Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										

For Examiner's Use	
Examiner's Initials	
Pages	Mark
2 – 3	
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TOTAL	

General Certificate of Secondary Education
Foundation Tier
June 2013

Mathematics (Linear) 43651F

Paper 1

F

Tuesday 11 June 2013 9.00 am to 10.15 am

For this paper you must have:
- mathematical instruments.

You must **not** use a calculator.

Time allowed
- 1 hour 15 minutes

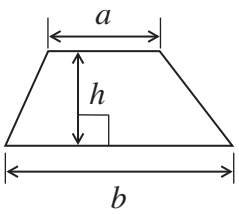
Instructions
- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this book.

Information
- The marks for questions are shown in brackets.
- The maximum mark for this paper is 70.
- The quality of your written communication is specifically assessed in Questions 7 and 14. These questions are indicated with an asterisk (*).
- You may ask for more answer paper, tracing paper and graph paper. These must be tagged securely to this answer book.

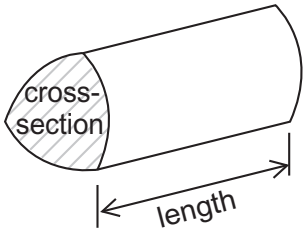
Advice
- In all calculations, show clearly how you work out your answer.

Formulae Sheet: Foundation Tier

Area of trapezium = $\frac{1}{2}(a+b)h$



Volume of prism = area of cross-section $\times$ length



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

1 (a) Write 1607 in words.

Answer .....

.....

(1 mark)

1 (b) What is the value of the digit 5 in 13 058?

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

1 (c) Round 17 809 to the nearest thousand.

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

2 (a) Work out one-quarter of 240.

.....

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

2 (b) Work out 10% of 390.

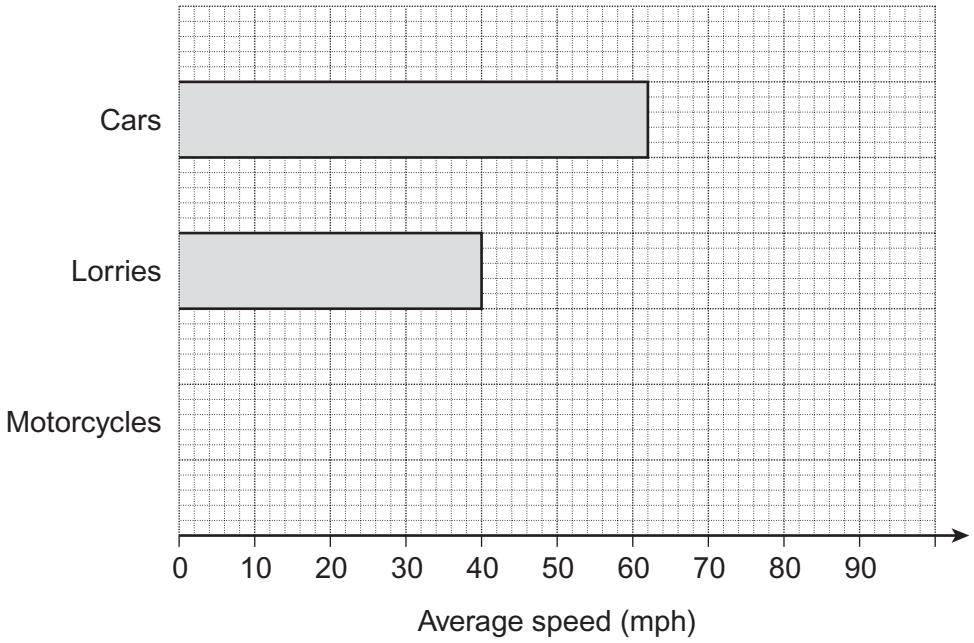
.....

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

5

3

Average speed of vehicles on a motorway



3 (a) The average speed of motorcycles is 68 mph.

Complete the chart for motorcycles.

(1 mark)

3 (b) Write down the average speed of cars.

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

3 (c) Work out the difference between the average speed of cars and lorries.

.....

