

Please write clearly in block capitals.

Centre number

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Candidate number

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Surname

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Forename(s)

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Candidate signature

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# GCSE MATHEMATICS (LINEAR)

# F

Foundation Tier Paper 1

Wednesday 4 November 2015 Morning Time allowed: 1 hour 15 minutes

## Materials

For this paper you must have:

- mathematical instruments.

You must **not** use a calculator.



## Instructions

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- 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 14 and 20. 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

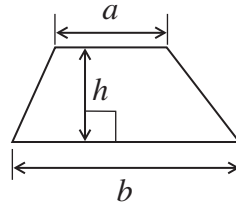
- In all calculations, show clearly how you work out your answer.



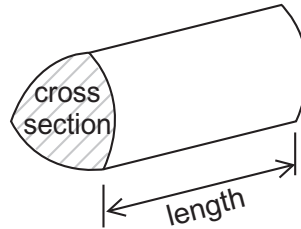
N 0 V 1 5 4 3 6 5 1 F 0 1

**Formulae Sheet: Foundation Tier**

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

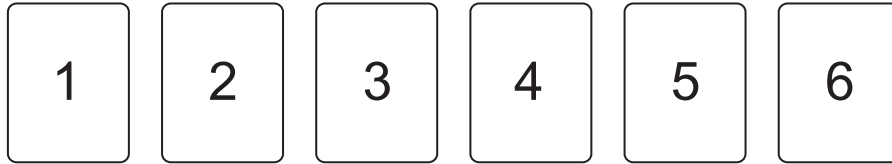


**Volume of prism** = area of cross section  $\times$  length



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

**1** Here are some cards.



A card is chosen at random.

Circle the probability word that describes these events.

**1 (a)** The card shows an odd number.

**[1 mark]**

Impossible      Unlikely      Evens      Likely      Certain

**1 (b)** The card shows a negative number.

**[1 mark]**

Impossible      Unlikely      Evens      Likely      Certain

**1 (c)** The card shows a 6

**[1 mark]**

Impossible      Unlikely      Evens      Likely      Certain



2 Work out  $12 \div 1\frac{1}{2}$

[2 marks]

.....  
.....

Answer .....

3 John buys a magazine for £1.49 and a newspaper for 55p  
He pays with a £5 note.

How much change does he get?

[2 marks]

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

Answer £ .....

4 Put these numbers in order.  
Start with the smallest.

[1 mark]

1.04                      1.43                      1.4                      1.34

Answer ..... , ..... , ..... , .....



5 (a) Solve  $\frac{w}{2} = 14$

[1 mark]

$w =$  .....

5 (b) Simplify fully  $3x + 4 - 5x - 7$

[2 marks]

.....

Answer .....

5 (c) Work out the value of  $4a + 5b$  when  $a = 4$  and  $b = 1$

[2 marks]

.....

.....

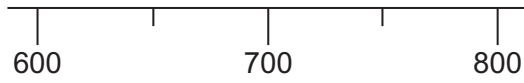
Answer .....

**Turn over for the next question**



6 (a) Draw an arrow to show 640 on the scale.

[1 mark]



Here is a table of postage costs.

Mass	Cost of posting
0 – 100 grams	£0.93
101 – 250 grams	£1.24
251 – 500 grams	£1.65
501 – 750 grams	£2.38

6 (b) How much **more** does it cost to post a 640 gram letter than a 64 gram letter?

[2 marks]

.....

.....

Answer £ .....

6 (c) How many 150 gram letters can be posted for £10 ?

[2 marks]

.....

.....

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Answer .....

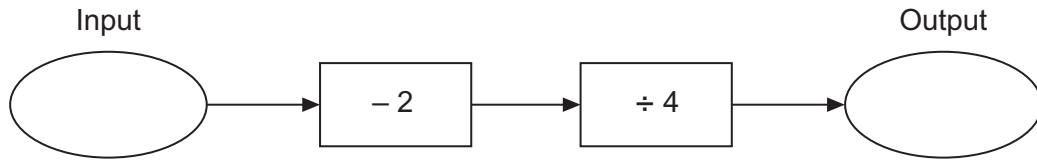


7 Match the name of each shape to a correct property. One has been done for you.

[2 marks]

- Kite ● ● All sides equal
- Parallelogram ● ● One line of symmetry
- Rectangle ● ● All angles equal
- Rhombus ● ● No lines of symmetry

8 Here is a number machine.



8 (a) Work out the **output** when the input is 12

[1 mark]

.....

.....

Answer .....

8 (b) Work out the **input** when the output is -3

[2 marks]

.....

.....

.....

Answer .....



9 Here are five numbers.

7            11            8            12            7

9 (a) Write down the mode.

[1 mark]

Answer .....

9 (b) Work out the mean.

[2 marks]

.....  
.....

Answer .....

10 (a) Circle the **two** values that are less than a half.

[1 mark]

$\frac{1}{2}$             55%            0.45             $\frac{4}{7}$             30%

10 (b) Circle the **two** values that are equal.

