In this worksheet you will develop the ability to calculate probabilities based on equally likely outcomes. You will answer questions ranging from basic probability calculations to more challenging problems that require careful counting and reasoning.

Easy Questions

1. Calculate the probability of obtaining a head when tossing a fair coin.

2. Roll a fair six-sided die. Determine the probability that the outcome is 4.

3. A spinner is divided equally into four sections labelled Red, Blue, Green and Yellow. Calculate the probability of landing on Blue.

4. A bag contains 3 red and 3 blue marbles. What is the probability of drawing a red marble?

5. In a deck of 52 playing cards, calculate the probability of drawing an ace.

Intermediate Questions

11. Two fair dice are rolled. Find the probability that the sum of the outcomes is 5.

12. Two fair coins are tossed. What is the probability of getting exactly one tail?

13. A spinner is divided into 8 equal sectors numbered from 1 to 8. What is the probability of landing on an even number?

14. An urn contains 10 marbles: 4 are green, 3 are blue, and 3 are red. Compute the probability of drawing a blue marble.

15. An urn contains 12 balls numbered from 1 to 12. What is the probability that a ball drawn at random has a number greater than 9?

16. A letter is selected at random from the word "MATHEMATICS". Determine the probability that the letter is a vowel.

17. In a raffle there are 100 tickets and only 1 winning ticket. What is the probability that your ticket is the winning ticket?

18. A fair spinner is divided into 6 equal sectors labelled with the numbers $2, 3, 4, 5, 6, 7$. Calculate the probability that the spinner lands on a prime number.

19. A fair six-sided die is rolled once. What is the probability that the outcome is greater than 4?

20. A box contains three flavours of ice cream: chocolate, vanilla, and strawberry. If one scoop is chosen at random, what is the probability that the chosen flavour is not vanilla?

21. A bag contains 8 blocks numbered from 1 to 8. Compute the probability that a block drawn at random shows a perfect square.

22. A jar contains 15 tokens numbered from 1 to 15. What is the probability that the number on the drawn token is a multiple of 5?

23. In a lottery, a number is drawn at random from 1 to 40. Determine the probability that the number is even.

24. A spinner is divided into 10 equal sectors labelled from 0 to 9. What is the probability that the outcome is less than 3?

25. A number is chosen at random from 1 to 20. Calculate the probability that the number is divisible by 4.

Hard Questions

26. A spinner is divided into 12 equal sections, each labelled with a month of the year. Determine the probability that it lands on a month having 31 days.

27. A number is chosen at random from 1 to 50. What is the probability that the number is prime?

28. A jar contains coins of denominations 1, 2, 5, and 10 cents with 4 coins of each type. Calculate the probability that a coin selected at random is either a 2 cent or a 10 cent coin.

29. A random integer is chosen from the set $0, 1, 2, 3, 4, 5, 6, 7, 8, 9$. What is the probability that the integer is odd?

30. A spinner is divided into 10 equal sectors labelled with the numbers 1 to 10. Find the probability that the outcome is a multiple of 3.

31. A bag contains 5 red, 7 green, and 8 blue marbles. What is the probability of drawing a marble that is not green?

32. A jar contains 9 candies equally divided into three flavours: cherry, lemon, and grape. Determine the probability of selecting a cherry-flavoured candy.

33. A fair six-sided die is rolled once. Calculate the probability that the outcome is either even or greater than 4.

34. A spinner is divided into 16 equal regions numbered from 1 to 16. Find the probability that the number landed on is a perfect square.

35. A bag contains 6 tokens with the numbers $2, 3, 5, 7, 11,$ and 13. What is the probability that a token drawn at random shows an even number?