

1 There are 25 pens in a packet.

7 of the pens are green.

10 of the pens are black.

The rest of the pens are red.

Jurgen takes at random a pen from the packet.

(a) Find the probability that

(i) the pen is black,

.....
(1)

(ii) the pen is red.

.....
(1)

(Total for Question 1 is 2 marks)

2 A bag contains only red beads, blue beads, green beads and yellow beads.

The table gives the probabilities that, when a bead is taken at random from the bag, the bead will be blue or the bead will be yellow.

Colour	red	blue	green	yellow
Probability		0.24		0.31

The probability that the bead will be green is twice the probability that the bead will be red.

Sofia takes at random a bead from the bag.

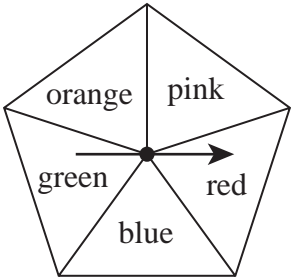
She writes down the colour of the bead and puts the bead back into the bag.

She does this 180 times.

Work out an estimate for the number of times she takes a red bead from the bag.

.....
(Total for Question 2 is 4 marks)

3 Grace has a biased 5-sided spinner.



Grace is going to spin the arrow on the spinner once.

The table below gives the probabilities that the spinner will land on red or on blue or on green.

Colour	Red	Blue	Green	Orange	Pink
Probability	0.20	0.12	0.08		

The probability that the spinner will land on orange is 3 times the probability that the spinner will land on pink.

(a) Work out the probability that the spinner will land on orange.

(3)

Grace spins the arrow on the spinner 150 times.

(b) Work out an estimate for the number of times the spinner lands on blue.

(2)

(Total for Question 3 is 5 marks)

4 There are some counters in a bag.

7 of the counters are blue.

5 of the counters are green.

The rest of the counters are yellow.

One counter is going to be taken at random from the bag.

The probability that the counter is blue or is green is $\frac{6}{13}$

Work out how many yellow counters there are in the bag.

.....

(Total for Question 4 is 3 marks)

5 A bag contains 30 coloured counters.

The table gives the number of counters of each colour.

Colour	Red	Green	Yellow	Blue
Number of counters	7	13	4	6

One of the counters is taken at random from the bag.

(a) Write down the probability that this counter is green.

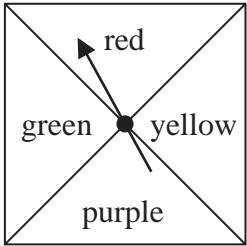
.....
(1)

(b) Write down the probability that this counter is **not** red.

.....
(2)

(Total for Question 5 is 3 marks)

6 Here is a biased spinner.



When the spinner is spun once, the probabilities that it lands on red or on yellow or on green are given in the table.

Colour	red	yellow	purple	green
Probability	0.25	0.2		0.2

(a) Work out the probability that the spinner lands on red or on yellow.

.....
(1)

Yang is going to spin the spinner 300 times.

(b) Work out an estimate for the number of times the spinner will land on purple.

.....
(3)

(Total for Question 6 is 4 marks)

7 Anjali wants to go on a boat at the seaside.

At the seaside there are 20 boats.

Of these boats

2 are white

5 are blue

7 are green

6 are yellow

Anjali selects at random one of these boats.

Write down the probability that she selects

(i) a green boat,

.....
(1)

(ii) a white boat or a yellow boat.

.....
(2)

(Total for Question 7 is 3 marks)

8 Each time John plays a game, the probability that he wins the game is 0.65

John is going to play the game 300 times.

Work out an estimate for the number of games that John wins.

(Total for Question 8 is 2 marks)

9 A tin contains tea bags with a choice of four different flavours of tea.
The four flavours of tea are Assam or Darjeeling or Nilgiri or Rize.

Sara takes at random a tea bag from the tin.

The table shows each of the probabilities that the flavour of the tea Sara takes is Assam or Darjeeling or Rize.

Flavour of tea	Assam	Darjeeling	Nilgiri	Rize
Probability	0.38	0.24		0.16

(a) Work out the probability that the flavour of the tea Sara takes is Nilgiri.

.....
(2)

(b) Work out the probability that the flavour of the tea Sara takes is either Darjeeling or Rize.

.....
(2)

(Total for Question 9 is 4 marks)

10 A bag contains only pink sweets, white sweets, green sweets and red sweets.

The table gives each of the probabilities that, when a sweet is taken at random from the bag, the sweet will be green or the sweet will be red.

Sweet	pink	white	green	red
Probability			0.2	0.35

The ratio

number of pink sweets : number of white sweets = 2 : 1

There are 28 red sweets in the bag.

