Probability Problems: Dice and Playing Cards

Section A: Dice probability questions

Easy level

1. A fair die is rolled once. Find the probability of getting a 4.

2. A fair die is rolled once. What is the probability of getting an even number?

3. A die is rolled once. Find the probability of getting a number greater than 4.

4. A die is rolled once. What is the probability of getting a prime number?

5. A die is rolled once. Find the probability of not getting a 6.

Medium level

6. Two fair dice are rolled simultaneously. Find the probability that their sum is 7.

7. Two fair dice are rolled. What is the probability of getting the same number on both dice?

8. Two fair dice are rolled. Find the probability that the sum is 10 or more.

9. Two fair dice are rolled. What is the probability that the product of the numbers is even?

10. Two fair dice are rolled. Find the probability that at least one die shows a 6.

Challenging level

11. Two fair dice are rolled. Find the probability that the sum is a prime number.

12. Two fair dice are rolled. Given that the first die shows an even number, find the probability that the sum is even.

13. Three fair dice are rolled. Find the probability that all three show different numbers.

14. A fair die is rolled twice. Find the probability of getting a 6 on the first roll and an odd number on the second roll.

15. Two fair dice are rolled. Find the probability that the absolute difference between their scores is 2.

Section B: Playing-card probability questions

Assume a standard deck of 52 cards without jokers.

Easy level

16. One card is drawn at random. Find the probability of drawing an ace.

17. Find the probability of drawing a red card.

18. Find the probability of drawing a king.

19. Find the probability of drawing a heart.

20. Find the probability of drawing a face card.

Medium level

21. Find the probability of drawing a red king.

22. Find the probability of drawing a queen or a jack.

23. Find the probability of drawing a black card or an ace.

24. Find the probability of drawing neither a king nor a queen.

25. Find the probability of drawing a spade or a heart.

Challenging level

26. Two cards are drawn one after another without replacement. Find the probability that both are aces.

27. Two cards are drawn without replacement. Find the probability that the first is a king and the second is a queen.

28. Two cards are drawn without replacement. Find the probability that both are red.

29. One card is drawn, replaced in the deck, and then another card is drawn. Find the probability that both cards are kings.

30. Two cards are drawn without replacement. Given that the first card is red, find the probability that the second card is also red.

Section C: Mixed and application-based questions

31. A die is rolled and a card is drawn from a standard deck. Find the probability of getting an even number on the die and an ace from the deck.

32. A die is rolled once. Find the probability of getting either a prime number or a number greater than 4.

33. Two dice are rolled. Find the probability that the sum is 8, given that the first die shows 3.

34. A card is drawn from a deck. Find the probability that it is a red face card.

35. Two dice are rolled. Find the probability that the sum is less than 5.

36. A card is drawn from a deck. Find the probability that it is a diamond, given that it is red.

37. Three cards are drawn without replacement. Find the probability that all three are kings.

38. A die is rolled twice. Find the probability of getting at least one even number.

39. Two cards are drawn without replacement. Find the probability that one is red and the other is black.

40. Two fair dice are rolled. Find the probability that their sum is 7 or 11.