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

3 (d) Harry says,

'**All** cars travel faster than lorries on this motorway.'

Is he correct?
Give a reason for your answer.

.....

.....

.....

.....
(1 mark)

Turn over for the next question

4

4 Patterns are made from sticks.

Pattern 1 Pattern 2 Pattern 3 Pattern 4

4 (a) Draw Pattern 5.

(1 mark)

4 (b) Here is a rule for working out the number of sticks in a pattern.

3 × Pattern number + 1

How many sticks are in Pattern 10?

.....

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

4 (c) Tick the correct box.

The number of sticks in a pattern is

always even ☐

always odd ☐

either even or odd. ☐

(1 mark)

5 (a) Choose the most suitable unit to measure the distance from one town to another.

Circle your answer.

centimetres metres kilometres

(1 mark)

5 (b) Choose the most suitable unit to measure the volume of a dustbin.

Circle your answer.

millilitres centilitres litres

(1 mark)

5 (c) Choose the most suitable unit to measure the weight of a pencil.

Circle your answer.

grams kilograms tonnes

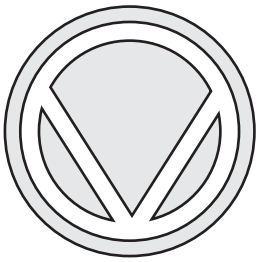
(1 mark)

Turn over for the next question

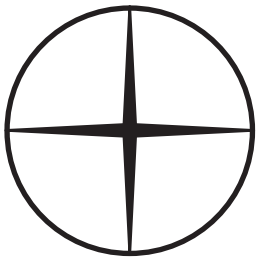
6

6 Here are five badges.

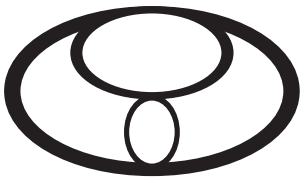
A



B



C



D

E

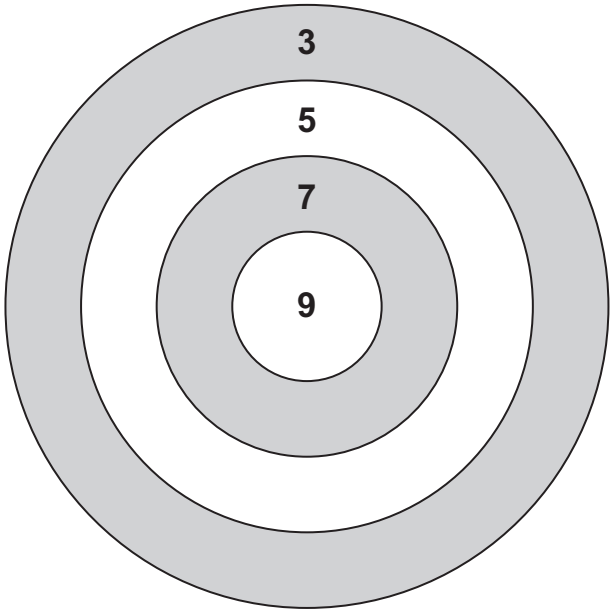
6 (a) Which **two** of the badges have exactly **one** line of symmetry?

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

6 (b) Which **three** of the badges have rotational symmetry?

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

***7** In a game, **five** darts are thrown at a target.
To win, players must score 31.



Show **one** possible way of scoring 31 with five darts.

.....

