Answer Key

PERFORMANCE TASK 🗺

A FESTIVAL OF FUN:
PROBABILITY PERFORMANCE TASK

It's time for the annual Jackson Middle School Festival! The festival features a variety of games and the chance to earn prizes. Read about each game, and answer the questions that follow.

GAME #1: THE WHEEL OF PRIZES

In this game, players spin the wheel to see if they win! The wheel features 20 equal-sized sections. There are 14 sections with no prizes, 5 sections with small prizes, and 1 section with a large prize. What is the probability of landing on the section with a large prize? Write your answer as a fraction, decimal, and percent.

FRACTION: $\frac{1}{20}$ DECIMAL: 0.05   PERCENT: 5%

GAME #2: PICK YOUR PRIZE

In this game, players pick 1 marble from a bag. The color of the marble determines their prize. In the bag, there are 10 red marbles, 6 blue marbles, 4 green marbles, 3 yellow marbles, and 2 purple marbles. All marbles are replaced after each player's turn. What is the probability of picking a marble that is **not** green? Write your answer as a fraction, decimal, and percent.

FRACTION: $\frac{21}{25}$ DECIMAL: 0.84   PERCENT: 84%

GAME #3: A DECK OF DELIGHTS

In this game, a deck of cards contains 10 cards of the same size. Two of the cards are labeled with a star, and the rest of the cards are blank. Players select 1 card from the deck without looking, and the card is replaced after each player's turn. Any player who draws a card with a star wins a movie ticket. Is it likely or unlikely that a player will win a movie ticket? Explain your thinking, and use what you know about probability to support your explanation.

Sample answer: It is unlikely that a player will win a movie ticket. There are 10 total cards.

Out of those 10 cards, 2 are winners and 8 are not winners. The probability of winning

a movie ticket is $\frac{2}{10}$, or 20%, which is unlikely.

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Keep going! Read about each game, and answer the questions that follow.

🧸 GAME #4: THE LUCKY BUTTON

In this game, players press a button that releases 1 random ball out of a cage and down a chute. The color of the ball determines if a prize is won. The ball is returned to the cage after each turn. The table below shows the color of each ball that dropped down the chute so far today.

WHITE	GREEN	RED	BLACK
10	3	5	7

A. Based on this data, if 200 players play the game, how many times would you expect a white ball to drop down the chute?

> 80 times

B. Based on this data, if 50 balls are in the cage, how many would you expect to be green?

> 6 balls

🎲 GAME #5: DOUBLE DELIGHT

In this game, players roll a standard six-sided die and flip a coin. Certain outcomes win a free item from the Tasty Treats Food Truck.

A. Use a table, tree diagram, or list to determine the sample space. Show your work in the space below. Then determine the number of possible outcomes.

Representations of sample space may vary.

> There are ___12___ possible outcomes.

	1	2	3	4	5	6
Heads	1, H	2, H	3, H	4, H	5, H	6, H
Tails	1, T	2, T	3, T	4, T	5, T	6, T

B. What is the probability of rolling a 4 and landing on tails? Write your answer as a fraction.

> $\frac{1}{12}$

C. What is the probability of rolling an odd number and landing on heads? Write your answer as a percent.

> 25%

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Keep going! Answer the questions that follow.

NOW IT'S YOUR TURN!

Design a new game for next year's festival.

A. Describe the game using complete sentences. Include instructions for how to play the game, along with a list of materials.

Answers will vary.

_____

_____

_____

_____

_____

B. Determine the sample space. Show your work in the space below. How many possible outcomes are there?

Answers will vary.

C. Find the probability of one possible outcome in your game. Write your answer as a fraction, decimal, or percent.

Answers will vary.