ILLAWARRA TUTORING

In this worksheet you will develop the ability to calculate probabilities based on equally likely outcomes. You will practice finding the probability of events by counting the number of favourable outcomes and dividing by the total number of outcomes.

Easy Questions

1. Calculate the probability of obtaining H when a fair coin is tossed.
2. A fair six-sided die is rolled once. Calculate the probability of obtaining 3.
3. When a fair die is rolled, find the probability that the outcome is an even number.
4. A bag contains 2 red balls and 3 blue balls. Determine the probability of drawing a red ball.
5. A spinner is equally divided into 4 sections numbered 1 to 4. Calculate the probability of landing on 1.

Intermediate Questions

6. A spinner is divided into 5 equal sections labelled A, B, C, D and E. Find the probability that the spinner lands on A.
7. Two fair coins are tossed simultaneously. Calculate the probability that both coins show heads.
8. Two fair six-sided dice are rolled. Determine the probability that the sum of the numbers shown is 7.
9. A single card is drawn from a standard deck of 52 cards. Calculate the probability that the drawn card is a spade.
10. A spinner is divided into 6 equal sections numbered 1 to 6. Determine the probability that the spinner lands on a prime number.
11. A bag contains 3 red, 4 blue, and 5 green balls. Find the probability of picking a blue ball at random.
12. Two fair coins are tossed. Calculate the probability of getting at least one head.
13. A fair die is rolled. Determine the probability that the outcome is less than 4.
14. A fair coin is tossed 3 times. Compute the probability of obtaining exactly 2 heads.

15. Two fair dice are rolled. Calculate the probability that both dice show the same number.

16. A spinner is divided into 8 equal sections numbered 1 through 8. Find the probability that the spinner lands on an odd number.

17. A single card is drawn from a standard deck of 52 cards. What is the probability that the card drawn is a king?

18. A jar contains 10 marbles: 4 red, 3 blue, and 3 yellow. Determine the probability of drawing a marble that is not red.

19. A fair die is rolled twice. Calculate the probability that the sum of the outcomes is less than 4.

20. In a raffle with 50 tickets sold and 5 prizes available, what is the probability that a person holding one ticket wins a prize?

Hard Questions

21. A fair six-sided die is rolled 3 times. Calculate the probability that the three outcomes form a strictly increasing sequence (for example, $2, 4, 5$). Hint: Count the total outcomes and the number of increasing sequences.

22. Two fair dice are rolled. Determine the probability that the absolute difference between the numbers shown is exactly 2.

23. A fair coin is tossed 4 times. Compute the probability of obtaining exactly 3 heads.

24. A spinner is divided into 10 equal sections numbered 1 through 10. Find the probability that the outcome is a multiple of 3.

25. A jar contains 20 coins, of which 5 are silver and 15 are bronze. Determine the probability of drawing a silver coin.

26. A letter is chosen at random from the word PROBABILITY. Calculate the probability that the letter is A, B or I. (Note: Count repeated letters as distinct outcomes.)

27. A bag contains 8 identical coins lying flat, 3 of which show heads and 5 show tails. What is the probability of randomly selecting a coin that is heads-up?

28. A fair six-sided die is rolled. Calculate the probability that the number shown is a perfect square.

29. A single card is drawn from a standard deck of 52 cards. Find the probability that the card drawn is either a heart or a diamond.

30. A fair coin is tossed 5 times. Determine the probability of obtaining at least 4 heads. (Hint: Consider the outcomes with exactly 4 heads and with 5 heads.)