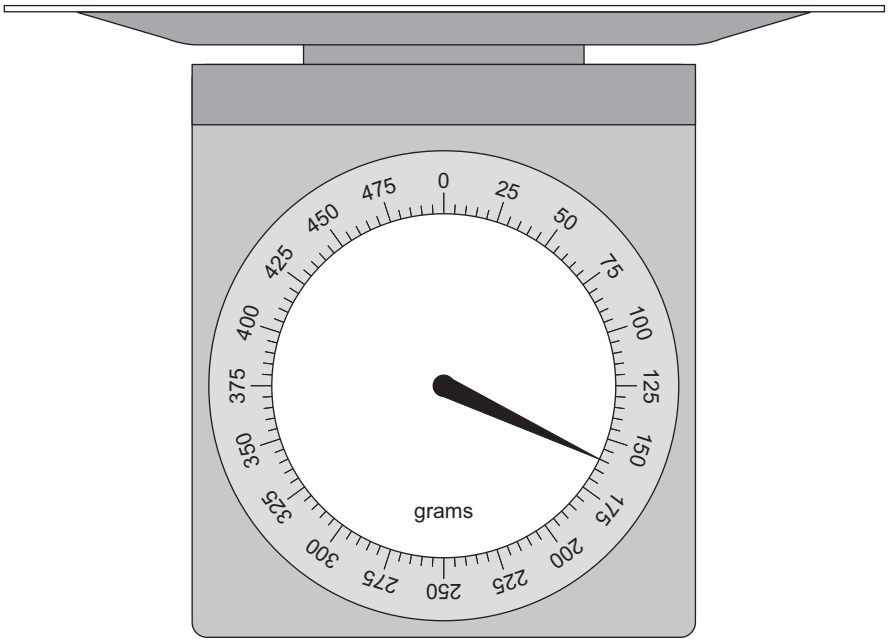
.....

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

6

Turn over ▶

8 Ann has scales that weigh **up to** 500 g.



8 (a) Ann uses the scales to weigh a letter.

How much does the letter weigh?

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

8 (b) This table shows the cost of sending letters by First Class or by Second Class post.

Weight	First Class	Second Class
1 g to 100 g	£ 0.60	£ 0.50
101 g to 250 g	£ 1.20	£ 1.10
251 g to 500 g	£ 1.60	£ 1.40
501 g to 750 g	£ 2.30	£ 1.90

How much will it cost Ann to send her letter by **First Class** post?

Answer £ ..... *(1 mark)*

8 (c) Baz wants to post **two** letters.
The letters weigh 200 g and 400 g.

How much cheaper is it to send both letters by Second Class post than by First Class post?

.....

.....

.....

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

8 (d) Ann's scales only weigh up to 500 g.
She needs to weigh 750 g of flour.

How can she do this using her scales?

.....

.....

.....

.....

(2 marks)

Turn over for the next question

7

9 (a) Solve $5x = 20$

.....

x = ... *(1 mark)*

9 (b) Solve $y + 9 = 17$

.....

y = ... *(1 mark)*

10 **Two** consecutive **odd** numbers add up to 60.

Work out the numbers.

.....

.....

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

11 Emma organises a disco.

Friday Night
in the village hall
DISCO
Tickets £2 each

She sells 150 tickets.

The DJ charges her £120.
She pays £50 to hire the hall.

Emma wants to make £100 profit.

Does she do this?
You **must** show your working.

.....

.....

.....

.....

.....

.....

(3 marks)

Turn over for the next question

7

12 Janet and Robin buy raffle tickets.
The prize is £ 120.

Janet buys 5 tickets.
Robin buys 1 ticket.

12 (a) Who has the better chance of winning?
Give a reason for your answer.

.....

.....

(1 mark)

12 (b) In total, 300 tickets were sold.

What is the probability that Janet wins?
Give your answer as a fraction in its simplest form.

.....

.....

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

12 (c) Janet wins the prize of £ 120.
She shares it with Robin in the ratio 5 : 1

Robin gets the smaller share.

How much does he get?

.....

.....

Answer £ ..... *(2 marks)*

13 $P = 2l + 2w$

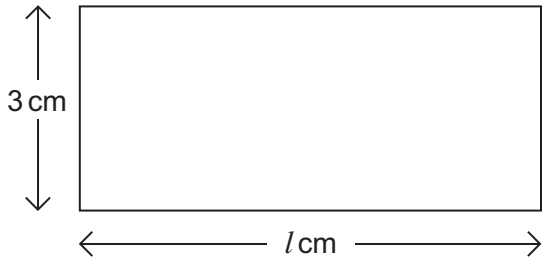
13 (a) Work out the value of P when $l = 5$ and $w = 8$

.....

.....

$P =$ ..... *(2 marks)*

13 (b) The perimeter of this rectangle is 20 cm.