[1 mark]

$\frac{1}{3}$             20%            0.15             $\frac{1}{5}$             30%

10 (c) Circle the fraction that is recurring when written as a decimal.

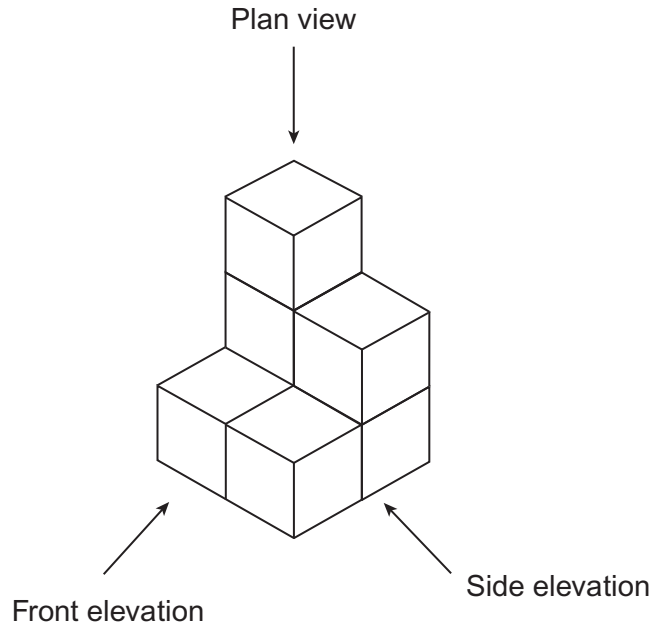
[1 mark]

$\frac{1}{2}$              $\frac{1}{3}$              $\frac{3}{4}$              $\frac{3}{2}$





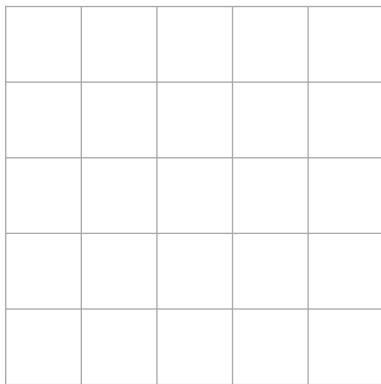
11 Some cubes of side 1 cm are put together to build this solid shape.



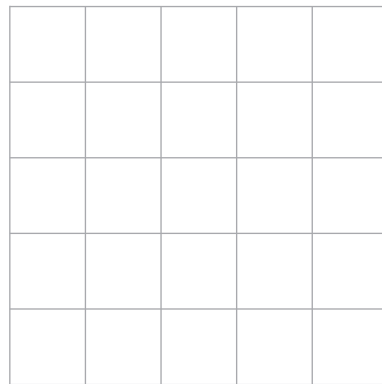
On the grids draw the plan view, side elevation and front elevation.

[3 marks]

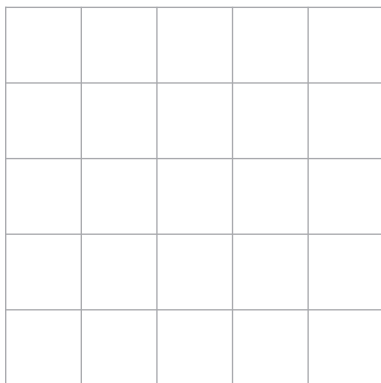
**Plan view**



**Side elevation**



**Front elevation**



12 (a) Circle the **two** prime numbers.

[2 marks]

11

21

23

39

45

12 (b) Write down any **two** prime numbers that add up to a cube number.

[2 marks]

.....

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.....

Answer ..... and .....

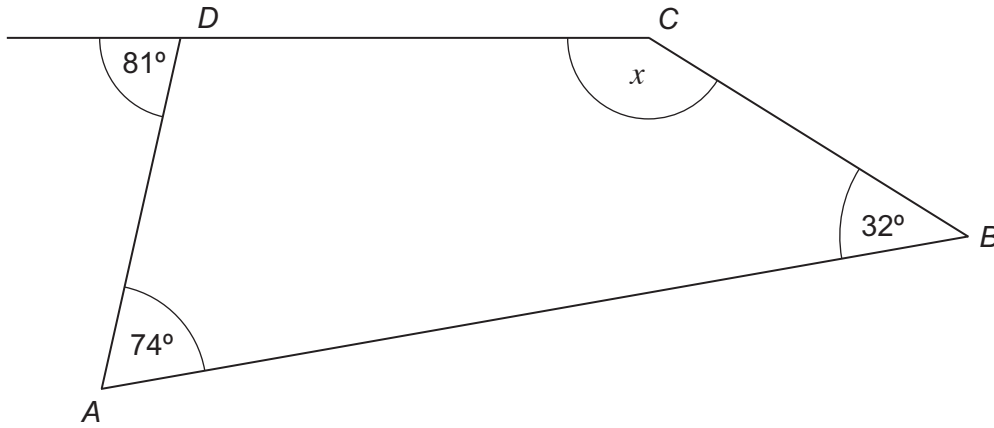


13

$ABCD$  is a quadrilateral.  
The side  $CD$  is extended.

