Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										

For Examiner's Use	
Examiner's Initials	
Pages	Mark
3	
4 – 5	
6 – 7	
8 – 9	
10 – 11	
12 – 13	
14	
TOTAL	

General Certificate of Secondary Education
Foundation Tier
June 2013

Methods in Mathematics (Linked Pair Pilot) 93651F/B

Unit 1 Algebra and Probability
Section B Non-Calculator

F

Thursday 20 June 2013 9.50 am to 10.35 am

For this paper you must have:
- mathematical instruments.

You must **not** use a calculator.

Time allowed
- 45 minutes

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.
- You must **not** use your calculator in Section B. Your calculator must remain on the floor under your seat.
- When you have answered Section B you may work again on Section A but you must **not** use your 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.

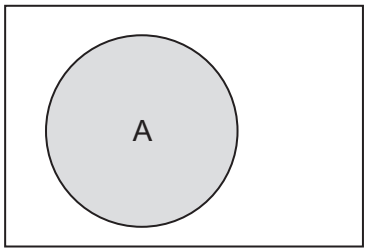
Information
- The marks for questions are shown in brackets.
- The maximum mark for this paper is 40.
- The quality of your written communication is specifically assessed in Question 25.
  This question is indicated with an asterisk (*).
- You may ask for more answer paper, graph paper and tracing paper.
  These must be tagged securely to this answer book.

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

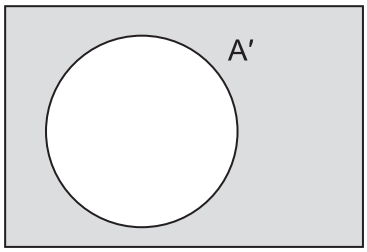
Formulae Sheet: Foundation Tier

Set notation

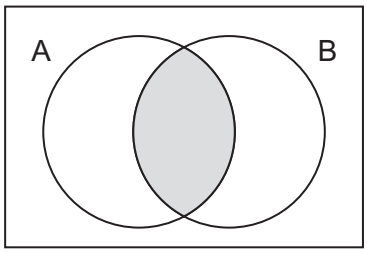
A



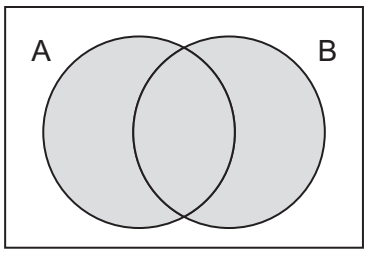
A′



$A \cap B$



$A \cup B$



Answer **all** questions in the spaces provided.

14 (a) Write the number sixteen thousand three hundred in figures.

Answer ..... *(1 mark)*

14 (b) Write down the value of the 5 in the number 42 561

Answer ..... *(1 mark)*

14 (c) Work out 312 000 ÷ 100

Answer ..... *(1 mark)*

Turn over for the next question

3

15 Put numbers in the boxes to make the calculations true.

$18 + \square = 30$

$4 \times \square = 56$

$\square - 20 = 47$

(3 marks)

16 (a) Circle the fraction which is equal to $\frac{3}{4}$

$\frac{5}{8}$ $\frac{9}{16}$ $\frac{15}{20}$ $\frac{16}{24}$

(1 mark)

16 (b) Put the numbers 3, 4, 5 and 7 in the boxes.

Make the fraction equal to the decimal.

$\frac{\square}{\square} = 0.\square\square$

(1 mark)

Turn over for the next question

5

17 There were 20 apples altogether in two boxes, box A and box B.

3 apples were moved from box A to box B.
The number of apples in each box is now the same.

How many apples were in box A to begin with?

.....

.....

Answer ..... *(3 marks)*

18 200 raffle tickets are sold.
The tickets are numbered 1 to 200.
There is one prize.

18 (a) Harry has one ticket.

What is the probability that he wins?

.....

.....

Answer ..... *(1 mark)*

18 (b) Kate has ticket numbers 51 to 70.

What is the probability that she wins?

.....

.....

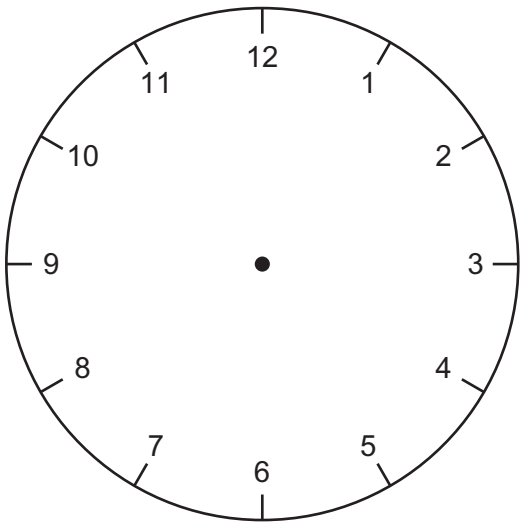
Answer ..... *(2 marks)*

19 A clock is 10 minutes slow.

The correct time is 11 a.m.

What time will the clock show in 40 minutes?

Draw hands on the clock to show your answer.