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Work out the value of l.

.....

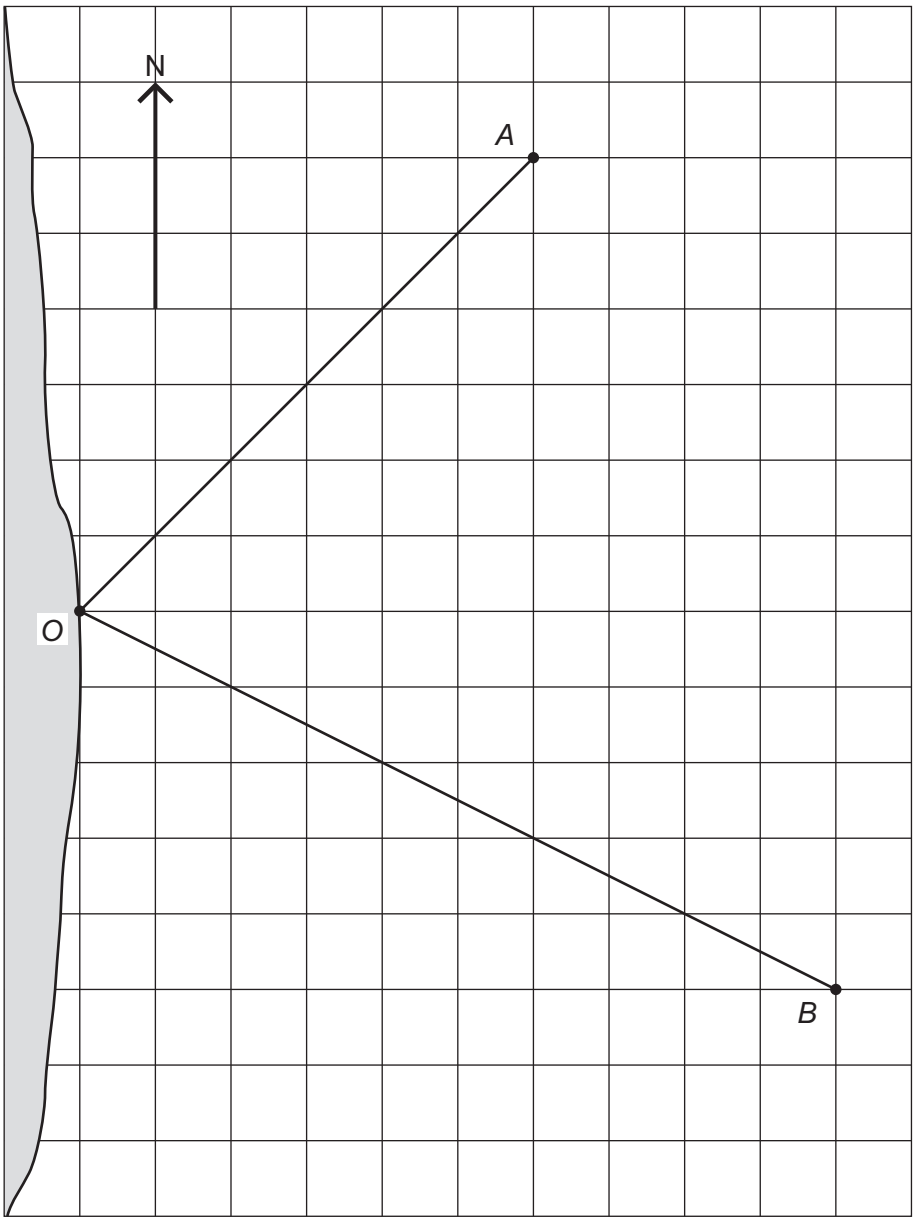
.....

$l =$ ..... *(2 marks)*

9

14 The map shows the positions of two ships *A* and *B*, and a port *O*.

Scale: 1 cm represents 10 km



***14 (a)** Ship *A* is North-East of *O*.

What is the **three-figure** bearing of North-East?

Answer ..... ° *(1 mark)*

14 (b) Ship *A* sails directly to *O*.

