

**YEAR 10**

Probability

Probabilities are fractions, decimals or percentages between 0 and 1, and the probabilities of everything that can happen add up to 1. For independent events, multiply.

Name: _____

Date: _____

Score: _____

Section A · Single events

Write the number of ways it can happen over the number of outcomes, then simplify.

- 1 A fair six-sided dice is rolled. What is the probability of rolling a number greater than 4?
- 2 A bag holds 3 red, 5 blue and 2 green counters. One is taken at random. What is the probability it is blue?
- 3 A card is drawn from a full pack of 52. What is the probability it is a king?
- 4 The probability that it rains tomorrow is 0.35. What is the probability that it does not rain?
- 5 A spinner has sections labelled A, B and C. $P(A) = 0.5$ and $P(B) = 0.2$. What is $P(C)$?
- 6 A letter is chosen at random from the word PROBABILITY. What is the probability it is a B?

Section B · Combined events

Independent events: multiply the probabilities. 'At least one' is 1 minus 'none'.

- 7 Two fair coins are flipped. What is the probability of two heads?
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- 8 A fair dice is rolled twice. What is the probability of a 6 both times?
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- 9 A fair dice is rolled twice. What is the probability of a 6 on at least one roll?
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- 10 The probability a bus is late is 0.2 on any day, independently. What is the probability it is late on both Monday and Tuesday?
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- 11 The probability a bus is late is 0.2. What is the probability it is on time two days running?
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Section C • Relative frequency and expected results

Relative frequency is the fraction of trials. Expected number is probability times trials.

- 12 A drawing pin is dropped 200 times and lands point up 120 times. Estimate the probability it lands point up.
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- 13 A biased coin has $P(\text{heads}) = 0.7$. It is flipped 300 times. How many heads would you expect?
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- 14 A dice is rolled 600 times. How many sixes would you expect if it is fair?
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- 15 A spinner is spun 50 times and lands on red 21 times. Write the relative frequency of red as a decimal.
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- 16 In a survey, 40 people were asked if they like tea or coffee. 25 like tea, 22 like coffee and 12 like both. How many like neither?
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