

**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.

Section A · Single events

- 1 A fair six-sided dice is rolled. What is the probability of rolling a number greater than 4? $\frac{1}{3}$
- 2 A bag holds 3 red, 5 blue and 2 green counters. One is taken at random. What is the probability it is blue? $\frac{1}{2}$
- 3 A card is drawn from a full pack of 52. What is the probability it is a king? $\frac{1}{13}$
- 4 The probability that it rains tomorrow is 0.35. What is the probability that it does not rain? $\frac{13}{20}$
- 5 A spinner has sections labelled A, B and C. $P(A) = 0.5$ and $P(B) = 0.2$. What is $P(C)$? **0.3**
- 6 A letter is chosen at random from the word PROBABILITY. What is the probability it is a B? $\frac{2}{11}$

Section B · Combined events

- 7 Two fair coins are flipped. What is the probability of two heads? $\frac{1}{4}$
- 8 A fair dice is rolled twice. What is the probability of a 6 both times? $\frac{1}{36}$
- 9 A fair dice is rolled twice. What is the probability of a 6 on at least one roll? $\frac{11}{36}$
- 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? **0.04**
- 11 The probability a bus is late is 0.2. What is the probability it is on time two days running? **0.64**

Section C · Relative frequency and expected results

- 12 A drawing pin is dropped 200 times and lands point up 120 times. Estimate the probability it lands point up. **0.6**
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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? **210**
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- 14 A dice is rolled 600 times. How many sixes would you expect if it is fair? **100**
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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. **0.42**
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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? **5**
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