In which direction does it travel?

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

14 (c) Measure the bearing of ship *B* from *O*.

Answer ..... ° *(1 mark)*

14 (d) How far is ship *B* from *O*?

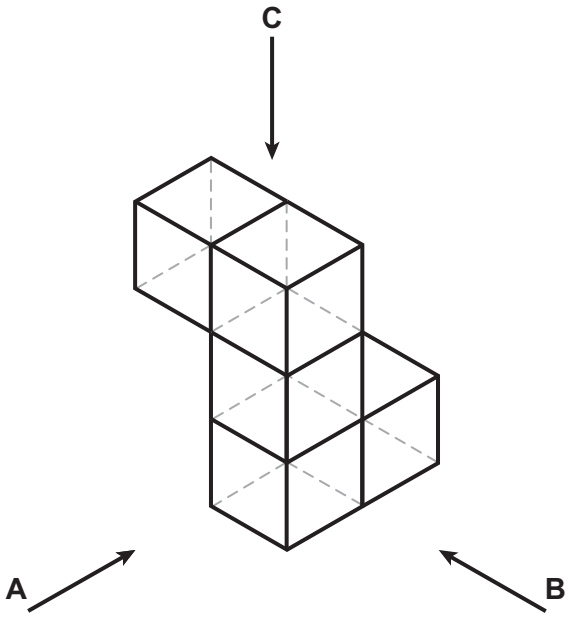
.....

.....

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

5

15 This shape is made from **five** cubes.



Draw what the shape looks like when seen from A, B and C.

From A

From B

From C

(3 marks)

16 Work out an approximate value of $\frac{41 \times 198}{77}$

.....

.....

.....

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

17 Which of the following expressions will give the median value when $n = 10$?

$\frac{1}{n}$ $\quad n - 1$ $\quad n + 1$ $\quad n^2$ $\quad \sqrt{n}$

You **must** show your working.

.....

.....

.....

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

8

18 The total number of people living in a street is 30.
The table shows the number of people living in each house.

Number of people living in each house	Number of houses
2	4
3	3
4	a
5	1

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

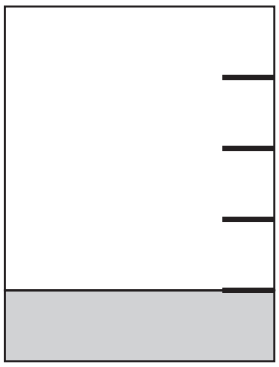
.....

.....

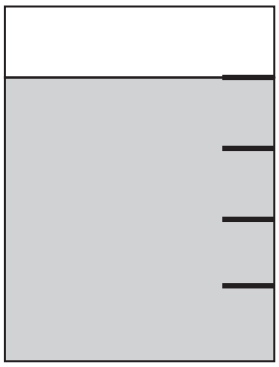
.....

a = ... *(3 marks)*

19 When a jug is $\frac{1}{5}$ full of water it weighs 250 grams.



When the same jug is $\frac{4}{5}$ full of water it weighs 550 grams.



How much does the jug weigh when it is empty?

.....

.....

.....

Answer ..... grams *(4 marks)*

7

20 Solve $3(x + 2) = 2x - 1$

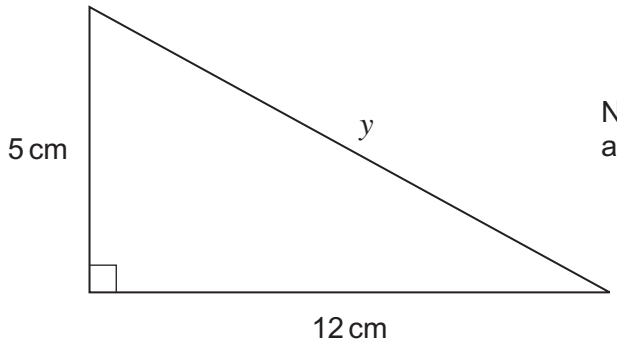
.....

.....

.....

x = ... *(3 marks)*

21 Work out the length y.



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

END OF QUESTIONS

6

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