Success Index
Simple. Useful.

Probability, Fractions and Percentages

Answer each question, showing your working where appropriate. Give probabilities as fractions in their simplest form unless the question asks for a percentage. Assume all items are equally likely to be selected unless stated otherwise.

1. A bag contains 5 red counters, 7 blue counters and 3 green counters. One counter is selected at random. What is the probability that the counter is blue?

2. A fair six-sided dice is rolled once. What is the probability of rolling a number greater than 4?

3. A box contains 4 chocolate biscuits, 6 vanilla biscuits and 5 strawberry biscuits. One biscuit is chosen at random. What is the probability that it is not a chocolate biscuit?

4. A fair coin is tossed once. What is the probability of getting tails?

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5. A spinner is divided into 8 equal sections numbered from 1 to 8. If the spinner is spun once, what is the probability that the number it lands on is even?

6. A jar contains 12 sweets, of which 5 are lemon, 4 are orange and 3 are strawberry. One sweet is chosen at random. What is the probability that it is either lemon or strawberry?

7. A fair six-sided dice is rolled once. What is the probability of rolling a number that is a factor of 6?

8. A school bag contains 3 black pens, 2 red pens and 5 blue pens. A pen is selected at random. What is the probability that it is not blue?

9. A card is selected at random from a set of 20 cards numbered from 1 to 20. What is the probability of selecting a multiple of 5?

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10. A box contains 10 balls: 4 yellow, 3 purple and 3 white. One ball is taken at random. What is the probability that it is purple or white?

11. A fair coin is tossed twice. What is the probability of getting heads on both tosses?

12. A fair six-sided dice is rolled once. What is the probability of rolling a number that is less than 3 or greater than 4?

13. A bag contains 6 red marbles and 4 blue marbles. Two marbles are taken out one after the other without replacement. What is the probability that both marbles are red?

14. A spinner has 10 equal sections numbered from 1 to 10. What is the probability of landing on a number that is a square number?

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15. A class has 30 pupils. Of these, 18 walk to school, 7 travel by car and 5 travel by bus. If one pupil is selected at random, what is the probability that the pupil travels by car or bus?

16. A bag contains 3 green counters, 5 red counters and 2 yellow counters. One counter is selected at random, its colour is recorded, and it is returned to the bag. A second counter is then selected. What is the probability that both counters are yellow?

17. A card is chosen at random from a set of cards numbered from 1 to 15. What is the probability that the number selected is a prime number?

18. A fair six-sided dice is rolled twice. What is the probability of rolling a 6 on the first roll and an odd number on the second roll?

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19. A box contains 8 red socks and 6 blue socks. Two socks are selected at random without replacement. What is the probability that both socks are blue?

20. A school raffle has 200 tickets. Amira buys 8 tickets, and her friend buys 12 tickets. One winning ticket is selected at random. What is the probability that either Amira or her friend wins, assuming they hold different tickets?

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