

Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										

For Examiner's Use	
Examiner's Initials	
Pages	Mark
3	
4 – 5	
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12 – 13	
14 – 15	
TOTAL	



General Certificate of Secondary Education
Foundation Tier
November 2014

Methods in Mathematics (Linked Pair)

93651F/B

F

Unit 1 Algebra and Probability
Section B Non-Calculator

Monday 10 November 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 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 23 and 28. 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 book.

Advice

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

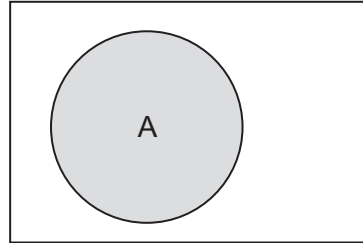
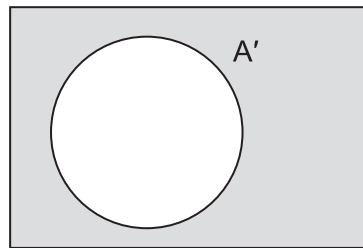
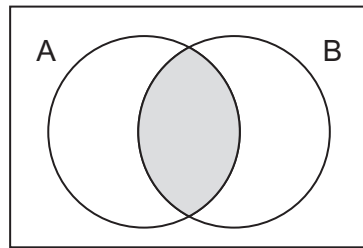
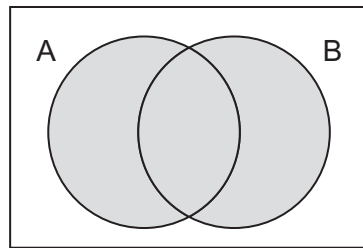


N 0 V 1 4 9 3 6 5 1 F B 0 1

Formulae Sheet: Foundation Tier

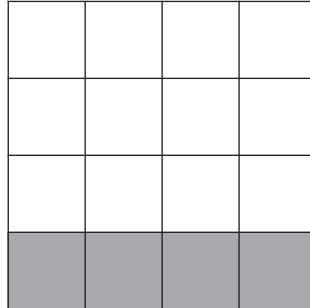
Set notation

A

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

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

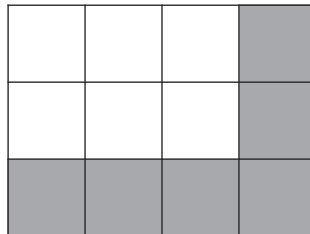
15 (a) What percentage of this square grid is shaded?



[1 mark]

Answer %

15 (b) Here is another grid.



How many **more** squares need to be shaded so that 75% of this grid is shaded?

[1 mark]

Answer



16 (a) Complete the boxes to make the calculations correct.

$$24 + \boxed{} = 40$$

$$\boxed{} \times 5 = 70$$

$$\boxed{} \div 6 = 15$$

[3 marks]

16 (b) Work out 264×17

[3 marks]

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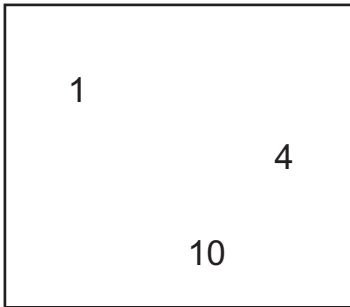
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Answer

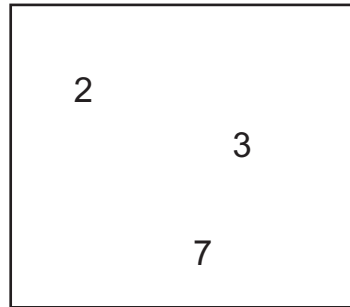


17 Here are two groups of numbers.

Group A



Group B



Put **one** new number in Group A and **one** new number in Group B so that

- all the numbers are **different**
- the **sum** of the numbers in Group A is the same as the **sum** of the numbers in Group B.

[2 marks]

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Number put in Group A

Number put in Group B

Turn over for the next question



18 (a) Here are all the **2-digit** whole numbers that can be made using only digits 3 and 4

33 34 43 44

Write down all the **2-digit** whole numbers that can be made using only digits 5, 6 and 7
[2 marks]

18 (b) A **2-digit** whole number made using only digits 5, 6 and 7 is selected at random.