(2 marks)

Turn over for the next question

8

20 (a) Work out 134×8

Answer ..... *(2 marks)*

20 (b) Work out 0.2×0.3

Answer ..... *(1 mark)*

20 (c) Work out $9.2 - 5.17$

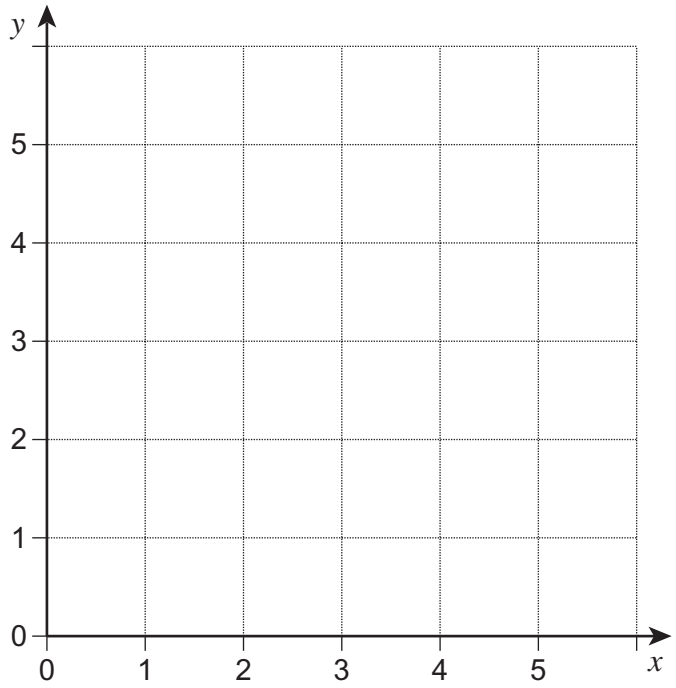
Answer ..... *(1 mark)*

21 (a) Complete the table of values for $x + y = 5$

x	0	3	5
y	5		0

(1 mark)

21 (b) Draw the graph of $x + y = 5$ for values of x from 0 to 5.



(2 marks)

21 (c) P is a point on the line.
The x-coordinate of P is the same as the y-coordinate.

Write down the coordinates of P.

(..... , ...) *(1 mark)*

8

22 (a) Simplify fully $2a + 6a - 3a$

.....

.....

Answer ..... *(1 mark)*

22 (b) Solve $4x - 7 = 13$

.....

.....

.....

x = ... *(2 marks)*

23 A bag contains only red balls and blue balls.
The probability of choosing a **red** ball is 0.4

23 (a) What is the probability of choosing a **blue** ball?

.....

Answer ..... *(1 mark)*

23 (b) What is the least number of balls that could be in the bag?

.....

.....

Answer ..... *(1 mark)*

23 (c) The number of red balls in the bag is doubled.
The number of blue balls in the bag is also doubled.

What is the probability of choosing a **red** ball now?

Answer ..... *(1 mark)*

Turn over for the next question

6

24 (a) What is 70 out of 200 as a percentage?

Answer ..... % *(1 mark)*

24 (b) Work out 0.5 % of 920

.....

.....

.....

.....

Answer ..... *(2 marks)*

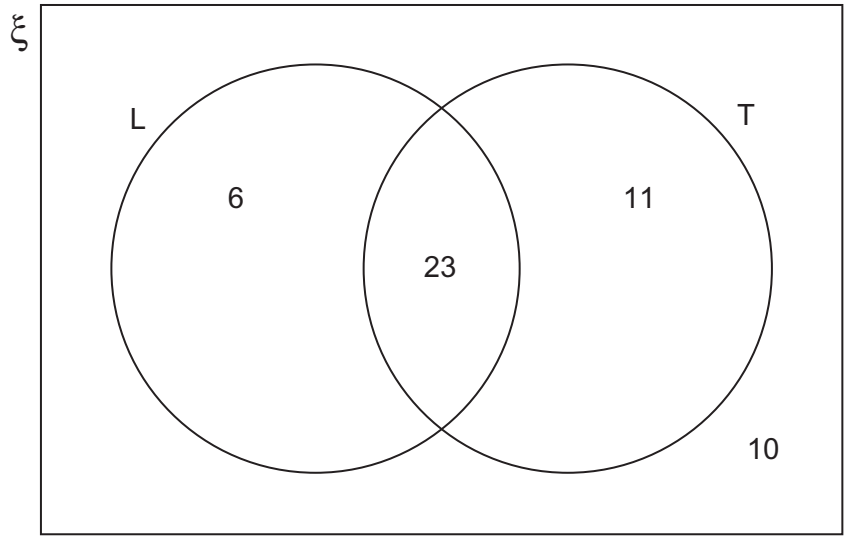
***25** A car has 4 wheels.
A bicycle has 2 wheels.

Write down an expression for the total number of wheels on x cars and y bicycles.

Answer ..... *(2 marks)*

26 Here is a Venn diagram.
It shows information about the number of students who have a laptop or a TV.

Set L represents students with a laptop.
Set T represents students with a TV.



There are 50 students altogether.

A student is chosen at random.

26 (a) Work out the probability that the student has a laptop.

Answer ..... *(1 mark)*

26 (b) Work out the probability that the student has a laptop **and** a TV.

Answer ..... *(1 mark)*

26 (c) Complete the sentence to make it true.

The probability that the student .....

..... is $\frac{11}{50}$

(1 mark)

Turn over for the next question

8

27 Solve $2n + 1 \leqslant 15$

.....

.....

.....

Answer ..... *(2 marks)*

END OF QUESTIONS

2

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