Work out the size of angle  $x$ .

[3 marks]



Not drawn  
accurately

.....

.....

.....

.....

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.....

Answer ..... degrees

Turn over for the next question

7

Turn over ►



\*14 Three shops sell the same washing machine.

**Shop A**



£150 deposit  
plus  
£60 a month for 6 months

**Shop B**



Usual price £600  
20% off

**Shop C**



Usual price £720  
 $\frac{1}{4}$  off

In which shop is the washing machine cheapest?  
You **must** show your working.

[5 marks]

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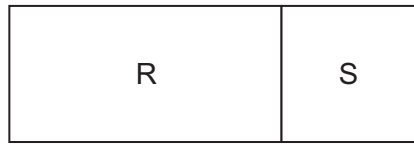
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Answer .....



15 A shape is made from a rectangle R and a square S.



Not drawn  
accurately

The shape has a perimeter of 44 cm  
The area of the square is 36 cm<sup>2</sup>

Work out the area of the shape.

[4 marks]

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Answer ..... cm<sup>2</sup>

Turn over for the next question



16 (a) Work out  $\frac{3}{4} - \frac{1}{3}$

[2 marks]

.....  
.....

Answer .....

16 (b) Work out  $\frac{1}{3} \times \frac{5}{6} \times \frac{9}{10}$

Give your answer in its simplest form.

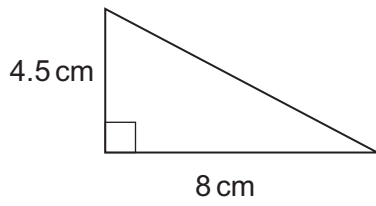
[3 marks]

.....  
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Answer .....



17 Here is a right-angled triangle.



Not drawn  
accurately

17 (a) Show that the area of this triangle is  $18 \text{ cm}^2$

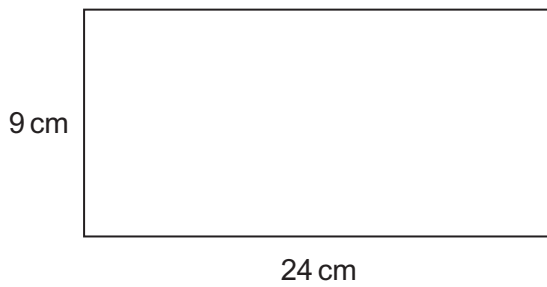
[1 mark]

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17 (b) Here is a rectangle.



Not drawn  
accurately

How many of the right-angled triangles from part (a), will fit in the rectangle?

[3 marks]

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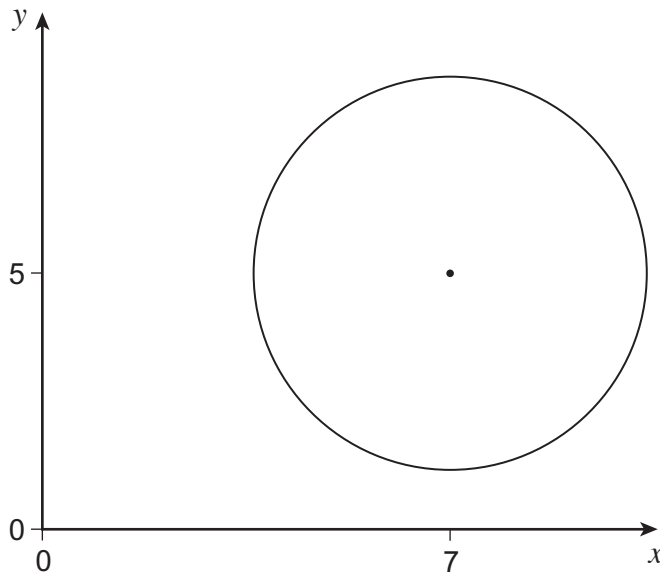
Answer .....

9
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Turn over ►



18 A circle radius 3 units, centre (7, 5) is shown.



Not drawn  
accurately

Work out the coordinates of **any** point that lies on the circumference of the circle.  
You **must** show your working, which may be on the diagram.

[2 marks]

Answer ( ..... , ..... )

19 Divide 270 in the ratio 3 : 2 : 1

[3 marks]

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

Answer ..... : ..... : .....





**20** Fay is testing an ordinary six-sided dice to see if it is biased.  
She throws the dice 120 times.

**20 (a)** Work out the number of times the dice is expected to land on 1

**[1 mark]**

.....  
.....

Answer .....

**\*20(b)** Here are the actual results.

Number on dice	1	2	3	4	5	6	Total
Frequency	5	19	17	20	21	38	120

Is the dice biased?  
Tick a box.

Yes  No  Cannot tell

Give a reason for your answer.

**[2 marks]**

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

8

Turn over ►



21 These expressions represent four numbers.

$$2x + 2$$

$$3x - 1$$

$$4x - 6$$

$$5x + 2$$

The sum of the first two expressions is 36

Work out the value of the median of the four numbers.

**[5 marks]**

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Answer .....

**END OF QUESTIONS**

**5**



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