

The probability that a biased dice will land on a five is 0.3

Megan is going to roll the dice 400 times.

Work out an estimate for the number of times the dice will land on a five.

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**(Total for Question**

1. There are 3 red pens, 4 blue pens and 5 black pens in a box. Sameena takes a pen, at random, from the box.

(a) Write down the probability that she takes a black pen.

(b) Write down the probability that Sameena takes a pen that is **not** black.

1. Each student at a college studies one of four languages.

The table shows the probability a student chosen at random studies German or Russian or French.

<b>Language</b>	German	Spanish	Russian	French
<b>Probability</b>	0.2		0.1	0.5

A student is chosen at random.

- (a) Work out the probability that the student studies Spanish.

.....  
(2)

There are 800 students at the college.

- (b) Work out the number of students who study German.

9. Riki has a packet of flower seeds.

The table shows each of the probabilities that a seed taken at random will grow into a flower that is pink or red or blue or yellow.

<b>Colour</b>	<b>pink</b>	<b>red</b>	<b>blue</b>	<b>yellow</b>	<b>white</b>
<b>Probability</b>	0.15	0.25	0.20	0.16	

- (a) Work out the probability that a seed taken at random will grow into a white flower.

.....  
**(2)**

There are 300 seeds in the packet.

All of the seeds grow into flowers.

- (b) Work out an estimate for the number of red flowers.

2. A spinner can land on red or blue or pink.  
The table shows the probabilities that the spinner will land on red or on blue.

<b>Colour</b>	red	blue	pink
<b>Probability</b>	0.58	0.30	

Work out the probability that the spinner will land on pink.

.....  
(Total

£ .....

(Total 3 marks)

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8. Angel Ltd manufacture components for washing machines. The probability that a component will be made within a tolerance of one tenth of a millimetre is 0.995.

Angel Ltd. manufacture 10 000 components each day.

Work out an estimate for the number of components that will not be within the tolerance of one tenth of a millimetre each day.

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(Total 3 marks)



..... cm<sup>2</sup>

**(Total 2 marks)**

2. A spinner can land on red or blue or pink.

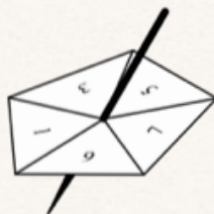
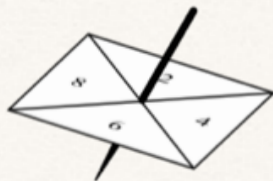
The table shows the probabilities that the spinner will land on red or on blue.

<b>Colour</b>	red	blue	pink
<b>Probability</b>	0.58	0.30	

Work out the probability that the spinner will land on pink.

.....

**(Total 2 marks)**



The four-sided spinner is labelled 2, 4, 6, 8  
 The five-sided spinner is labelled 1, 3, 5, 7, 9

Louise adds the score on the four-sided spinner to the score on the five-sided spinner.  
 She records the possible total scores in a table.

4-sided spinner

5-sided spinner

+	2	4	6	8
1	3	5	7	9
3	5	7	9	11
5	7	9	11	13
7	9	11		
9	11	13		

(a) Complete the table of possible total scores.

(1)

(b) Write down all the ways in which Louise can get a total score of 11  
 One way has been done for you.

(2, 9) .....

(2)

Both spinners are fair.

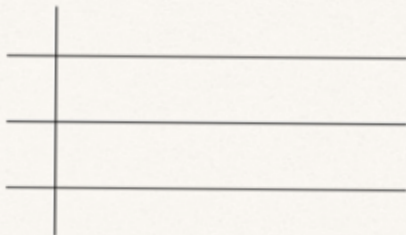
(c) Find the probability that Louise's total score is less than 6



5. Here are the weights in grams, to the nearest gram, of 15 eggs.

33	46	41	54	51
38	60	44	55	51
62	55	52	37	63

- (a) Complete the ordered stem and leaf diagram to show this information.  
You must include a key.



Key

(3)

Meg is going to pick at random one of the eggs.

- (b) Work out the probability that this egg will have a weight of more than 45 grams.



5. There are only red counters, blue counters and green counters in a bag.  
There are 5 red counters.  
There are 6 blue counters.  
There is 1 green counter.

Jim takes at random a counter from the bag.

- (a) Work out the probability that Jim takes a counter that is **not** red.

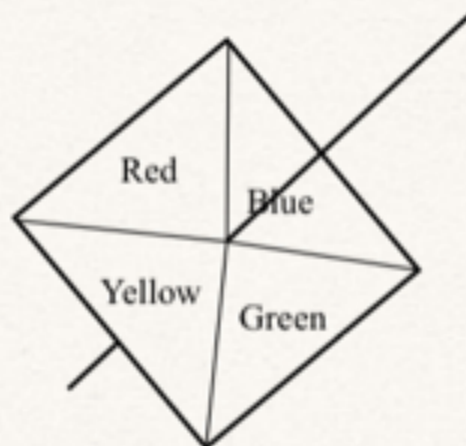
.....  
(2)

Jim puts the counter back in the bag.  
He then puts some more green counters into the bag.

The probability of taking at random a red counter is now  $\frac{1}{3}$

- (b) Work out the number of green counters that are now in the bag.

9. Here is a 4-sided spinner.



The sides of the spinner are labelled Red, Blue, Green and Yellow.

The spinner is biased.

The table shows the probability that the spinner will land on each of the colours Red, Yellow and Green.

Colour	Red	Blue	Green	Yellow
Probability	0.2		0.3	0.1

Work out the probability the spinner will land on Blue.

5. Fred did a survey of the time, in seconds, people spent in a queue at a supermarket. Information about the times is shown in the table.

Time ( $t$ seconds)	Frequency
$0 < t < 40$	8
$40 < t < 80$	12
$80 < t < 120$	14
$120 < t < 160$	16
$160 < t < 200$	10

A person is selected at random from the people in Fred's survey.

Work out an estimate for the probability that the person selected spent more than 120 seconds in the queue.

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(Total 2 marks)

Q5

6. Work out an estimate for

$$\frac{412 \times 5.904}{0.195}$$

