

- 1** There are some counters in a bag.  
The counters are blue or green or red or yellow.

The table shows the probabilities that a counter taken at random from the bag will be blue or will be green.

<b>Colour</b>	blue	green	red	yellow
<b>Probability</b>	0.32	0.20		

The probability that a counter taken at random from the bag will be red is five times the probability that the counter will be yellow.

There are 300 counters in the bag.

Work out the number of yellow counters in the bag.

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**(Total for Question 1 is 3 marks)**

- 2 A first aid test has two parts, a theory test and a practical test.  
The probability of passing the theory test is 0.75  
The probability of passing only one of the two parts is 0.36

The two events are independent.

Work out the probability of passing the practical test.

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

3 Ray has nine cards numbered 1 to 9



Ray takes at random three of these cards.

He works out the sum of the numbers on the three cards and records the result.

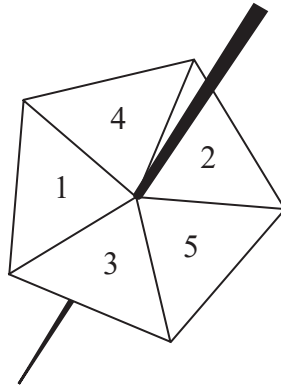
Work out the probability that the result is an even number.

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**(Total for Question 3 is 4 marks)**

4 Lina spins a biased 5-sided spinner 40 times.



Here are her results.

<b>Score</b>	1	2	3	4	5
<b>Frequency</b>	6	8	9	7	10

Lina is now going to spin the spinner another two times.

(a) Work out an estimate for the probability that she gets a score of 5 both times.

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(2)

Derek is going to spin the spinner a large number of times.

(b) Work out an estimate for the percentage of times Derek can expect to get a score of 1

.....%

(2)

**(Total for Question 4 is 4 marks)**

5 Alfie has 11 cards.

He has

3 blue cards

7 green cards

and 1 white card.

Alfie takes at random 2 of these cards.

Work out the probability that he takes cards of different colours.

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**(Total for Question 5 is 3 marks)**

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7 There are only blue counters, red counters and green counters in a box.

The probability that a counter taken at random from the box will be blue is 0.4  
The ratio of the number of red counters to the number of green counters is 7:8

Sameena takes at random a counter from the box.  
She records its colour and puts the counter back in the box.  
Sameena does this a total of 50 times.

Work out an estimate for the number of times she takes a green counter.

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**(Total for Question 7 is 3 marks)**

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8 A biased dice is thrown 60 times.

The table shows information about the number that the dice lands on each time.

<b>Number on dice</b>	1	2	3	4	5	6
<b>Frequency</b>	12	7	8	9	9	15

Gethin throws the dice twice.

(a) Work out an estimate for the probability that the dice will land on 6 both times.

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(3)

Sally is going to throw the same dice  $n$  times and record the number it lands on each time.

She will use her results to work out a more reliable estimate for the probability in part (a).

(b) What can you say about the value of  $n$ ?

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.....  
.....  
(1)

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**(Total for Question 8 is 4 marks)**

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9 There is a total of  $y$  counters in a box.

There are  $x$  pink counters and 5 blue counters in the box.  
The rest of the counters are green.

$$x:y = 1:3$$

Freda takes at random two counters from the box.

Find, in terms of  $x$ , an expression for the probability that Freda takes two counters of the same colour.

Give your answer as a fraction in the form  $\frac{ax^2 + bx + c}{dx^2 + ex}$  where  $a, b, c, d$  and  $e$  are integers.

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**(Total for Question 9 is 5 marks)**

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