

Name _____

THEORETICAL PROBABILITY #2

Directions: Find the *theoretical probability* of each of the events described below. First, figure out the total number of possible *outcomes*. Then, determine how many times your *desired event* could happen. The theoretical probability of an event, or P (Event) is written as a fraction: **desired event/total possible outcomes**. If possible, reduce all of your fractions to lowest terms.

Example: Sophia had a six-sided number cube. Each side was labeled with one number, from 1 through 6. What is the probability that Sophia rolls a two?

Total possible outcomes: 6 Number of two's: 1 P (Rolling a two): 1/6

1) Jacob had a six-sided number cube. Each side was labeled with one number, from 1 through 6. What is the probability that Jacob rolls a four?

Total possible outcomes: _____ Number of fours: _____ P (Rolling a four): _____

2) Emily was playing a board game that had a spinner with six equal-sized sections. Three of the sections were red, two sections were blue, and one section was yellow. Find the probability that she landed on a blue section.

Total possible outcomes: _____ Number of blues: _____ P (Spinning blue): _____

3) Michael wanted to pick a card randomly from a regular deck of 52 cards. The deck is divided evenly into red and black cards. What is the probability that Michael draws a black card?

Total possible outcomes: _____ Number of black cards: _____ P (Black card): _____

4) Madison's mom wrote the names of every day of the week on separate pieces of paper. Then she put the papers in a hat. Madison would have to clean her room on the day that she blindly picked from the hat. What is the probability that Madison will clean her room on a day that starts with the letter 'T'?

Total possible outcomes: _____ Number of days starting with 'T': _____ P (Days starting with 'T'): _____

5) Matthew went to the carnival and played a game that had a bucket filled with balls numbered 1-10? He wins the game if he chooses a number that is a multiple of 3. What is the probability that Matthew wins the game?

Total possible outcomes: _____ Number of multiples of 3: _____ P (Multiple of 3): _____

6) Hannah was trying to guess the month of her brother's birthday? She knew that the month had less than five letters in its name. What is the probability that Hannah guesses the correct month?

Total possible outcomes: _____ Number w/ less than 5 letters: _____ P (< 5 letters): _____

THEORETICAL PROBABILITY #1

7) Ashley ran to the store to pick up some cereal. The store had 12 aisles. Ashley randomly picked an aisle to start looking for cereal. What is the probability that she chose an odd-numbered aisle?

Total possible outcomes: _____ Odd numbered aisles: _____ P (Odd aisle): _____

8) Daniel had a six-sided number cube. Each side was labeled with one number, from 1 through 6. What is the probability that Jacob rolls a number less than 5?

Total possible outcomes: _____ Number of sides < 5: _____ P (Less than 5): _____

9) William was playing a board game that had a spinner with six equal-sized sections. Three of the sections were red, two sections were blue, and one section was yellow. Find the probability that he landed on a purple section.

Total possible outcomes: _____ Number of purples: _____ P (Spinning Purple): _____

10) Grace wanted to pick a card randomly from a regular deck of 52 cards. Fifty of the cards were regular playing cards, and the rest of the cards were jokers. What is the probability that Grace picks a joker?

Total possible outcomes: _____ Number of jokers: _____ P (Picking a joker): _____

11) Sarah's mom wrote the names of every day of the week on separate pieces of paper. Then she put the papers in a hat. Sarah will have ice cream for dessert on the day that she blindly picked from the hat. What is the probability that Sarah will have ice cream on that has six letters in its name?

Total possible outcomes: _____ Number of 6-letter days: _____ P (6-letter day): _____

12) David went to the carnival and played a game that had a bucket filled with balls numbered 1-10? He wins the game if he chooses a number that is divisible by four. What is the probability that David wins the game?

Total possible outcomes: _____ Numbers divisible by 4: _____ P (Divisible by 4): _____

13) Alex was trying to guess the month of her brother's birthday? She knew that the month started with the letter 'J'. What is the probability that Alex guesses the correct month?

Total possible outcomes: _____ Months starting w/ 'J': _____ P (Starts with 'J'): _____

14) Samantha ran to the store to pick up some candy. The store had 12 aisles. Ashley randomly picked an aisle to start looking for cereal. What is the probability that she chose an aisle that is a factor of 24?

Total possible outcomes: _____ # of factors of 24: _____ P (Factor of 24): _____