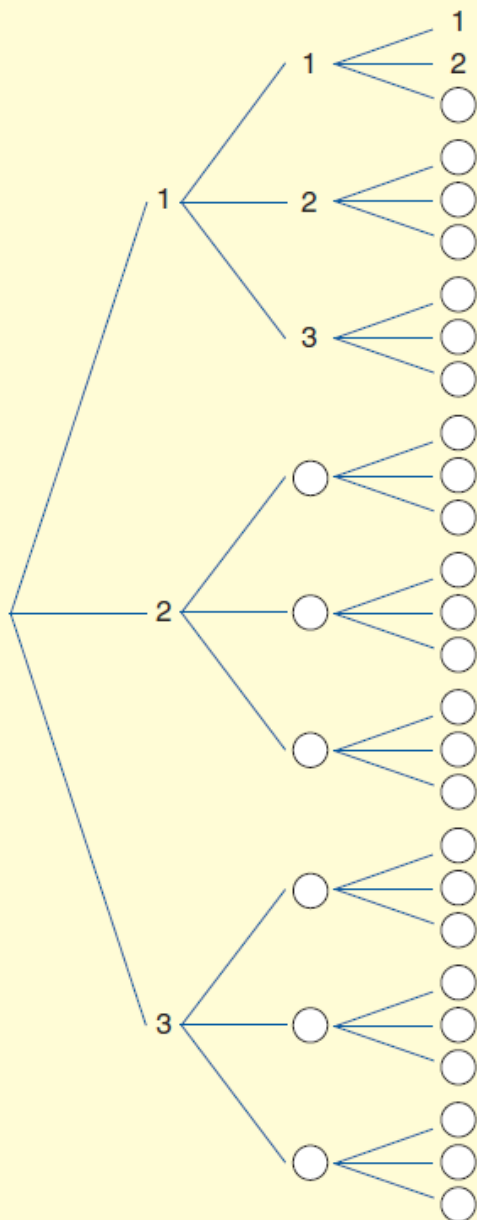
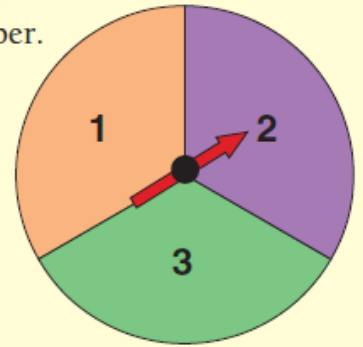


More basic probability revision

- 1** A bag contains 12 blue discs, 8 red discs and 6 green discs.
- i** If a disc is drawn at random from the bag, what is the probability:
 - a** it is green?
 - b** it is red?
 - c** it is not blue?
 - ii** If a disc is drawn at random and not replaced then another disc is drawn at random, what is the probability that the second disc is blue, given that the first disc was also blue?

- 2** The spinner below is made of a circle divided into three equal sectors. It is spun 3 times and the results written down to form a 3-digit number.
- i** Complete the tree diagram below to show the sample space.



- ii** Find the probability that the 3-digit number that results:
 - a** Has all three digits the same.
 - b** Has all three digits different.
 - c** Is an even number
 - d** Is an odd number
 - e** Has only two digits the same.

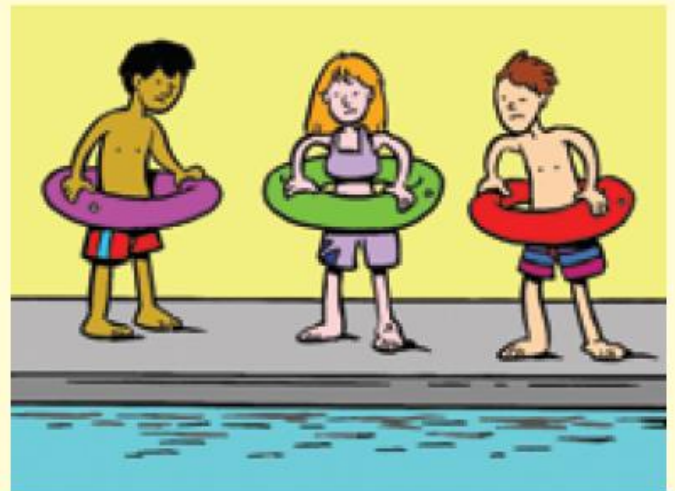


- 3** A die is rolled and a coin is flipped.
- a** Use a grid diagram to work out the sample space and $n(S)$.
 - b** Find the probability of a head and a multiple of 3 being the result.

