## Simple Probability

Please write clearly in block capitals

## Forename:

Surname:

## Materials

For this paper you must have:

- mathematical instruments

You can 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.

1(a) Heads on a coin flip.


1(b) Winning the lottery


1(c) The sun comes up tomorrow


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


2 A bag contains 12 coloured counters.

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


2(b) a red counter


2(c) an orange counter

## [1 mark]



Turn over for next question
Peter rolls an ordinary 6 sided dice.
It has faces marked $1,2,3,4,5$ and 6.

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

4(a) Complete the table below.

| 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?

Answer $\qquad$

4(c) $\quad$ 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?
$\qquad$
$\qquad$
$\qquad$
$\qquad$
Answer $\qquad$

Turn over for next question
$5 \quad$ Ben flips an unbiased coin 3 times.
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.
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$

6 Three friends flip the same biased coin several times.
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.
$\qquad$
$\qquad$
$\qquad$
$\qquad$
Answer $\qquad$

End of Questions