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

[1 mark]

Answer



19 (a) Work out 10% of 350 **[1 mark]**

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Answer

19 (b) Work out 1% of 350 **[1 mark]**

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Answer

19 (c) Work out 21% of 350 **[1 mark]**

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Answer

Turn over for the next question

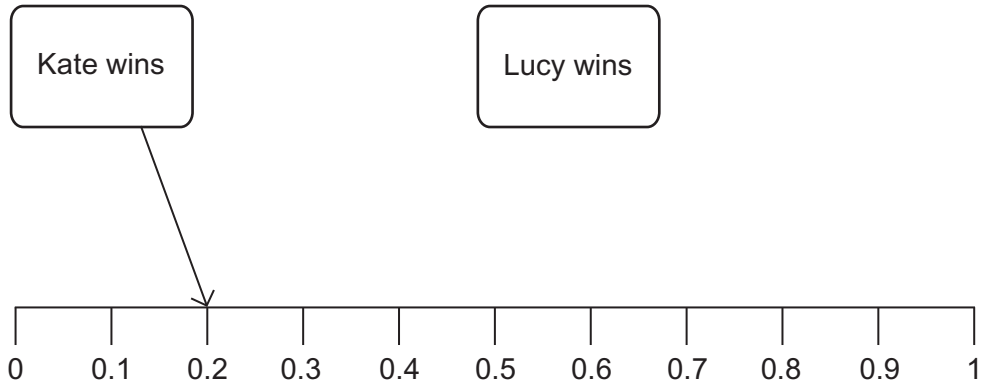
6

Turn over ►



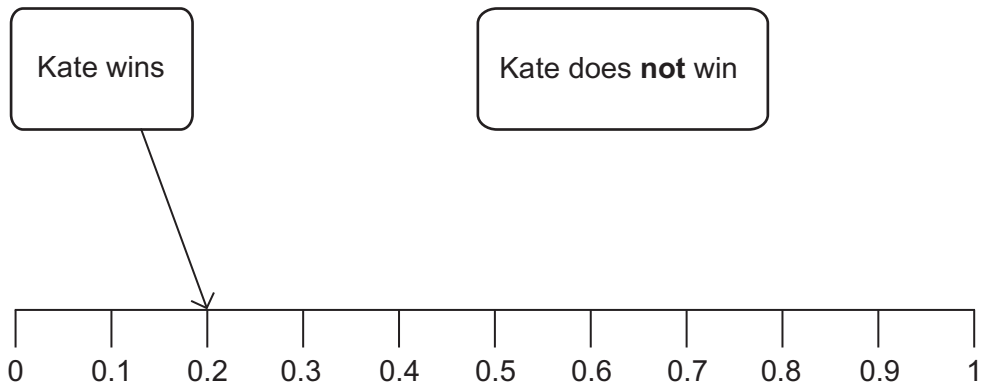
- 20** Kate and Lucy take part in a competition.
The probability of Kate winning is shown on the probability scale.

- 20 (a)** Lucy is twice as likely to win as Kate.
Draw an arrow to show the probability that Lucy wins.



[1 mark]

- 20 (b)** Draw an arrow to show the probability that Kate does **not** win.

