**Ch 4 Probability Practice Test**

**True/False**

*Indicate whether the sentence or statement is true or false.*

*If false, write the corrected statement in the space provided.*

\_\_\_\_ 1. When you look as you choose an object from a group, you are choosing at random.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_ 2. The formula to determine probability is

Probability = 

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_ 3. When rolling a standard number cube, the probability of rolling an even number is .

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_ 4. There are nine possible outcomes when tossing a coin three times.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_ 5. When rolling a standard number cube, the probability of rolling the number 4 or greater is , or .

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_ 6. When rolling two standard number cubes, you have a better chance of rolling a sum that is odd than a sum that is even.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_ 7. A simulation is a probability experiment used to model a made-up situation.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

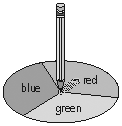
\_\_\_\_ 8. Strategies that give less favourable outcomes improve your chances of winning.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Multiple Choice**

*Identify the letter of the choice that best completes the statement or answers the question.*

\_\_\_\_ 9. If you spin this spinner 30 times how may times would you expect it to land on red?

****

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 3 | c. | 15 |
| b. | 10 | d. | 30 |

\_\_\_\_ 10. What is the probability of drawing the 8 of  from a deck of 52 cards?

|  |  |  |  |
| --- | --- | --- | --- |
| a. |  | c. |  |
| b. |  | d. |  |

\_\_\_\_ 11. A fair spinner is divided into 6 equal part:: 3 green, 2 blue, and 1 red. What is the probability of spinning a green?

|  |  |  |  |
| --- | --- | --- | --- |
| a. |  | c. |  |
| b. |  | d. |  |

\_\_\_\_ 12. The letters of the word MATHEMATICS are written on cards and placed in a bag. One card is drawn from the bag. What is the probability of drawing a letter that is a vowel?

|  |  |  |  |
| --- | --- | --- | --- |
| a. |  | c. |  |
| b. |  | d. |  |

\_\_\_\_ 13. A fair spinner is divided into equal parts numbered 1 to 7. What is the probability of spinning two 5s in a row on this spinner?

|  |  |  |  |
| --- | --- | --- | --- |
| a. |  | c. |  |
| b. |  | d. |  |

\_\_\_\_ 14. The first letters of the months are written on cards and the cards are placed in a bag. a card is drawn from the bag. What is the probability of drawing an M?

|  |  |  |  |
| --- | --- | --- | --- |
| a. |  | c. |  |
| b. |  | d. | none of the above |

\_\_\_\_ 15. To simulate an event such as guessing the gender of a baby, you would use

|  |  |  |  |
| --- | --- | --- | --- |
| a. | a number cube | c. | a spinner with 3 sections |
| b. | a coin | d. | none of the above |

\_\_\_\_ 16. What is the probability of drawing the 9 of any suit from a 52 deck of cards?

|  |  |  |  |
| --- | --- | --- | --- |
| a. |  | c. |  |
| b. |  | d. |  |

\_\_\_\_ 17. You and four friends are having a one-on-one basketball throw tournament. Everyone has to play each person once. How many games would have to be played?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | 10 | c. | 16 |
| b. | 12 | d. | 25 |

\_\_\_\_ 18. Grant successfully makes one half-court shot out of two. What is the probability that he scores three half-court shots in a row?

|  |  |  |  |
| --- | --- | --- | --- |
| a. |  | c. |  |
| b. |  | d. |  |

**Completion**

*Complete each sentence or statement.*

19. Probability is often expressed as a(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ fraction or as a(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ between 0 and 1.

