

Probability words

In many probability questions words such as **random** and **fair** are used.

These are ways of saying that all outcomes are equally likely.

If A is an event, it will either happen or not happen.
 $P(A \text{ happening}) = 1 - P(A \text{ not happening})$

For example:

A card is taken at **random** from a pack of cards.

This means that each card has an equal chance of being taken.

A **fair** dice is rolled.

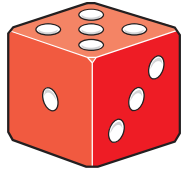
This means that the outcomes 1, 2, 3, 4, 5 and 6 are equally likely.

Exercise 6.2

1. A fair dice is rolled.

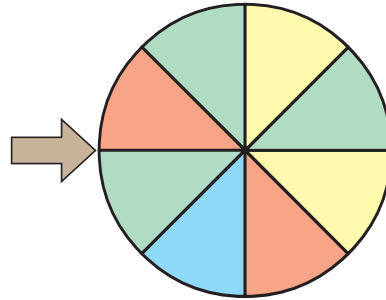
What is the probability of getting

- | | | |
|--------------------|-----------------|----------------------|
| (i) a 5 | (ii) a 1 or a 2 | (iii) 4 or more |
| (iv) an odd number | (v) less than 3 | (vi) a prime number? |



2. The fair spinner shown is spun. Work out the probability of the arrow pointing to:

- (i) yellow (Y),
- (ii) green (G),
- (iii) red (R),
- (iv) blue (B),
- (v) red or blue (R or B).



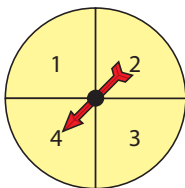
3. A letter is chosen at random from the word *GEOMETRY*.

What is the probability that it is

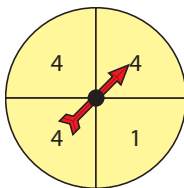
- | | | |
|-------------------------|--------------------------|----------------|
| (i) the letter <i>R</i> | (ii) the letter <i>E</i> | (iii) a vowel? |
|-------------------------|--------------------------|----------------|

4. What is the probability of getting a 4 on each of these spinners?

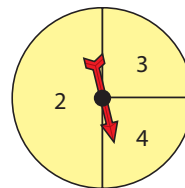
(i)



(ii)



(iii)



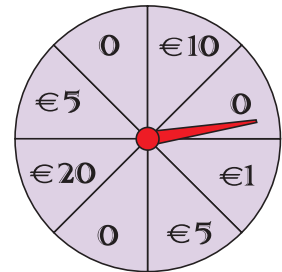
What is the probability of getting a 2 or a 4 on spinner (iii)?

5. A card is drawn from a pack of 52 playing cards.
What is the probability that the card is
- (i) a red card
 - (ii) a spade
 - (iii) a king
 - (iv) a red king?

There are four suits in a pack of cards: hearts and diamonds which are red; clubs and spades which are black.
Each suit contains 2, 3, 4, 5, 6, 7, 8, 9, 10, jack, queen, king and ace.
The picture cards are jack, queen and king.

6. A bag contains 5 red beads, 4 black beads and 3 green beads.
If a bead is drawn at random from the bag, find the probability that the bead is
- (i) red
 - (ii) green
 - (iii) red or black
 - (iv) not black.

7. In a casino, a pointer is spun and you win the amount shown in the sector where it comes to rest. Assuming that the pointer is equally likely to come to rest in any sector, what is the probability that you win
- (i) €5
 - (ii) no money
 - (iii) some money
 - (iv) more than €5?



8. A letter is chosen at random from the letters of the word *DEDICATION*.
What is the probability that the letter is
- (i) *D*
 - (ii) *I*
 - (iii) *D* or *I*
 - (iv) a vowel?

9. Megan has her birthday this week.
What is the probability that her birthday falls on
- (i) Monday
 - (ii) a day beginning with *T*
 - (iii) a Saturday or a Sunday?



10. A dice has its faces numbered 2, 3, 3, 3, 4, 7.
Find the probability of rolling
- (i) a '7'
 - (ii) an even number.

11. The 26 letters of the alphabet are written on discs.
The five discs with vowels are put in bag A and the other discs are put in bag B.
Find the probability of selecting
- (i) an 'o' from bag A
 - (ii) a 'z' from bag B
 - (iii) a 'w' from bag A.

