AQA

GCSE
METHODS IN MATHEMATICS (LINKED PAIR)

F

Foundation Tier   Unit 1   Algebra and Probability

Wednesday 4 November 2015   Morning   Time allowed: 45 minutes

Materials
For this paper you must have:
- a calculator
- mathematical instruments.

Instructions
- Use black ink or black ball-point pen. Draw diagrams in pencil.
- 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.
- This paper is divided into two sections: Section A and Section B.
- After the 45 minutes allowed for Section A, you must put your calculator on the floor under your seat. You will then be given Section B.
- When you have answered Section B you may work again on Section A but you must **not** use a calculator. It must remain on the floor under your seat.
- At the end of the examination tag Section A and Section B together with Section A on top.

Information
- The marks for questions are shown in brackets.
- The maximum mark for this paper is 40.
- You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to this answer book.
- You are expected to use a calculator where appropriate.

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

Formulae Sheet: Foundation Tier

Set notation

A
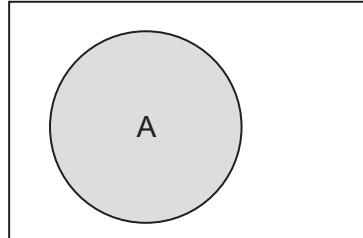
A′
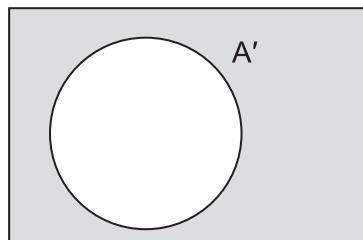
A ∩ B
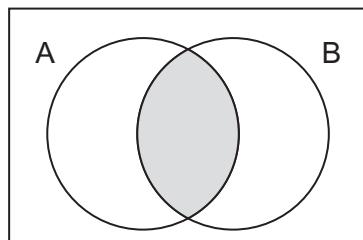
A ∪ B
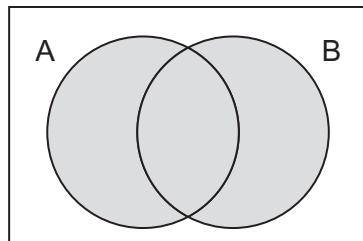
Answer **all** questions in the spaces provided.

1 (a) Circle the fraction equal to   0.7

[1 mark]

$\dfrac{7}{10}$ $\dfrac{1}{7}$ $\dfrac{7}{100}$ $\dfrac{3}{4}$

1 (b) Circle   half a million   in digits.

[1 mark]

5000   50 000   500 000   5 000 000

1 (c) Circle the number which has the **same** digit for units and tenths.

[1 mark]

47.87   77.84   78.74   47.78

Turn over for the next question

3

Turn over ▶

2   Here are four fair spinners, A, B, C and D.

1	3
4	2

A

1	5
4	1

B

1	3
3	5

C

1	4
4	3
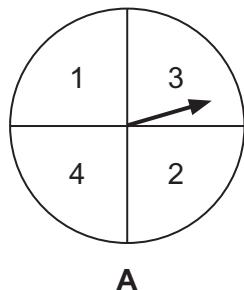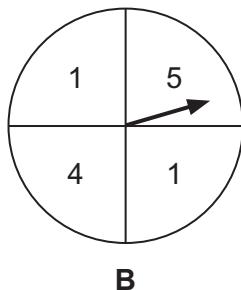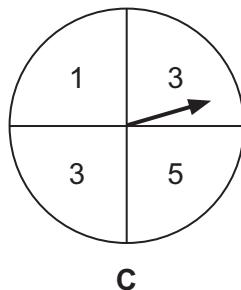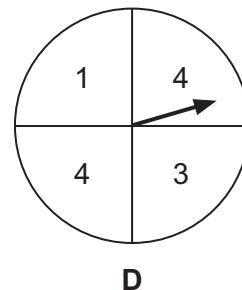
D

2 (a)   Which spinner has a **certain** chance of the arrow landing on an odd number?
Circle your answer.

[1 mark]

  A   **B**   **C**   **D**

2 (b)   Which spinner has the **best** chance of the arrow landing on 4?
Circle your answer.

[1 mark]

  A   **B**   **C**   **D**

2 (c)   Which **two** spinners have the **same** chance of the arrow landing on 3?

[1 mark]

Answer .... and ....

2 (d)   Here is a different spinner.

The arrow has

the same chance of landing on 2 as spinner A

and

a greater chance of landing on 5 than spinner C.

Write one possible set of numbers on the spinner.

[2 marks]

You can practise on this spinner.
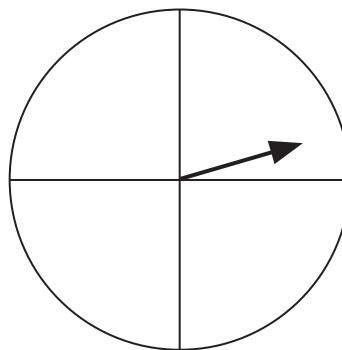
Put your answer on this spinner.
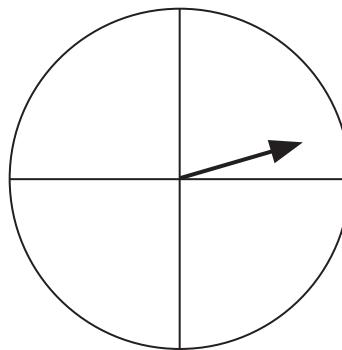
3 How many minutes are there in $3\frac{1}{4}$ hours?

