

Probability

1. Consider the numbers 2, 3, 4, 8, 10, 17, 21, 23. If one of these numbers is chosen at random, find
(a) $p(\text{even})$ (b) $p(\text{multiple of } 3)$ (c) $p(\text{prime})$ (d) $p(\text{multiple of } 5)$
2. The letters of the word **MATHEMATICS** are all placed separately on cards and put in a bag. One card is chosen at random from the bag. Calculate
(a) $p(\text{T})$ (b) $p(\text{vowel})$ (c) $p(\text{K})$
3. A bag contains some sweets. There are 8 jelly beans, 5 mints and 7 smarties. One sweet is taken at random from the bag. Calculate
(a) $p(\text{mint})$ (b) $p(\text{smartie})$
4. The letters of the word **MISSISSIPPI** are all placed separately on cards and put in a bag. One card is chosen at random from the bag. Calculate
(a) $p(\text{M})$ (b) $p(\text{S})$ (c) $p(\text{P or I})$
5. A die is thrown. Calculate the probability that the die lands as
(a) an odd number (b) a number less than 3



6. A bag contains 40 counters – 15 blue, 6 red, 10 yellow and 9 green. A counter is drawn from the bag at random.
(a) What is the probability this counter is (i) blue? (ii) red or yellow?
(b) A blue counter is drawn from the bag and not replaced. What is the probability the next counter drawn from the bag is also blue?
7. A company surveyed 100 people on the toothpaste they used. The results are shown in the table below.

Dento	Hygiene	Sensodent	Allsmile	Golcate
30	22	17	10	21

If a person is chosen at random, what is the probability this person uses

- (a) Sensodent? (b) Dento or Allsmile?
8. A bag contains 50 coloured balls – 20 white, 14 purple, 11 pink and 5 orange.
(a) A ball is chosen from the bag at random. What is the probability this ball is
(i) pink? (ii) white or orange?
(b) A white ball is chosen from the bag and not replaced. What is the probability the next ball chosen will be purple?

9. The table shows the pupils in a small Primary School.

	Under 10 years old	Over 10 years old
Boy	85	20
Girl	115	30

A pupil is to be chosen at random to represent the school in a local quiz. What is the probability that the pupil chosen is

- (a) A boy? (b) A girl? (c) A girl over 10 years old?
 (d) A boy under 10 years old?

10. The table shows the way in which pupils travel to school.

	Boys	Girls
Car	25	30
Bus	30	12
Train	15	25
Walk	10	33

If a pupil is chosen at random in the school what is the probability that

- (a) The pupil is a boy?
 (b) The pupil is a girl who travels to school by car?
 (c) The pupil is a boy who walks to school?

11. The diagram shows a square with letters on it. If a coin is thrown onto the square calculate the probability that it would land on

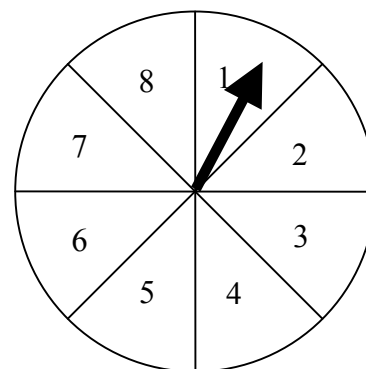
- (a) a vowel (b) a letter M or N (c) a letter of the word WAS.

P	E	S	W	E
I	T	R	N	Y
A	G	E	Y	U
W	W	S	E	O
T	K	N	M	T

12. A spinner has 8 sections, numbered 1 to 8.

The spinner is spun, what is the probability it lands on

- (a) 8 (b) a square number
 (c) a number less than 4.

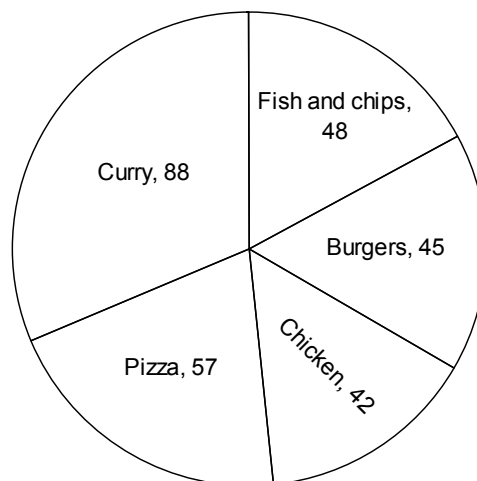


13. Craig works in the school office.
Shown below is his order for 25 boxes of folders.

Blue Folders	8 boxes
Green Folders	10 boxes
Pink Folders	5 boxes
Yellow Folders	2 boxes
Total 25 boxes	

His order has arrived in identical boxes but they are not labelled.