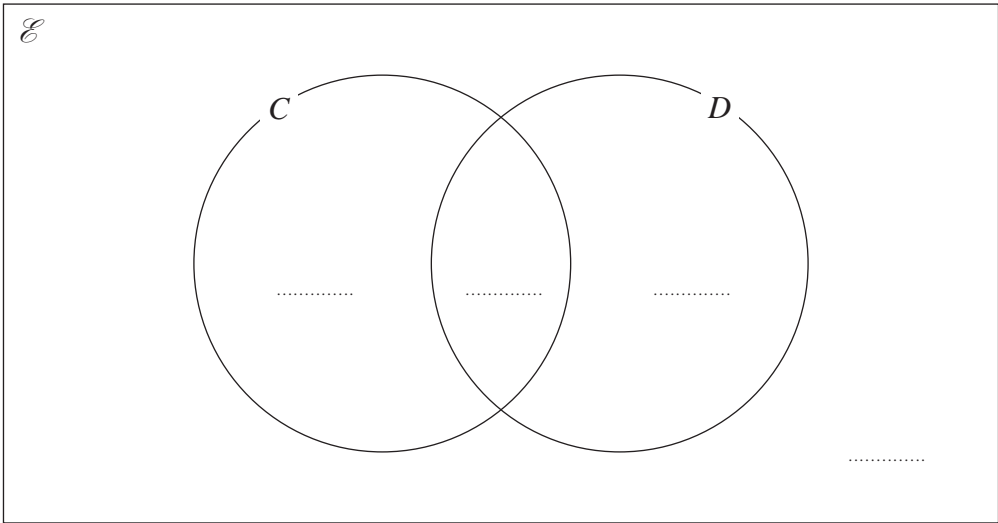
Work out the number of white sweets in the bag.

11 30 children were asked whether they have a cat (C) or a dog (D)

Of the 30 children

- 5 have both a cat and a dog
- 13 have a dog
- 11 have **only** a cat

(a) Complete the Venn diagram.



(3)

One of the children is picked at random.

(b) Find the probability that this child

(i) has a dog,

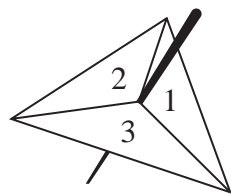
.....
(1)

(ii) does not have a dog and does not have a cat.

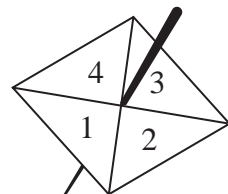
.....
(1)

(Total for Question 11 is 5 marks)

12 Avner has two fair spinners.



Spinner A



Spinner B

Spinner A can land on 1, 2 or 3
Spinner B can land on 1, 2, 3 or 4

Avner multiplies the number on which spinner A lands by the number on which spinner B lands to find his score.

- (a) Complete the table to show all possible scores.
Seven of the scores have been completed for you.

		Spinner A		
		1	2	3
Spinner B	1	1	2	3
	2	2	4	
	3	3		
	4	4		

(2)

Avner spins spinner A once and spinner B once.

- (b) Find the probability that his score is an odd number.

(1)

(Total for Question 12 is 3 marks)

- 13** Some members of a library were asked to name the type of book that they each liked to read the best.

One of the members is chosen at random.

The table shows information about the probability of the type of book that this member answered.

Type of book	comedy	romance	mystery	thriller
Probability	0.24	0.40	$3x$	x

48 members answered comedy books.

Work out how many of the members answered mystery books.

(Total for Question 13 is 4 marks)

14 Each time Evie plays a game against her computer, she will win or lose.

For each game, the probability that Evie will win is 0.74
Evie is going to play 300 games against her computer.

Work out an estimate for the number of games that Evie will lose.

.....
(Total for Question 14 is 2 marks)

15 There are 30 counters in a bag.

13 of the counters are purple.

11 of the counters are white.

The rest of the counters are red.

Suha takes at random a counter from the bag.

(a) Write down the probability that the counter is purple.

.....
(1)

(b) Work out the probability that the counter is red.

.....
(1)

The counter is put back into the bag.

Clive now puts 10 more counters into the bag.

When a counter is taken at random from the bag,

the probability that it is white is now $\frac{2}{5}$

(c) How many of the 10 counters that Clive puts into the bag are white?

.....
(2)

(Total for Question 15 is 4 marks)

16 A biased spinner can land on green or on yellow or on brown or on pink.

The table gives the probabilities that, when the spinner is spun, it will land on green or on yellow or on brown.

Colour	green	yellow	brown	pink
Probability	0.32	0.13	0.28	

Timucin spins the spinner 200 times.

Work out an estimate for the number of times the spinner lands on pink.

(Total for Question 16 is 3 marks)