20. A tree diagram is useful for organizing \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ outcomes.

21. The expression “50-50 chance” means a probability of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ percent.

**Matching**

*Match the correct term to each of the following descriptions.*

|  |  |  |  |
| --- | --- | --- | --- |
| a. | tally chart | d. | outcome |
| b. | probability | e. | random |
| c. | frequency table | f. | favourable outcome |

\_\_\_\_ 22. the chance that something will happen

\_\_\_\_ 23. used to record experimental results or data

\_\_\_\_ 24. an outcome that counts for the probability being calculated

\_\_\_\_ 25. used to show the total number of occurrences in an experiment or survey

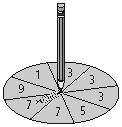
**Short Answer**

*Write your answer in the space provided.*

26. Corrine thinks that if she tosses a coin three times, she has a higher probability of tossing 2 heads and a tail than tossing 3 tails. Is Corrine correct? Explain.

27. There are 7 red, 2 white, and 4 blue marbles in Sheri’s bag of marbles. What is the probability of Sheri drawing a red or a blue marble from her bag?

28. If the following spinner is spun 80 times, what is the predicted outcome for each number? Complete the graph.

****

|  |  |
| --- | --- |
| **Outcome** | **Predicted Outcomes for 80 Spins** |
| 1 |  |
| 3 |  |
| 5 |  |
| 7 |  |
| 9 |  |

29. A grade 7 class has 29 students. How many names must you draw to ensure that at least 2 of the names drawn have the same birthday month?

30. List the possible outcomes when you spin the spinner with two equal sections and toss a standard number cube.

|  |  |
| --- | --- |
|  |  |

31. A bag contains 6 red balls, 5 green balls, and 4 pink balls. How many balls must you take out to be sure that you have at least 3 balls of each colour?

32. A baseball team has 6 pitchers and 3 catchers. If the catchers never pitch and the pitchers never catch, how many different outcomes are possible?

33. A jar contains 48 marbles of different colours. There are twice as many yellow as red, and twice as many blue as white. There are 6 more white than red. What is the probability of picking a red?

34. a) You roll a pair of standard number cubes. List all the possible outcomes that have a sum of 5.

b) What is the probability of rolling two numbers that have a sum of 5?

35. Steven works at an ice cream store. On Monday, he sold 60 items: 30 ice cream cones, 10 bottles of water, and 20 ice cream bars. Create a spinner that could be used in a simulation based on this situation.

36. Heather has a batting average of 0.400. How many hits will she get if she bats 300 times?

37. A soccer goalie has saved 14 goals and let in 1 goal. Out of 90 shots on net, how many goals will the goalie likely let in?

**Ch 4 Probability Practice Test**

**Answer Section**

**TRUE/FALSE**

1. ANS: F

When you look as you choose an object from a group, you are NOT choosing at random.

DIF: Level 1 REF: Knowledge/Understanding OBJ: Section 4.1

STO: DMP-7m88 TOP: Data Management and Probability KEY: Probability, Random

2. ANS: F

The formula to determine probability is

Probability = 

DIF: Level 2 REF: Knowledge/Understanding OBJ: Section 4.1

STO: DMP-7m88 TOP: Data Management and Probability KEY: Probability, Formula

3. ANS: F

When rolling a standard number cube, the probability of rolling an even number is .

DIF: Level 1 REF: Knowledge/Understanding OBJ: Section 4.3

STO: DMP-7m88 TOP: Data Management and Probability KEY: Probability, Number Cube

4. ANS: F

There are eight possible outcomes when tossing a coin three times.

DIF: Level 2 REF: Application OBJ: Section 4.3 STO: DMP-7m88

TOP: Data Management and Probability KEY: Probability, Coin

5. ANS: F

When rolling a standard number cube, the probability of rolling the number 4 or greater is .

DIF: Level 3 REF: Knowledge/Understanding OBJ: Section 4.3

STO: DMP-7m88 TOP: Data Management and Probability KEY: Probability, Number Cube

6. ANS: F

When rolling two standard number cubes, you have an equal chance of rolling a sum that is odd than a sum that is even.