- (a) What is the probability that the first box Craig opens contains pink folders?
- (b) The first box Craig opens contains green folders.
What is the probability that the next box he opens contains blue folders?
14. Four girls and two boys decide to organise a tennis tournament for themselves.
Each name is written on a plastic token and put in a bag.
- (a) What is the probability that the first token drawn from the bag has a girl's name on it?
- (b) The first token drawn from the bag has a girl's name on it.
This token is **not** returned to the bag.
What is the probability that the next token drawn from the bag has a boy's name on it?
15. The pie chart shows the favourite food of a number of pupils.



Calculate the probability that if a pupil is chosen at random their favourite food will be

- (a) curry (b) fish and chips (c) pizza

16. There are 2 yellow, 3 red, 1 blue and 4 orange cubes in a bag.

(a) Jason takes a cube from the bag.

What is the probability that it is orange?

(b) The cube is replaced in the bag and 3 white cubes are added to the bag.

What is the probability that the next cube taken from the bag is **not** red?

17. John's school sells 1200 raffle tickets. John buys 15 of the tickets sold.

John's church sells 1800 raffle tickets. John buys 20 of these tickets.

Calculate the probability of John winning each raffle and say which he is more likely to win.

18. There are 4 girls and 14 boys in a class.

A child is chosen at random and is asked to roll a die, numbered 1 to 6.

Which of these is more likely?

The child is female or the child rolls a 5.

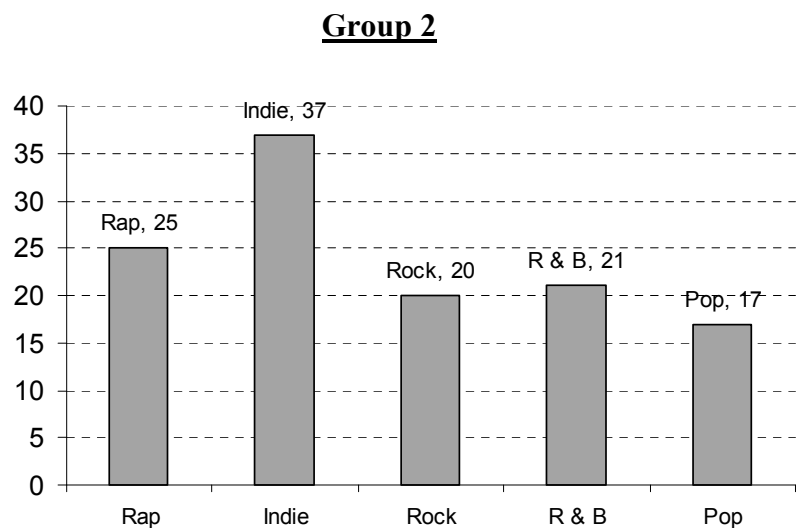
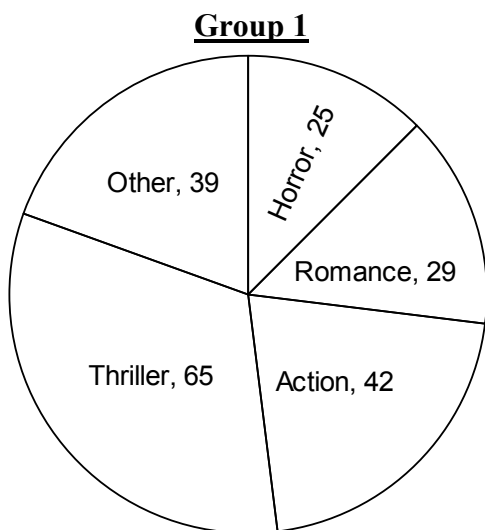


19. Two different groups of pupils were surveyed on their favourite type of music or film.

Group 1 were asked to name their favourite type of film.

Group 2 were asked to name their favourite type of music.

The results are shown below.



(a) What is the probability a pupil selected at random from Group 1 chose 'Thriller' as their favourite type of film?

(b) What is the probability a pupil selected at random from Group 2 chose 'Rap' as their favourite type of music?

(c) Which is more likely? A pupil chosen at random from group 1 chose 'Horror' or a pupil chosen at random from Group 2 chose 'Rock'.