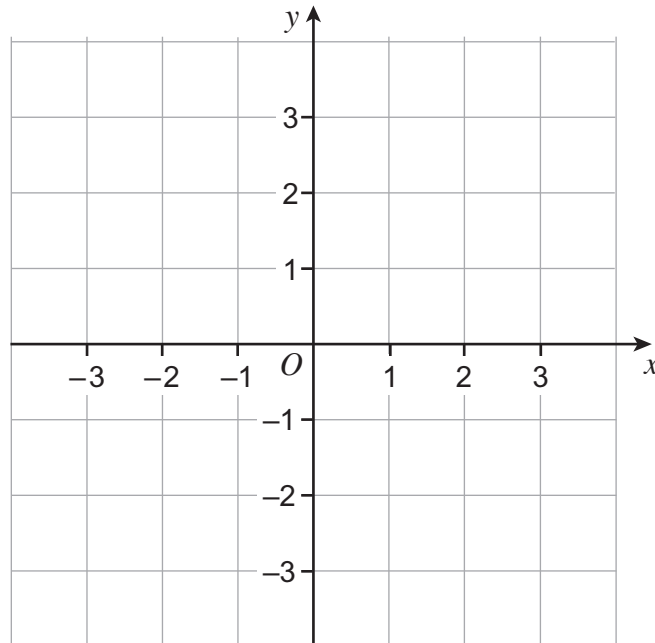


[1 mark]



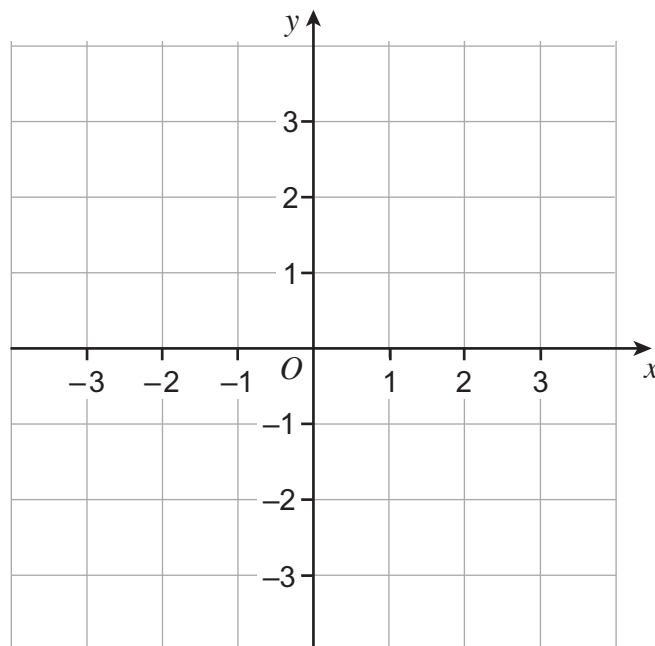
- 21 (a) Plot **three** points that lie on the line with equation $x = 2$
Mark each point with a cross.

[1 mark]



- 21 (b) Plot **three** points that lie on the line with equation $y = -1$
Mark each point with a cross.

[1 mark]



22 Work out $0.6 + 0.27 - 0.08$

[2 marks]

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Answer

23 $n, n + 1$ and $n + 2$ are three consecutive whole numbers.

*23 (a) The smallest and largest of the numbers are added.

Write a formula for the sum, S , of these **two** numbers.

[2 marks]

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Answer

23 (b) Show that the sum of the smallest and largest numbers is always **double** the middle number.

[1 mark]

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24 (a) Work out $(-8) + (-3)$

[1 mark]

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Answer

24 (b) Work out $6 \times (-4)$

[1 mark]

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Answer

24 (c) Work out $\frac{-14}{-2}$

[1 mark]

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Answer

Turn over for the next question



25

$$\frac{33}{40} - \frac{18}{40} = \frac{x}{8}$$

Work out the value of x .
You **must** show your working.

[2 marks]

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Answer



26 Circle the correct answer.

26 (a) 4 more than n is

$4n$

n^4

$n + 4$

$4 - n$

[1 mark]

26 (b) $6x + 3$ factorises to

$3(x + 1)$

$3(2x + 1)$

$6(x + 1)$

$6(x + 3)$

[1 mark]

26 (c) $E = VR$ rearranges to

$R = E - V$

$R = V - E$

$R = \frac{E}{V}$

$R = \frac{V}{E}$

[1 mark]

Turn over for the next question



27 Some people are at a concert.
Half are women.
One-sixth are men.
The rest are children.

There are 40 children.

How many **men** are at the concert?

[4 marks]

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Answer



*28 Is 80% of $0.2 \times 4\frac{1}{2}$ greater than $\frac{3}{4}$?

You **must** show your working.

[3 marks]

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END OF QUESTIONS

7



There are no questions printed on this page

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

