

Centre Number						Candidate Number				
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Other Names										
Candidate Signature										

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



General Certificate of Secondary Education  
Foundation Tier  
January 2013

# Methods in Mathematics (Linked Pair Pilot)

## 93651F/B

Unit 1 Algebra and Probability  
Section B Non-Calculator

# F

Friday 11 January 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 Questions 21 and 22. These questions are indicated with an asterisk (\*).
- You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to this answer booklet.

### Advice

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



J A N 1 3 9 3 6 5 1 F B 0 1

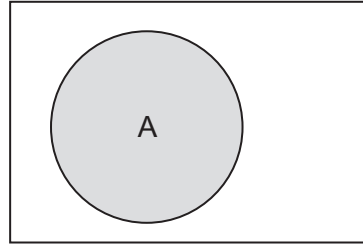
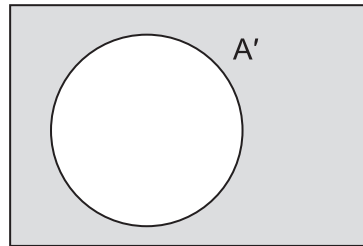
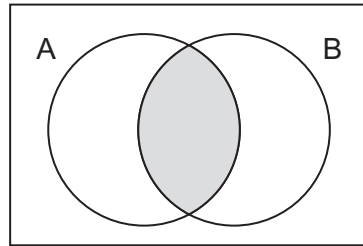
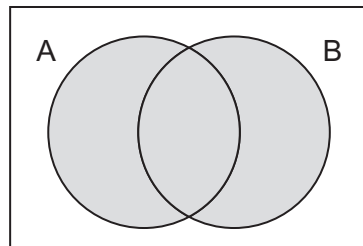
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## 93651F/B

## Formulae Sheet: Foundation Tier

## Set notation

A

 $A'$  $A \cap B$  $A \cup B$ 

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

**13 (a)**    Work out     $629 + 154$

Answer ..... (2 marks)

**13 (b)**    Work out     $17 \times 5$

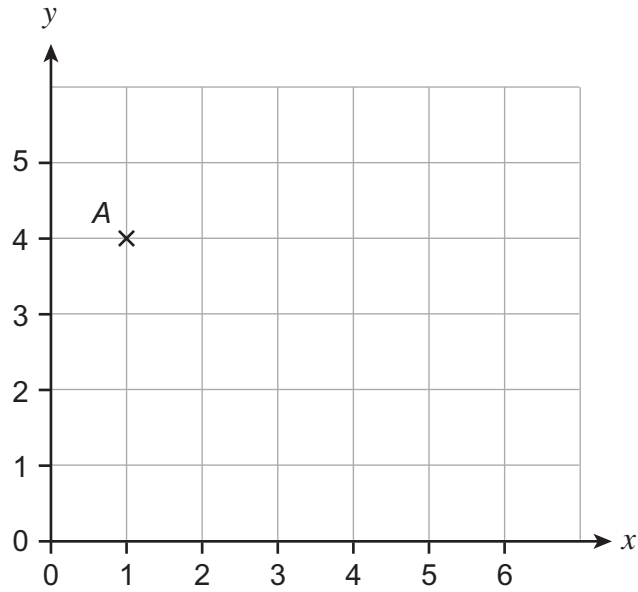
Answer ..... (1 mark)

**13 (c)**    Work out     $128 \div 4$

Answer ..... (1 mark)



14



14 (a) Write down the coordinates of  $A$ .

Answer ( ..... , ..... ) (1 mark)

14 (b)  $M$  is the midpoint of the line  $AB$ .  
 $M$  is the point  $(3, 4)$ .

Plot the point  $B$ . (2 marks)



15 (a) Work out  $2013 - 1230$

.....  
.....  
.....

Answer ..... (2 marks)

15 (b) The year is 2013.

How many years is it from 2013 to the next year that has the digits 0, 1, 2 and 3?

.....  
.....  
.....

Answer ..... (3 marks)

**Turn over for the next question**



**16** There are 30 students in a class.  
A student is chosen at random.

**16 (a)** Is the probability that a boy is chosen equal to the probability that a girl is chosen?

Tick a box.  
Give a reason for your answer.

Yes                       No                       Cannot say

Reason .....

.....

(1 mark)

**16 (b)** 7 of the 30 students have blue eyes.

What is the probability that the student chosen has blue eyes?

.....

Answer ..... (1 mark)



**17** On a farm, the only animals are 6 cows and 18 sheep.

**17 (a)** What fraction of the animals are cows?

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.....

Answer ..... (2 marks)

**17 (b)** The farmer buys some pigs.  
Half of the animals on the farm are now sheep.

How many pigs did he buy?

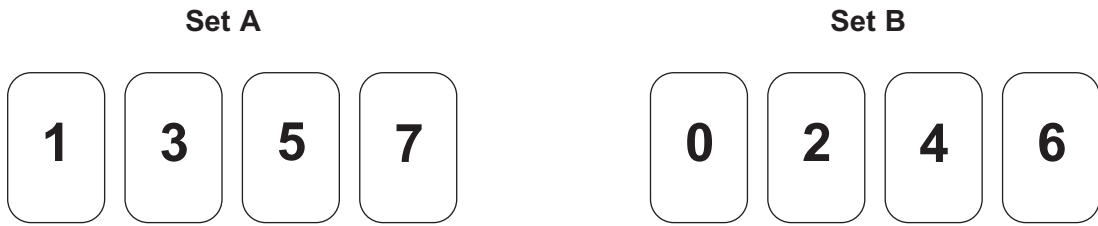
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Answer ..... (2 marks)

**Turn over for the next question**



18 Here are two sets of cards.



One card is chosen at random from each set.  
The numbers on the cards are added to give a score.

18 (a) Complete the table to show the possible scores.

		<b>Set A</b>				
		+	1	3	5	7
<b>Set B</b>	0		1	3		
	2		3			
	4					
	6					

(2 marks)

18 (b) What is the probability that the score is even?

.....

Answer ..... (1 mark)

18 (c) What is the probability that the score is **not** a square number?

.....

Answer ..... (2 marks)





19 Here is a multiplication table.

$\times$	41	42	43	44
41	1681	1722	1763	1804
42	1722	1764	1806	1848
43	1763	1806	1849	1892
44	1804	1848	1892	1936

Use the table to help you work out these calculations.

19 (a)  $41^2$

Answer ..... (1 mark)

19 (b)  $1806 \div 43$

Answer ..... (1 mark)

19 (c)  $4.1 \times 4.4$

Answer ..... (2 marks)

19 (d)  $42 \times 88$

Answer ..... (2 marks)



20 Solve  $3x - 5 > 13$

.....  
.....

Answer ..... (2 marks)

\*21 Which is bigger,  $7 \times 0.12$  or  $\frac{17}{20}$  ?

You **must** show your working.

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(4 marks)



**22** In a quiz, players can choose to answer **easy** or **hard** questions.

$x$  points are scored for an easy question.  
10 **more** points are scored for a hard question.

**\*22 (a)** Write the points scored for a **hard** question in terms of  $x$ .

Answer ..... (1 mark)

**22 (b)** A player correctly answers 3 easy questions and 2 hard questions.  
She scores 95 points.

Use this information to write an equation in  $x$ .

.....

Answer ..... (1 mark)

**22 (c)** Solve your equation to find the number of points scored for an **easy** question.

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Answer ..... (3 marks)

**END OF SECTION B**



**There are no questions printed on this page**

**DO NOT WRITE ON THIS PAGE  
ANSWER IN THE SPACES PROVIDED**

