

Simple Probability

Please write clearly in block capitals

Forename:

Surname:

Materials

For this paper you must have:

- mathematical instruments



You must **not** use a calculator.

Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer all questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book. Cross through any work you do not want to be marked.

Information

- The marks for questions are shown in brackets.
- You may ask for graph paper, tracing paper and more answer paper. These must be tagged securely to this answer book.

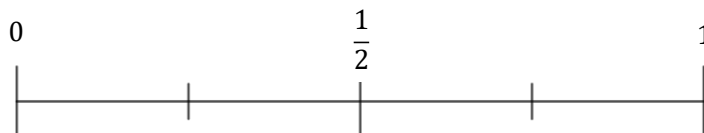
Advice

- In all calculations, show clearly how you work out your answer.

1 Mark with a cross on the probability scale the likelihood of each event. (Level 3)

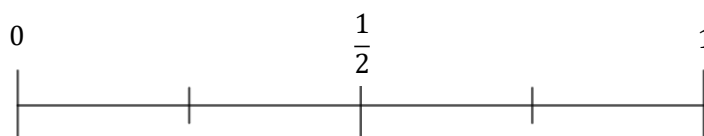
1(a) Heads on a coin flip.

[1 mark]



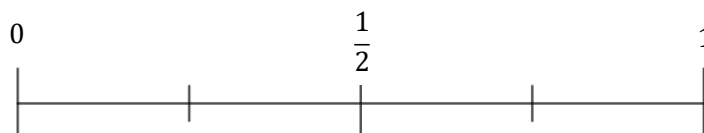
1(b) Winning the lottery

[1 mark]



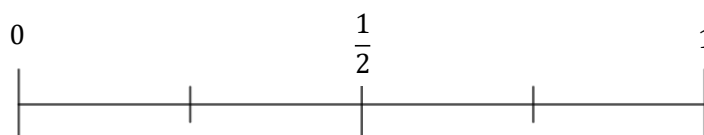
1(c) The sun comes up tomorrow

[1 mark]



1(d) Roll a 0 on a fair standard dice

[1 mark]



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2 A bag contains 12 coloured counters.

(Level 4)

3 of the counters are blue

6 of the counters are red

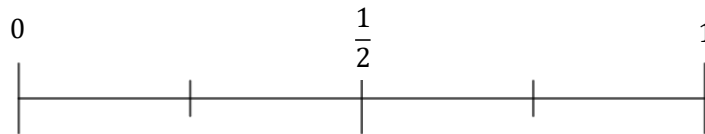
3 of the counters are green.

Tom takes a counter at random from the bag.

On the probability scale, mark with a cross the probability that Tom takes the following:

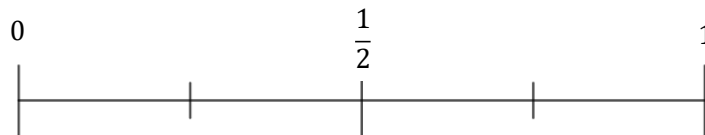
2(a) a blue counter

[1 mark]



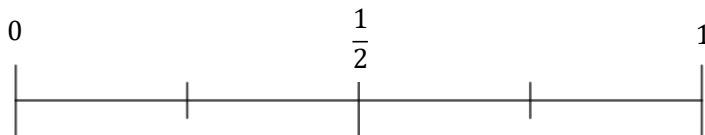
2(b) a red counter

[1 mark]



2(c) an orange counter

[1 mark]



Turn over for next question

3 Peter rolls an ordinary 6 sided dice. (Level 4)
It has faces marked 1, 2, 3, 4, 5 and 6.

3(a) Write down the probability that he rolls a 6 [1 mark]

Answer _____

3(b) Write down the probability that he rolls an even number. [1 mark]

Answer _____

3(c) Sam then roles a different ordinary 6 sided dice 600 times.
Sam only rolls 20 6's
Give a possible explanation for this result [1 mark]

Answer _____



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4 The probabilities of a spinner landing on each of its three colours are shown in the table below. (Level 4)

4(a) Complete the table below.

[1 mark]

Colour	Blue	Red	Green
Probability	$\frac{1}{3}$		$\frac{1}{6}$

4(b) If the spinner is spun 180 times,
How many times would you expect the spinner to land on blue?

[1 mark]

Answer _____

4(c) The spinner is spun 180 times.
However the spinner only lands on green 5 times.
Other than bias, provide a reason for the outcome obtained?

[1 mark]

Answer _____

Turn over for next question

5 Ben flips an unbiased coin 3 times. (Level 4)

He states he is more likely to get heads, tails, then heads than all tails for the three flips.

Is he correct? Explain your answer.

[2 marks]

6 Three friends flip the same biased coin several times. (Level 4)

Their results are shown in the table below.

	Heads	Tails
Sonya	33	87
Clive	6	24
Lucy	17	43

Each of the friends calculates their own probability of heads.

Which friend is likely to have the probability closest to the true probability?

You must explain your answer.

[1 mark]

Answer _____

End of Questions