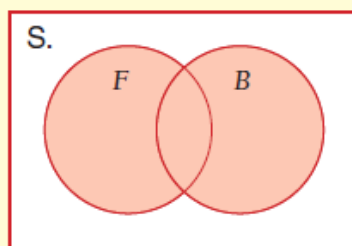
- 4** Three new students are going to join Andy and Steven's homeroom. They try to guess the gender of the new students. Andy guesses 2 boys and 1 girl while Steven says they will all be girls.
- a** Draw a tree diagram to show all the possibilities (sample space).
 - b** What is the probability that Andy is correct?
 - c** What is the probability that Steven is correct?
 - d** What is the probability that both Andy and Steven are wrong?
 - e** What is the probability that at least one of the new students is a boy?

- 5** A bag contains red, white and blue balls. The probability of drawing a red ball is $\frac{1}{4}$ and drawing a white ball is $\frac{3}{5}$.
- a** What is the probability of drawing a blue ball?
 - b** If there are 36 white balls
 - i** how many red balls are there?
 - ii** how many blue balls are there?
 - c** If 3 of each colour ball is added to the bag, what is the probability of drawing each at random?

- 6** In a group of 25 people, it is known that 5 cannot swim.
- a** What is the probability that a student chosen at random cannot swim?
 - b** If the first person chosen is not a swimmer and taken from the group (not replaced), what is the probability a second person chosen is also a non-swimmer?



- 7** A group of 35 people were asked whether they had played football (F) or basketball (B) and the results were put into the Venn diagram below.



The results were: $n(F \cap B) = 10$, $n(B) = 20$, $n(F \cup B) = 28$

- a** Complete the Venn diagram.
- b** If a person is chosen from the group at random, find each of the following, explaining in words what is meant.
- i** $P(F)$ **ii** $P(F \cap B')$ **iii** $P(F \cup B)$ **iv** $P[(F \cup B)']$ **v** $P(B')$

Answers:

