Chapter 10 Test Probability

Multiple Choice
Identify the choice that best completes the statement or answers the question.

___ 1. Use the spinner to determine the theoretical probability of the event.

[Diagram of a spinner with sections labeled 1, 2, 3, 4, 5, 9, 8]

Spinning a multiple of 3

A) $\frac{1}{8}$  B) $\frac{1}{2}$  C) $\frac{1}{4}$  D) $\frac{3}{8}$

Describe the likelihood of the event given its probability.

___ 2. The teacher assigns homework after $\frac{7}{10}$ of the lessons.

A) likely  B) certain  C) impossible  D) unlikely

___ 3. There is a 0% chance that all of your time is spent on math.

A) impossible  B) likely  C) unlikely  D) certain

___ 4. You miss a free throw $\frac{1}{4}$ of the time.

A) unlikely  B) certain  C) equally likely  D) likely

___ 5. A standard number cube is rolled and a card is drawn from a deck of 10 cards numbered 1 to 10. Find $P(3$ on the number cube and 9 on the card).

A) $\frac{1}{60}$  B) $\frac{1}{240}$  C) $\frac{4}{15}$  D) $\frac{1}{8}$
The bar graph shows the results of spinning the spinner 50 times. Find the experimental probability of the event.

6. Spinning a 2

A) \(\frac{1}{5}\)  

B) \(\frac{6}{25}\)  

C) \(\frac{9}{50}\)  

D) \(\frac{11}{50}\)

7. Spinning a 2 or a 4

A) \(\frac{2}{5}\)  

B) \(\frac{11}{50}\)  

C) \(\frac{3}{25}\)  

D) \(\frac{9}{50}\)

8. Spinning a number greater than 1

A) \(\frac{19}{50}\)  

B) \(\frac{14}{25}\)  

C) \(\frac{9}{50}\)  

D) \(\frac{19}{25}\)
9. The rules of a contest say that there is a 10% chance of winning a prize. Six hundred people enter the contest. Predict how many people will win a prize.

A) 10  B) 59  C) 60  D) 600

10. There are 3 red, 1 blue and 2 yellow marbles in a bag. Once a marble is selected it is replaced. Find P(3 red marbles)

A) \( \frac{1}{8} \)  B) \( \frac{1}{15} \)  C) \( \frac{1}{20} \)  D) \( \frac{1}{5} \)

11. You randomly choose one of the chips. Without replacing the first chip, you choose a second chip. Find the probability of choosing the first chip, then the second chip.

A) \( \frac{1}{15} \)  B) \( \frac{1}{5} \)  C) \( \frac{3}{50} \)  D) \( \frac{1}{12} \)

12. Michael has five hats, seven shirts, and eight pants. How many different ways can he wear the outfits if he wears one of each?

A) 56  B) 12  C) 24  D) 280
13. There are 3 red, 1 blue and 2 yellow marbles in a bag. Once a marble is selected it is \textbf{not} replaced. Find \( P(3 \text{ red marbles}) \)

\begin{align*}
\text{A) } & \frac{1}{5} & \text{B) } & \frac{1}{20} & \text{C) } & \frac{1}{15} & \text{D) } & \frac{1}{8} \\
\end{align*}

14. \textbf{Use the spinner to determine the theoretical probability of the event.}

\begin{align*}
\text{Spinning a 4} \\
\text{A) } & \frac{1}{9} & \text{B) } & \frac{1}{7} & \text{C) } & \frac{1}{8} & \text{D) } & \frac{1}{2} \\
\end{align*}

15. What is the probability of tossing a penny 2 times and getting tails each time?

\begin{align*}
\text{A) } & \frac{3}{4} & \text{B) } & \frac{1}{2} & \text{C) } & 1 & \text{D) } & \frac{1}{4} \\
\end{align*}

16. You shuffle a deck of 26 cards representing the letters of the alphabet. You randomly select a card from the deck. What is the theoretical probability that the card represents one of the letters in the word “touchdown”? Be careful, only count letters that are not the same.

\begin{align*}
\text{A) } & \frac{9}{13} & \text{B) } & \frac{4}{13} & \text{C) } & \frac{9}{26} & \text{D) } & \frac{7}{26} \\
\end{align*}
17. A bucket contains 26 baseballs. Some are regular baseballs and some are soft baseballs. Choosing a regular baseball and not choosing a regular baseball have the same number of favorable outcomes. How many soft baseballs are in the bucket?

A) 13  B) 0  C) 16  D) 26

18. Use the spinner to determine the probability of the event.

![Spinner Image]

Not spinning a number less than \(\pi\)

A) \(\frac{1}{2}\)  B) \(\frac{5}{8}\)  C) \(\frac{3}{8}\)  D) \(\frac{3}{4}\)

19. Use the Fundamental Counting Principle to find the total number of possible outcomes.

<table>
<thead>
<tr>
<th>Shirt Information</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size</td>
<td>Small, Medium, Large, Extra Large</td>
</tr>
<tr>
<td>Color</td>
<td>White, Black, Gray, Blue, Red</td>
</tr>
</tbody>
</table>

A) 23  B) 20  C) 9  D) 13
20. You randomly choose one of the chips. Without replacing the first chip, you choose a second chip. Find the probability of choosing the first chip, then the second chip.

