

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	
TOTAL	



General Certificate of Secondary Education
Foundation Tier
June 2014

Methods in Mathematics (Linked Pair Pilot)

93651F/B

F

Unit 1 Algebra and Probability
Section B Non-Calculator

Thursday 19 June 2014 9.50 am to 10.35 am

<p>For this paper you must have:</p> <ul style="list-style-type: none"> mathematical instruments. <p>You must not use a calculator.</p>	
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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 that 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 Section A only.
- 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.



J U N 1 4 9 3 6 5 1 F B 0 1

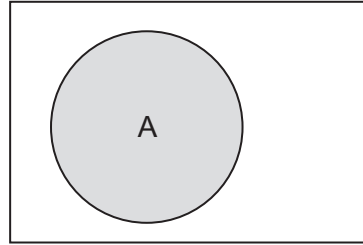
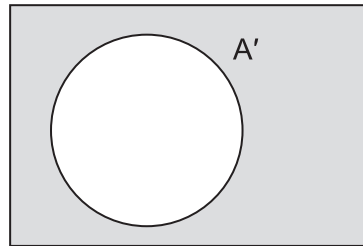
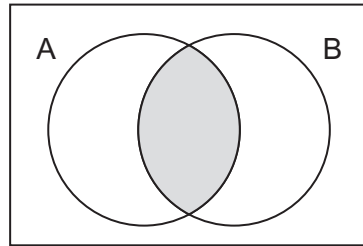
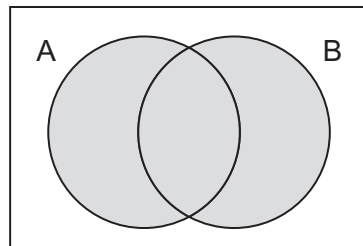
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93651F/B

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 $387 + 849$ **[1 mark]**

Answer

13 (b) Work out $112 - 45$ **[1 mark]**

Answer

13 (c) Work out $104 \div 8$ **[1 mark]**

Answer

13 (d) Work out 93×67 **[3 marks]**

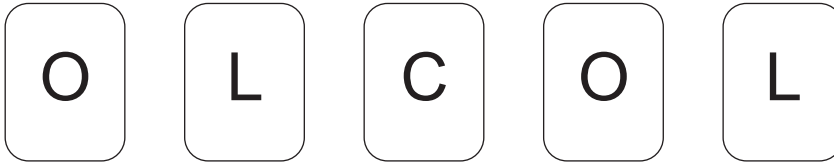
Answer

6

Turn over ►



14 Here is a set of 5 cards.



14 (a) One of the cards is chosen at random.

Match up each event to the word that describes the chance of it happening.
The first one has been done for you.

[3 marks]

Event	Chance
<div style="border: 1px solid black; border-radius: 10px; padding: 5px; margin-bottom: 10px;">The letter on the card is C</div> <div style="border: 1px solid black; border-radius: 10px; padding: 5px; margin-bottom: 10px;">The letter on the card is H</div> <div style="border: 1px solid black; border-radius: 10px; padding: 5px; margin-bottom: 10px;">The letter on the card is in the word COOL</div> <div style="border: 1px solid black; border-radius: 10px; padding: 5px;">The letter on the card is in the word WOOL</div>	<div style="border: 1px solid black; border-radius: 10px; padding: 5px; margin-bottom: 10px; text-align: center;">Impossible</div> <div style="border: 1px solid black; border-radius: 10px; padding: 5px; margin-bottom: 10px; text-align: center;">Unlikely</div> <div style="border: 1px solid black; border-radius: 10px; padding: 5px; margin-bottom: 10px; text-align: center;">Evens</div> <div style="border: 1px solid black; border-radius: 10px; padding: 5px; margin-bottom: 10px; text-align: center;">Likely</div> <div style="border: 1px solid black; border-radius: 10px; padding: 5px; text-align: center;">Certain</div>

Note: An arrow points from the first event box to the 'Unlikely' chance box.



14 (b) Three more cards are added to the set.
The chance of picking a card with the letter O is now evens.

Write a letter on each of the three cards to make this true.

[1 mark]

O	L	C	O	L			
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15 $P = 2L + 3W - 6Y$

Work out the value of P when $L = 5, W = 4$ and $Y = \frac{1}{2}$

[3 marks]

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Answer



16 In this question you may **only** use the signs + and \times

Put signs into each calculation so that the answer is a multiple of 5

Show three different ways of doing this.
Give the answer for each calculation.

[3 marks]

$$1 \square 2 \square 3 \square 4 = \square$$

$$1 \square 2 \square 3 \square 4 = \square$$

$$1 \square 2 \square 3 \square 4 = \square$$



17 Here is a list of numbers.

−9 −5 −3 −1 0 3 4 6

17 (a) Write down **two** numbers from the list that add up to 5

[1 mark]

Answer and

17 (b) Write down **two** numbers from the list that have a difference of 13

[1 mark]

Answer and

17 (c) Write down **two** numbers from the list that multiply to give −15

[1 mark]

Answer and

17 (d) Use **three** different numbers from the list to make the following calculation correct.

[1 mark]

$20 \div \dots = \dots \div \dots$



18 (a) Simplify $2a + 3a + 4a$

[1 mark]

Answer

18 (b) Solve $x + 4 = 9$

[1 mark]

$x =$

18 (c) Solve $3x = 18$

[1 mark]

$x =$

18 (d) Solve $\frac{x}{10} = 2$

[1 mark]

$x =$



19 Six **different** digits are used to make three whole numbers.

The first whole number has 3 digits

The second whole number has 2 digits

The third whole number has 1 digit

The three numbers are added together.

What is the largest total that can be made?

[3 marks]

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Answer

7

Turn over ►



20 On a farm

one-fifth of the animals are goats
25% of the animals are sheep
the rest of the animals are cows.

What **fraction** of the animals on the farm are cows?
Give your answer in its simplest form.

[4 marks]

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Answer

21 Write as a single power of 9

$$\frac{9^5 \times 9^7}{9^4}$$

[2 marks]

Answer



- 22** In the table, a , b and c represent numbers.
The total for each row is given.

Work out the **numbers** for the column totals.

[4 marks]

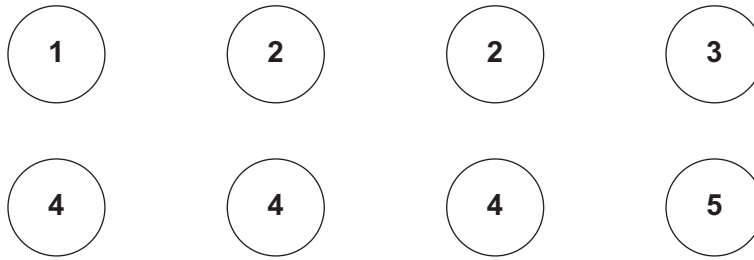
			Row totals
a	a	a	12
b	b	a	24
$2a$	$2c$	b	30
Column totals			

Turn over for the next question



23 Two bags, A and B, contain numbered counters.

23 (a) Here are the 8 counters in bag A.



A counter is chosen at random from bag A.

Write down the probability that the number on the counter is 4

[1 mark]

Answer

23 (b) A counter is chosen at random from bag B.

The table gives the probabilities of the numbers on the counters in bag B.

Number on counter	6	7	8	9
Probability	0.2	0.1	0.4	0.3

Which bag has the greater probability of choosing an **even** number?
You **must** show your working.

[2 marks]

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Answer

END OF QUESTIONS