1 i a $\frac{3}{13}$

b $\frac{4}{13}$

c $\frac{6}{13}$

ii $\frac{5}{12}$

3 a $\frac{1}{9}$

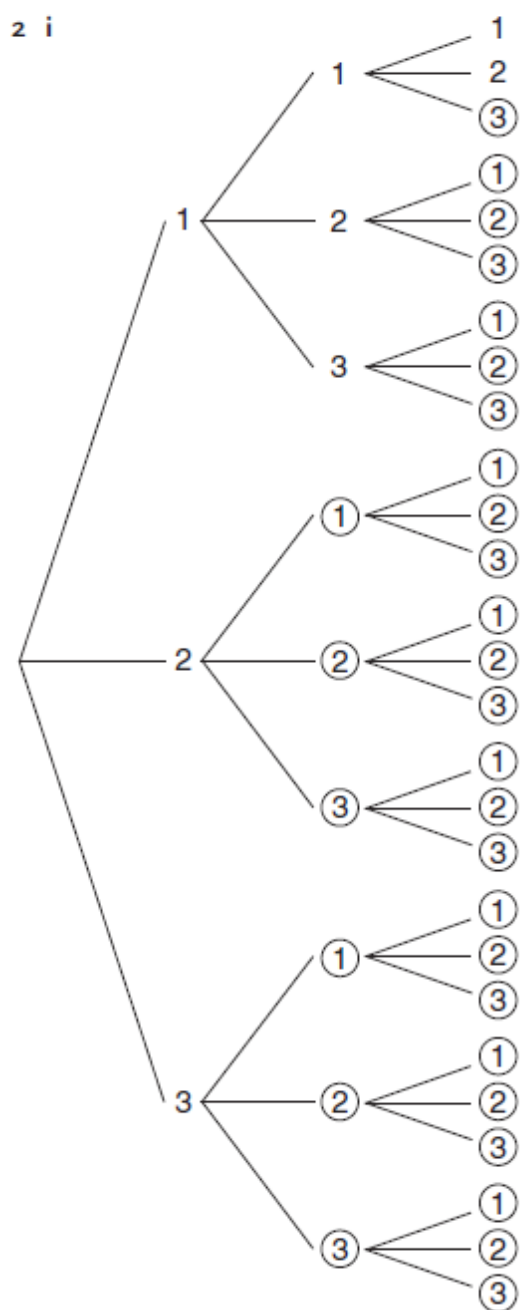
b $\frac{2}{9}$

c $\frac{1}{3}$

d $\frac{2}{3}$

e $\frac{2}{3}$

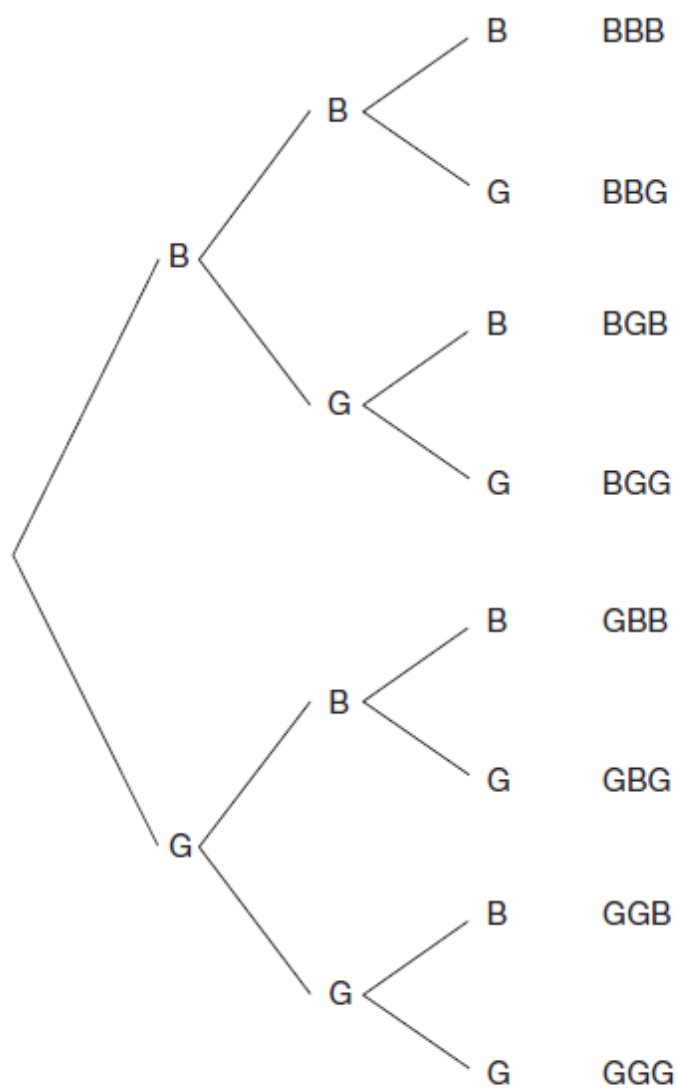
2 i



3 a

		Die						12
		1	2	3	4	5	6	
Coin	H	•	•	•	•	•	•	
	T	•	•	•	•	•	•	
		First student	Second student	Third student				

4 a



b $\frac{3}{8}$

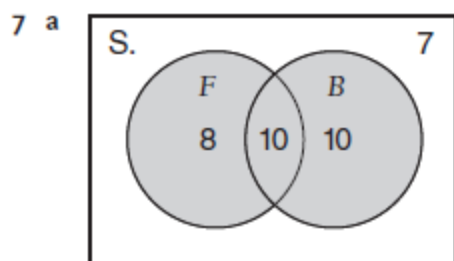
c $\frac{1}{8}$

d $\frac{1}{2}$

e $\frac{7}{8}$

5 a $\frac{3}{20}$ b i 15 ii 9 c $P(\text{red}) = \frac{6}{23}$, $P(\text{white}) = \frac{13}{23}$, $P(\text{blue}) = \frac{4}{23}$

6 a $\frac{1}{5}$ b $\frac{1}{6}$



- b
- i The probability they have played football, $\frac{18}{35}$
 - ii The probability they have played football but not basketball, $\frac{8}{35}$
 - iii The probability they have played football or basketball, $\frac{4}{5}$
 - iv The probability they have not played football or basketball, $\frac{1}{5}$
 - v The probability they have not played basketball, $\frac{3}{7}$