DIF: Level 3 REF: Thinking/Inquiry/Problem Solving OBJ: Section 4.3

STO: DMP-7m88 TOP: Data Management and Probability KEY: Probability, Number Cube

7. ANS: F

A simulation is a probability experiment used to model a real situation.

DIF: Level 2 REF: Knowledge/Understanding OBJ: Section 4.4

STO: DMP-7m88 TOP: Data Management and Probability KEY: Simulation

8. ANS: F

Strategies that give more favourable outcomes improve your chances of winning.

DIF: Level 3 REF: Knowledge/Understanding OBJ: Section 4.5

STO: DMP-7m88 TOP: Data Management and Probability KEY: Outcome, Favourable

**MULTIPLE CHOICE**

9. ANS: B DIF: Level 2 REF: Knowledge/Understanding

OBJ: Section 4.2 STO: DMP-7m88 TOP: Data Management and Probability

KEY: Probability, Spinner

10. ANS: C DIF: Level 2 REF: Communication

OBJ: Section 4.2 STO: DMP-7m88 TOP: Data Management and Probability

KEY: Probability, Card

11. ANS: A DIF: Level 3 REF: Knowledge/Understanding

OBJ: Section 4.2 STO: DMP-7m88 TOP: Data Management and Probability

KEY: Probability, Spinner

12. ANS: B DIF: Level 3 REF: Application OBJ: Section 4.2

STO: DMP-7m88 TOP: Data Management and Probability KEY: Probability

13. ANS: B DIF: Level 3 REF: Thinking/Inquiry/Problem Solving

OBJ: Section 4.2 STO: DMP-7m88 TOP: Data Management and Probability

KEY: Probability, Spinner

14. ANS: B DIF: Level 3 REF: Application OBJ: Section 4.3

STO: DMP-7m88 TOP: Data Management and Probability KEY: Probability

15. ANS: B DIF: Level 1 REF: Knowledge/Understanding

OBJ: Section 4.4 STO: DMP-7m88 TOP: Data Management and Probability

KEY: Simulation

16. ANS: A DIF: Level 2 REF: Communication

OBJ: Section 4.5 STO: DMP-7m88 TOP: Data Management and Probability

KEY: Probability, Card

17. ANS: A DIF: Level 3 REF: Thinking/Inquiry/Problem Solving

OBJ: Section 4.5 STO: DMP-7m88 TOP: Data Management and Probability

KEY: Probability, Sport

18. ANS: A DIF: Level 3 REF: Thinking/Inquiry/Problem Solving

OBJ: Section 4.5 STO: DMP-7m88 TOP: Data Management and Probability

KEY: Probability, Game

**COMPLETION**

19. ANS: proper, decimal

DIF: Level 2 REF: Knowledge/Understanding OBJ: Section 4.1

STO: DMP-7m88 TOP: Data Management and Probability KEY: Probability, Fraction, Decimal

20. ANS: combined

DIF: Level 2 REF: Knowledge/Understanding OBJ: Section 4.2

STO: DMP-7m88 TOP: Data Management and Probability KEY: Outcome, Combined

21. ANS: fifty

DIF: Level 2 REF: Knowledge/Understanding OBJ: Section 4.2

STO: DMP-7m88 TOP: Data Management and Probability KEY: Probability, Chance

**MATCHING**

22. ANS: B DIF: Level 2 REF: Communication

OBJ: Section 4.1 STO: DMP-7m88 TOP: Data Management and Probability

KEY: Probability

23. ANS: A DIF: Level 2 REF: Communication

OBJ: Section 4.1 STO: DMP-7m88 TOP: Data Management and Probability

KEY: Tally Chart

24. ANS: F DIF: Level 2 REF: Communication

OBJ: Section 4.1 STO: DMP-7m88 TOP: Data Management and Probability

KEY: Outcome, Favourable

25. ANS: C DIF: Level 2 REF: Communication

OBJ: Section 4.1 STO: DMP-7m88 TOP: Data Management and Probability

KEY: Frequency Table

**SHORT ANSWER**

26. ANS:

Corrine is correct.