[2 marks]

....

....

....

....

Answer .... minutes

4 I think of a number.
I subtract 10 and then multiply by 3
My answer is 12

What number did I think of?

[2 marks]

....

....

....

Answer ....

5 (a) Complete the list of 2-digit numbers with

one digit that is 3 or 4

and

one digit that is 5 or 6

[2 marks]

35   53

5 (b) One of these 2-digit numbers is chosen at random.

Work out the probability that the number is **less** than 60

[1 mark]

....

Answer ....

Turn over for the next question

7

Turn over ▶

6   Here are three money boxes.

Box A contains only £1 coins.

Box B contains only 50p coins.

Box C contains only 10p coins.
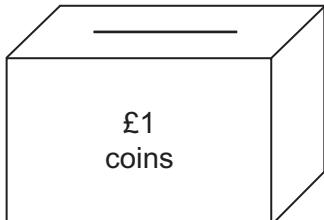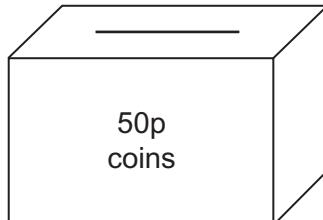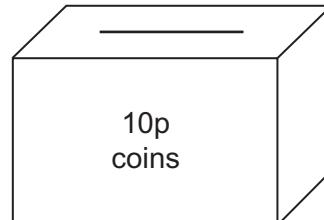
£1 coins	50p coins	10p coins
Box A	Box B	Box C

Each box contains the **same** number of coins.
The total amount of money is £24

How many coins are there **altogether**?

[3 marks]

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Answer ....

08

7 Here are three lines, *L*, *M* and *N*, drawn on a coordinate grid.
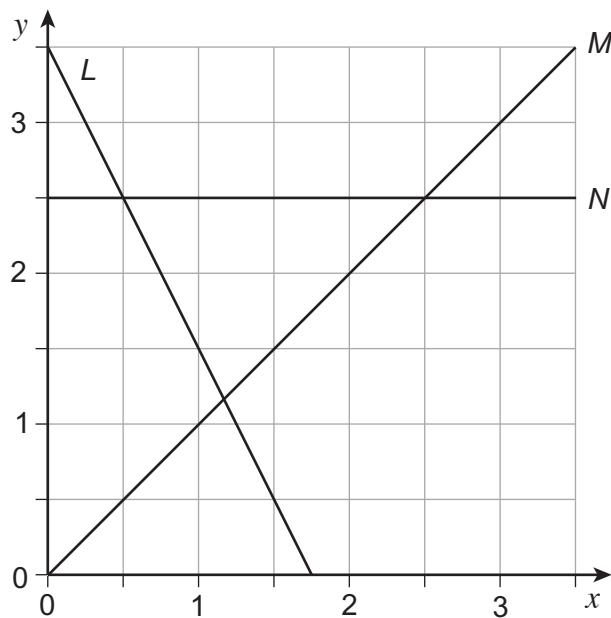
7 (a) Tick a box to show whether each statement is true or false.

[3 marks]

	True	False
The point (1, 2.5) lies on line *L*.	☐	☐
The *x* and *y* coordinates of the points on line *M* are always equal.	☐	☐
The equation of line *N* is *y* = 2.5	☐	☐

7 (b) A point lies on **two** of the lines.
The coordinates of the point add up to 3

Work out the coordinates of the point.

[1 mark]

Answer (............ , ...)

8 Which of these is the smallest?

$\dfrac{13}{20}$ 64.5% $\dfrac{16}{25}$ 0.635

You **must** show your working.

[2 marks]

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Answer ....

9 $P = 3r + 4t$

Work out the value of P when $r = -5$ and $t = 2$

[2 marks]

....

....

....

Answer ....

10 (a) Multiply out $x(x + 5)$

[1 mark]

....

Answer ....

10 (b) Factorise $3y - 12$

[1 mark]

....

Answer ....

11 $\dfrac{x}{12} = 3$ and $\dfrac{15}{y} = 3$

Work out the value of $x + y$

[2 marks]

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Answer ....

8

12 (a) Which calculation **decreases** 600 by 5%?
Circle your answer.

[1 mark]

600 ÷ 0.95   600 × 0.95   600 ÷ 1.05   600 × 1.05

12 (b) An amount **increases** from 350 to 413

Work out the percentage increase.

[3 marks]

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....

....

Answer .... %

13 Three students did their homework.

Jake took n minutes.

Malli took three times as many minutes as Jake.

Lucy took ten minutes less than Malli.

Write an expression in terms of n for the number of minutes Lucy took.

[2 marks]

....

....

Answer .... minutes

Turn over for the next question

Turn over ▶

14   65% of the members of a youth club are girls.
12 **more** girls than boys are members of the youth club.

How many boys are members of the youth club?

[4 marks]

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Answer ....

END OF SECTION A

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