

Extended revision exercises: Data handling

Worksheet 8: Introduction to probability

- 1** A box contains 3 red counters, 4 green counters, 2 blue counters and a black counter.
If you pick a counter without looking, what is the probability that you will pick:
- a** a red counter
 - b** a green counter
 - c** a black counter
 - d** a blue counter
 - e** a yellow counter
- 2** Nick shuffles an ordinary pack of 52 playing cards.
If he draw a single card at random, find the probability that is:
- a** red
 - b** black
 - c** spades
 - d** not spades
 - e** a king
 - f** not an ace
 - g** an even numbered card
 - h** a red even numbered card
 - i** not an even numbered card.
- 3** A pentagonal spinner is divided into five equal segments. These are a labelled A to E.
- a** Draw and label an accurate version of the spinner.
 - b** Calculate the probability that it will land on:
 - i** E
 - ii** G
 - iii** Not A
 - iv** a vowel
 - v** not a vowel.
- 4** A letter is chosen randomly from the word MATHEMATICS. What is the probability that it is:
- a** C
 - b** A
 - c** not T?
 - d** a vowel?
 - e** N?
- 5** A letter is randomly chosen from the song title 'You are my sunshine'.
What is the probability of the letter being:
- a** a capital letter?
 - b** not a capital letter?
 - c** an a?
 - d** a consonant?
 - e** not a consonant?
- 6** When you toss a fair six-sided dice, what is the probability of getting:
- a** an odd number
 - b** an even number
 - c** a prime number
 - d** a multiple of 5
 - e** not a multiple of 2
 - f** not a 6
 - g** a 7
 - f** a factor of 36?

- 7 In a car park there are 35 red, 42 white, 12 black and 29 silver cars. 24 parking spaces are empty. What is the probability that a parking space chosen at random will contain:
- a a red car
 - b a silver car
 - c not a black car
 - d no car at all?
- 8 Draw unbiased spinners that will land on blue, given the following information:
- a $P(\text{blue}) = \frac{1}{6}$, $P(\text{red}) = \frac{5}{6}$
 - b $P(\text{blue}) = \frac{1}{3}$, $P(\text{white}) = \frac{1}{3}$, $P(\text{black}) = \frac{1}{3}$
 - c $P(\text{not blue}) = \frac{1}{8}$
 - d $P(\text{black}) = \frac{4}{5}$, $P(\text{blue}) = P(\text{not black})$
- 9 An unbiased black dice and an unbiased white dice are thrown together.
- a Draw a probability space diagram to show all possible outcomes of this event.
 - b Find the probability that:
 - i one dice shows 2 and the other shows 3
 - ii one dice shows 6
 - iii both dice show 2.