Possible outcomes: HHH, HHT, HTH, HTT, THH, THT, TTH, TTT

Probability (3 heads) =  = 

Probability (2 heads and 1 tail) =  = 

DIF: Level 4 REF: Thinking/Inquiry/Problem Solving OBJ: Section 4.1

STO: DMP-7m88 TOP: Data Management and Probability KEY: Probability, Coin

27. ANS:

Probability (a red or a blue) =  = 

DIF: Level 2 REF: Knowledge/Understanding OBJ: Section 4.2

STO: DMP-7m88 TOP: Data Management and Probability KEY: Probability

28. ANS:

|  |  |
| --- | --- |
| **Outcome** | **Predicted Outcomes for 80 Spins** |
| 1 | 10 |
| 3 | 30 |
| 5 | 10 |
| 7 | 20 |
| 9 | 10 |

DIF: Level 2 REF: Communication OBJ: Section 4.2

STO: DMP-7m88 TOP: Data Management and Probability KEY: Outcome

29. ANS:

You must draw 13 names.

DIF: Level 2 REF: Thinking/Inquiry/Problem Solving OBJ: Section 4.2

STO: DMP-7m88 TOP: Data Management and Probability KEY: Probability

30. ANS:

There are 12 possible outcomes:

R1, R2, R3, R4, R5, R6, B1, B2, B3, B4, B5, B6

DIF: Level 3 REF: Knowledge/Understanding OBJ: Section 4.2

STO: DMP-7m88 TOP: Data Management and Probability KEY: Outcome

31. ANS:

The first 6 could be all red, the next 5 could be all green, and the next 3 will have to be all pink. Therefore, you have to take out 14 balls.

DIF: Level 3 REF: Thinking/Inquiry/Problem Solving OBJ: Section 4.2

STO: DMP-7m88 TOP: Data Management and Probability KEY: Probability

32. ANS:

There are 18 possible outcomes.

DIF: Level 4 REF: Knowledge/Understanding OBJ: Section 4.2

STO: DMP-7m88 TOP: Data Management and Probability KEY: Outcome

33. ANS:

Of the 48 marbles, there are

*n* red

2*n* yellow

*n* + 6 white

2(*n* + 6) blue

*n* = 5

There are 5 red marbles.

Probability (red) =  = 

DIF: Level 4 REF: Thinking/Inquiry/Problem Solving OBJ: Section 4.2

STO: DMP-7m88 TOP: Data Management and Probability KEY: Probability

34. ANS:

a) The outcomes are (2, 3), (3, 2), (1, 4), (4, 1), so there are four favourable outcomes.

b) Probability (sum of 5) =  = 

DIF: Level 3 REF: Application OBJ: Section 4.3 STO: DMP-7m88

TOP: Data Management and Probability KEY: Probability, Outcome

35. ANS:

The spinner should have 3 sections, divided according to the following percentages and labelled.

• 50% ice cream cones

• 33.5% ice cream bars

• 16.5% bottles of water

DIF: Level 3 REF: Thinking/Inquiry/Problem Solving OBJ: Section 4.4

STO: DMP-7m88 TOP: Data Management and Probability KEY: Simulation

36. ANS:

A batting average of 0.400 means that Heather has 400 hits in 1000 at-bats.

Probability (hit) = , or 

Of 300 hits, Heather will likely get 120 hits.

DIF: Level 3 REF: Knowledge/Understanding OBJ: Section 4.5

STO: DMP-7m88 TOP: Data Management and Probability KEY: Probability, Sport

37. ANS:

Probability = 

Probability =  = 

Out of 90 goals, the goalie will likely let in 6 goals.

DIF: Level 3 REF: Thinking/Inquiry/Problem Solving OBJ: Section 4.5

STO: DMP-7m88 TOP: Data Management and Probability KEY: Probability, Sport