M503 Probability

1. ----------

7. There are 12 buttons in a bag: 5 are red, 4 are blue, and 3 are white. What is the probability that a button chosen at random from the bag is NOT white?

A. $\frac{1}{12}$

B. $\frac{1}{9}$

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

D. $\frac{3}{8}$

E. $\frac{3}{4}$

2. ----------

26. Erin had 6 slips of paper, numbered 1 through 6. Erik renumbers them once by adding 3 to each odd number and subtracting 1 from each even number. When 2 renumbered slips of paper are chosen at random, what is the highest sum possible?

F. 11
G. 13
H. 14
J. 16
K. 17

3. ----------

4. Malcolm has 3 striped ties and 4 solid-colored ties hanging together in his closet. In his haste to get to his appointment, he randomly grabs 1 of these 7 ties. What is the probability the tie that Malcolm grabs is striped?

F. $\frac{1}{3}$

G. $\frac{3}{4}$

H. $\frac{1}{7}$

J. $\frac{3}{7}$

K. $\frac{4}{7}$

4. ----------

10. Ms. Juarez announced the grade distribution for the last book report. Of the 24 students in the class, 8 earned A's, 10 earned B's, and 6 earned C's. When a student is picked at random to be the first to present his or her book report to the class, what is the probability that the student picked had earned an A on the book report?

F. $\frac{1}{4}$

G. $\frac{1}{3}$

H. $\frac{5}{12}$

J. $\frac{1}{2}$

K. $\frac{4}{5}$

5. ----------

30. The probability that a specific event, E, happens is denoted $P(E)$. The probability that this event does not happen is denoted $P(\text{not } E)$. Which of the following statements is *always* true?

F. $0 < P(\text{not } E) < P(E)$
G. $P(\text{not } E) > 1$
H. $P(E) < P(\text{not } E)$
J. $P(E) > P(\text{not } E)$
K. $P(E) + P(\text{not } E) = 1$

6.----------

4. The probability that an event happens is $\frac{2}{9}$. What is the probability that the event does NOT happen?

F. 0

G. $\frac{1}{9}$

H. $\frac{2}{9}$

J. $\frac{7}{9}$

K. $\frac{9}{2}$

7.----------

3. Shanika has a bag containing 50 pieces of candy: 6 strawberry, 12 orange, 10 lime, and 22 lemon. If Shanika randomly takes a piece of candy from the bag, what is the probability that the piece she takes is strawberry or lime?

A. $\frac{6}{50}$

B. $\frac{10}{50}$

C. $\frac{16}{50}$

D. $\frac{16}{34}$

E. $\frac{60}{50}$

8. ----------

In the baseball World Series, the American League champions play the National League champions. The first team to win 4 games wins the Series. The table below gives the year of the Series, the winning team's league (A for American and N for National), and the number of games that Series lasted. For example, the 1980 World Series was won by the National League team and lasted 6 games. The table includes the World Series from 1980 through 2000, except for 1994. In 1994, the World Series was not played due to a players' strike.

Year	Winner	Number of games	Year	Winner	Number of games
1980	N	6	1990	N	6
1981	N	6	1991	A	7
1982	N	7	1992	A	6
1983	A	5	1993	A	6
1984	A	5	1995	N	6
1985	A	7	1996	A	6
1986	N	7	1997	N	6
1987	A	7	1998	A	7
1988	N	5	1999	A	4
1989	A	6	2000	A	5

20. The table includes data for 6 World Series that were played after the 1994 strike. In these Series, a total of 34 games were played. How many of these games did the American League team win?

F. 16
G. 20
H. 22
J. 26
K. 28

9. ----------

51. Each of 6 historical events occurred in a different year. You are asked to arrange the 6 events in ascending order by the years they occurred. You know the earliest and the latest. You randomly order the other events. What is the probability that you order the 6 events correctly?

A. $\frac{1}{720}$
B. $\frac{1}{120}$
C. $\frac{1}{24}$
D. $\frac{1}{6}$
E. $\frac{1}{4}$

10.----------

9. Which of the following is NOT a possible value for a probability?

A. 0.001
B. 0.5
C. $\frac{6}{10}$
D. $\frac{3}{8}$
E. $\frac{34}{31}$

11.----------

32. What is the probability of randomly choosing a prime number from {2, 3, 4, 5, 6} ?

F. 0
G. $\frac{1}{5}$
H. $\frac{2}{5}$
J. $\frac{3}{5}$
K. $\frac{4}{5}$

12.----------

9. Pierre is sewing a clown outfit for a customer and needs a button. In his button bag, he has 8 yellow buttons, 4 orange buttons, and 6 red buttons, all the same size. Pierre will take one of these buttons out of the bag at random. What is the probability that the button is an orange button?

A. $\frac{1}{18}$
B. $\frac{1}{4}$
C. $\frac{2}{9}$
D. $\frac{2}{7}$
E. $\frac{2}{5}$

13.----------

7. The 16-member drama club needs to choose a student government representative. They decide that the representative, who will be chosen at random, CANNOT be any of the 3 officers of the club. What is the probability that Adrian, who is a member of the club but NOT an officer, will be chosen?

A. 0
B. $\frac{1}{16}$
C. $\frac{1}{13}$
D. $\frac{3}{16}$
E. $\frac{1}{3}$

14.----------

27. A deck of cards for a children's game contains 10 red cards, 10 blue cards, and 10 yellow cards. The players take turns, each drawing a card at random from the deck and placing the card on the table. When it is the fourth player's turn, there are 3 yellow cards on the table. What is the probability that the fourth player will draw a yellow card?

A. $\frac{7}{30}$

B. $\frac{7}{27}$

C. $\frac{1}{3}$

D. $\frac{4}{10}$

E. $\frac{7}{10}$

15.----------

5. The 13-member math club needs to choose a student government representative. They decide that the representative, who will be chosen at random, CANNOT be any of the 3 officers of the club. What is the probability that Samara, who is a member of the club but NOT an officer, will be chosen?

A. 0

B. $\frac{1}{13}$

C. $\frac{1}{10}$

D. $\frac{3}{13}$

E. $\frac{1}{3}$

Answer Key

Number	Answer
1	E
2	H
3	J
4	G
5	K
6	J
7	C
8	H
9	C
10	E
11	J
12	C
13	C
14	A
15	C