White and not a Black

A) $\frac{2}{25}$  B) $\frac{4}{45}$  C) $\frac{1}{10}$  D) $\frac{1}{9}$

21. You randomly choose one of the tiles shown. Find the number of ways the event can occur.

Choosing an odd number

A) 6  B) 5  C) 12  D) 1

22. You randomly choose a marble from a jar. The jar contains 3 red marbles, 10 blue marbles, 8 green marbles, and 4 yellow marbles. Find the probability of choosing a green marble

A) $\frac{1}{5}$  B) $\frac{8}{27}$  C) $\frac{8}{25}$  D) $\frac{8}{21}$

23. You have 5 pairs of socks in the dryer. Only one pair is black. You randomly choose two of the socks. What is the probability that you got both of the black socks? Remember a pair of socks = 2 socks.

A) $\frac{1}{9}$  B) $\frac{1}{5}$  C) $\frac{1}{45}$  D) $\frac{1}{20}$
24. You randomly choose one of the tiles shown. Find the number of ways the event can occur.

Choosing a number less than 4
A) 3        B) 2        C) 4        D) 8

25. You roll a number cube. Determine the theoretical probability of the event.
Rolling a 8
A) 1        B) \( \frac{4}{3} \)        C) \( \frac{3}{4} \)        D) 0

A bag contains 50 marbles. The theoretical probability of randomly drawing a purple marble is given. Find the number of purple marbles in the bag.

26. The theoretical probability of randomly drawing a purple marble is \( \frac{4}{5} \)
A) 13        B) 10        C) 40        D) 63

27. There are 4 white tokens and 6 blue tokens in a bag. Once a token is selected, it is not replaced. Find the probability of selecting two white tokens.

A) \( \frac{4}{15} \)        B) \( \frac{2}{15} \)        C) \( \frac{1}{15} \)        D) \( \frac{8}{15} \)

28. You roll a number cube. Determine the theoretical probability of the event.
Rolling a 3
A) \( \frac{1}{6} \)        B) \( \frac{1}{2} \)        C) \( \frac{3}{5} \)        D) 2
29. There are 12 sixth graders, 14 seventh graders, and 7 eighth graders in a gym class. The gym teacher randomly selects one student to collect balls. In how many ways can choosing not a seventh grader occur?

A) 19 ways  B) 14 ways  C) 33 ways  D) 21 ways

30. A password must have 3 letters and 5 digits. How many different passwords are possible?

Hint: 26 letters in the alphabet and 10 possible digits

A) 2,821,109,907,456 B) 128  C) 1,757,600,000  D) 471,744,000

31. Draw a tree diagram or use the Fundamental Counting Principle to find the number of different possible outfits if a person has three shirts to choose from, two pairs of pants, and three pairs of shoes.

A) 18  B) 12  C) 24  D) 7

32. You spin the spinner, flip a coin, then spin the spinner again. Find the probability of the events.

Spinning a 8, flipping heads, then spinning a 6.

A) $\frac{1}{162}$  B) $\frac{4}{81}$  C) $\frac{1}{27}$  D) $\frac{8}{27}$
33. You roll a number cube. Determine the theoretical probability of the event.

Rolling a multiple of 2

A) \( \frac{1}{3} \)  
B) \( \frac{1}{2} \)  
C) 1  
D) 3

34. Use the Fundamental Counting Principle to find the total number of possible outcomes.

<table>
<thead>
<tr>
<th>Lunch</th>
<th>Drink</th>
<th>Water, Cola, Diet cola, Iced tea, Lemonade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sandwich</td>
<td>Turkey, Meatball, Ham &amp; Cheese</td>
<td></td>
</tr>
<tr>
<td>Side</td>
<td>Pineapple, Apple, Fries, Cottage Cheese, Banana</td>
<td></td>
</tr>
</tbody>
</table>

A) 75  
B) 77  
C) 13  
D) 12

35. There are 3 red, 1 blue and 2 yellow marbles in a bag. Once a marble is selected it is not replaced. Find P(red then yellow).

A) \( \frac{5}{6} \)  
B) \( \frac{1}{6} \)  
C) \( \frac{1}{5} \)  
D) \( \frac{2}{5} \)

36. You spin the spinner, flip a coin, then spin the spinner again. Find the probability of the events.

Spinning an odd number, not flipping heads, then not spinning a 6.

A) \( \frac{20}{81} \)  
B) \( \frac{5}{162} \)  
C) \( \frac{2}{81} \)  
D) \( \frac{16}{81} \)
37. Is the following event dependent or independent?

Zach rolls a dice then rolls the dice again.

A) dependent  B) independent

38. You randomly choose one of the tiles shown. Find the probability the event can occur.

Choosing a number less than 4

A) $\frac{1}{3}$  B) 3  C) $\frac{3}{10}$  D) $\frac{1}{4}$

39. There are 3 red, 1 blue and 2 yellow marbles in a bag. Once a marble is selected it is replaced. Find $P$(red then yellow).

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

40. A standard number cube is rolled and a card is drawn from a deck of 10 cards numbered 1 to 10. Find $P$(odd on the number cube and less than 7 on the card).

A) $\frac{3}{40}$  B) $\frac{3}{10}$  C) $\frac{7}{10}$  D) $\frac{1}{2}$