UNIT 5 Probability Mental Tests

Test 5.1 *(no calculator)*

1. If I throw a fair dice 30 times, how many SIXES would I expect to get? (5)

2. The probability of a train being late is 0.2.
   What is the probability of it not being late? (0.8)

3. A coin is tossed two times. Give all the possible outcomes. (HH, HT, TH, HH)

4. A biased coin has a probability of $\frac{2}{3}$ of obtaining heads when thrown.
   What is the probability of obtaining tails when the coin is tossed once? $(\frac{1}{3})$

5. In a raffle, 100 tickets are sold. If you have bought 5 tickets, what is
   the probability of you winning the first prize? $(\frac{5}{100} = \frac{1}{20})$

6. When you throw a fair dice, what is the probability of obtaining the number 2? $(\frac{1}{6})$

7, A bag contains 6 RED balls and 4 BLUE balls.
   One ball is taken out at random.
   What is the probability of it being a BLUE ball? $(\frac{4}{10} = \frac{2}{5})$

8. When you throw a fair dice, what is the probability of obtaining an even number? $(\frac{3}{6} = \frac{1}{2})$

9. A bag contains 20 discs, numbered 1 to 20. A disc is selected at random.
   What is the probability that the number on it is divisible by 3? $(\frac{6}{20} = \frac{3}{10})$

10. A fair coin is tossed twice, What is the probability of obtaining two HEADS? $(\frac{1}{4})$

UNIT 5 Probability Mental Tests

Test 5.2 *(no calculator)*

1. If I toss a fair coin 50 times, how many HEADS would I expect to get? (25)

2. The probability of it raining tomorrow is 0.3.
   What is the probability of it not raining tomorrow? (0.7)

3. A dice is thrown once, and a coin is tossed once.
   List all the possible outcomes. (1H, 2H, 3H, 4H, 5H, 6H; 1T, 2T, 3T, 4T, 5T, 6T)

4. A biased coin has a probability of 0.6 of obtaining TAILS when tossed.
   What is the probability of obtaining HEADS when the coin is tossed once? (0.4)

5. In a raffle, 500 tickets are sold. If you have bought 10 tickets, what is the probability of you winning the first prize? $(\frac{10}{500} = \frac{1}{50})$

6. When you throw a fair dice, what is the probability of obtaining the number 6? $(\frac{1}{6})$

7. A bag contains 6 RED balls , 7 GREEN balls and 2 YELLOW balls.
   One ball is picked at random.
   What is the probability of it not being RED? $(\frac{9}{15} = \frac{3}{5})$

8. When you throw a fair dice, what is the probability of obtaining a number which is odd? $(\frac{2}{6} = \frac{1}{3})$

9. A bag contains 50 discs, marked 1 to 50. A disc is selected at random.
   What is the probability of obtaining a number which is divisible by 10? $(\frac{5}{50} = \frac{1}{10})$

10. A fair dice is thrown twice. What is the probability of obtaining two SIXES? $(\frac{1}{36})$

UNIT 5 Probability — Mental Tests

Test 5.3 *(no calculator)*

1. An equal 5-sided spinner is marked with the numbers 1, 2, 3, 4 and 5.
   If spun once, what is the probability of obtaining an even number? $(\frac{2}{5})$

2. A bag contains 12 marbles; 5 are RED, 3 are WHITE and 4 are BLUE.
   When a marble is picked at random, what is the probability of obtaining
   a RED marble? $(\frac{5}{12})$

3. Using the bag of marbles in Question 2, what is the probability of picking
   at random, a marble which is not WHITE? $(\frac{9}{12} = \frac{3}{4})$

4. In a raffle, 400 tickets are sold. You bought 5 tickets and your brother bought 3 tickets.
   What is the probability of either you or your brother winning the first prize? $(\frac{8}{400} = \frac{1}{50})$

5. A bag contains 20 discs numbered 1 to 20. A disc is selected at random.
   What is the probability that the number on the disc is even? $(\frac{1}{2})$

6. Using the bag of discs in Question 5, what is the probability that the number on
   a disc drawn at random is a prime number? $(\frac{8}{20} = \frac{2}{5})$

7. A fair coin is tossed three times. What is the probability of obtaining three HEADS? $(\frac{1}{8})$

8. Two fair dice are rolled. The sum of the two numbers uppermost is noted.
   What is the probability of this sum being less than 4? $(\frac{3}{36} = \frac{1}{12})$

9. A bag contains 3 BLUE balls, 5 RED balls and 4 YELLOW balls.
   One ball is taken at random, its colour noted, and then put back into the bag.
   A second ball is taken at random, and again its colour is noted.
   What is the probability that both balls are the same colour? $(\frac{38}{144} = \frac{19}{72})$

10. A bag contains 3 RED balls and 6 BLUE balls. A ball is selected at random and its colour noted. It is not put back in the bag.
    A second ball is selected at random.
    What is the probability of obtaining 2 RED balls? $(\frac{6}{72} = \frac{1}{12})$

UNIT 5 Probability Mental Tests

Test 5.4 *(no calculator)*

1. An equal 7-sided spinner is marked with the numbers 1, 2, 3, 4, 5, 6 and 7.

   If spun once, what is the probability of obtaining an odd number? $(\frac{4}{7})$

2. A bag contains 15 marbles of which 5 are BLUE, 3 are WHITE and the rest are RED.

   When one marble is picked at random, what is the probability of obtaining a BLUE marble? $(\frac{5}{15} = \frac{1}{3})$

3. When a marble is picked at random from the bag in Question 2, what is the probability that it is not a RED marble? $(\frac{8}{15})$

4. In a raffle, 500 tickets are sold. You buy 5 tickets one day, and 10 the next day.

   What is the probability of you winning the first prize? $(\frac{15}{500} = \frac{3}{100})$

5. A bag contains 30 discs numbered 1 to 30. A disc is selected at random.

   What is the probability that the number on the disc is odd? $(\frac{1}{2})$

6. Using the bag of discs in Question 5, what is the probability that a disc selected at random has a number divisible by 5? $(\frac{6}{30} = \frac{1}{5})$

7. A fair coin is tossed four times. What is the probability of obtaining four TAILS? $(\frac{1}{16})$

8. Two fair dice are rolled. The sum of the two numbers uppermost is noted.

   What is the probability of this sum being equal to 11? $(\frac{2}{36} = \frac{1}{18})$

9. A bag contains 3 RED balls and 5 BLUE balls.
   One ball is taken at random, its colour noted, and then put back into the bag.
   A second ball is taken at random, and again its colour is noted.

   What is the probability of obtaining two balls of different colours? $(\frac{30}{64} = \frac{15}{32})$

10. A bag contains 4 RED balls and 5 BLUE balls. A ball is selected at random and its colour noted. It is not put back in the bag.
    A second ball is selected at random.

    What is the probability of obtaining 2 BLUE balls? $(\frac{5}{18})$