0.522

17) The age distribution of students at a community college is given below.

17) _____

<u>Age (years)</u>	<u>Number of students (f)</u>
Under 21	417
21-25	414
26-30	212
31-35	50
Over 35	20
	<hr/>
	1113

A student from the community college is selected at random. Find the probability that the student is at least 31. Round approximations to three decimal places.

- A) 70 B) 0.937 C) 0.045 D) 0.063

18) A card is drawn at random from a standard 52-card deck. Find the probability that the card is neither an ace nor a heart.

18) _____

- A) $\frac{9}{13}$ B) $\frac{21}{26}$ C) $\frac{4}{13}$ D) $\frac{35}{52}$

19) A bag contains 5 red marbles, 4 blue marbles, and 1 green marble. If a marble is selected at random, what is the probability that it is not blue?

19) _____

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

Determine whether the events are independent.

20) A balanced die is rolled twice. Are the events "the sum of the two rolls is 8" and "the first roll comes up 3" independent ?

20) _____

- A) Yes B) No

21) A balanced die is rolled twice. Are the events "six on first roll" and "six on the second roll" independent ?

21) _____

- A) No B) Yes

Find the indicated probability.

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

22) _____

	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.

Find the probability.

23) If you are dealt two cards successively (with replacement of the first) from a standard 52-card deck, find the probability of getting a heart on the first card and a diamond on the second.

23) _____

A) $\frac{1}{169}$

B) $\frac{1}{16}$

C) $\frac{13}{204}$

D) $\frac{1}{204}$

24) In one town, 68% of adults have health insurance. What is the probability that 6 adults selected at random from the town all have health insurance?

24) _____

A) 0.68

B) 4.08

C) 0.088

D) 0.099

Find the conditional probability.

25) If two fair dice are rolled, find the probability that the sum is 6 given that the roll is a "double".

25) _____

A) $\frac{1}{4}$

B) $\frac{1}{5}$

C) $\frac{1}{6}$

D) $\frac{1}{3}$

26) If two fair dice are rolled, find the probability that the numbers rolled form a "double" given that their sum is 11.

26) _____

A) $\frac{1}{2}$

B) 0

C) $\frac{1}{4}$

D) $\frac{1}{3}$

27) If two cards are drawn at random without replacement from a standard deck, find the probability that the second card is a spade, given that the first card was a spade.

27) _____

A) $\frac{1}{4}$

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

C) $\frac{3}{13}$

D) $\frac{11}{51}$

- 28) If two cards are drawn at random without replacement from a standard deck, find the probability that the second card is red, given that the first card was a heart. 28) _____
- A) $\frac{25}{52}$ B) $\frac{26}{51}$ C) $\frac{1}{2}$ D) $\frac{25}{51}$

Use counting rules to determine the probability.

- 29) A student takes a true-false test consisting of 9 questions. Assuming that the student guesses at each question, find the probability that the student answers exactly 7 questions correctly. 29) _____
- A) 0.0703 B) 0.0281 C) 0.0422 D) 0.0563

Solve the problem.

- 30) From a group of 3 men and 4 women, a delegation of 2 is selected at random. What is the expected number of men in the delegation? 30) _____
- A) 0.86 B) 1 C) 0.57 D) 0.48

- 31) Find the expected number of girls in a family of 6. 31) _____
- A) 2.5 B) 3.5 C) 2.75 D) 3

- 32) Numbers is a game where you bet \$1.00 on any three-digit number from 000 to 999. If your number comes up, you get \$600.00. Find the expected net winnings. 32) _____
- A) -\$0.50 B) -\$0.40 C) -\$1.00 D) -\$0.42

- 33) Suppose you buy 1 ticket for \$1 out of a lottery of 1,000 tickets where the prize for the one winning ticket is to be \$500. What is your expected net winnings? 33) _____
- A) -\$0.50 B) -\$1.00 C) \$0.00 D) -\$0.40

Find the expected value of the random variable.

- 34) 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 given in the table. 34) _____

x	P(X = 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) 3.60 B) 3.35 C) 3.50 D) 3.40