

|                     |  |  |  |  |  |                  |  |  |  |  |
|---------------------|--|--|--|--|--|------------------|--|--|--|--|
| 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 – 13             |      |
| 14 – 15             |      |
| 16 – 17             |      |
| 18 – 19             |      |
| 20 – 21             |      |
| 22                  |      |
| TOTAL               |      |



General Certificate of Secondary Education  
Foundation Tier  
November 2013

# Mathematics (Linear)

4365/1F

## Paper 1

Friday 8 November 2013 9.00 am to 10.15 am

**F**

|  |  |
|--|--|
| <p><b>For this paper you must have:</b></p> <ul style="list-style-type: none"> <li>mathematical instruments.</li> </ul> <p>You must <b>not</b> use a calculator.</p> |  |
|--|--|

### 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, 13 and 19. 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.

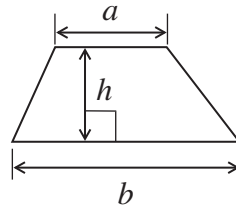
### Advice

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

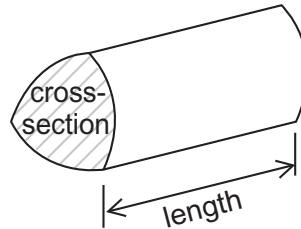


**Formulae Sheet: Foundation Tier**

**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)** Circle the factor of 100.

8      11      15      16      18      20

(1 mark)

**1 (b)** Circle the multiple of 9.

8      11      15      16      18      20

(1 mark)

**1 (c)** Circle the square number.

8      11      15      16      18      20

(1 mark)

**1 (d)** Circle the cube number.

8      11      15      16      18      20

(1 mark)

**Turn over for the next question**



2 Billy asked 20 people,

“What is your favourite crisp flavour?”

2 (a) Complete the tally chart to show Billy’s results.

| Favourite crisp flavour | Tally        | Frequency |
|-------------------------|--------------|-----------|
| Plain                   |              | 12        |
| Cheese and Onion        |              |           |
| Barbecue                |              | 3         |
|                         | <b>Total</b> | 20        |

(2 marks)

2 (b) Billy uses his tally chart to draw a pictogram.

Complete the pictogram and the key.

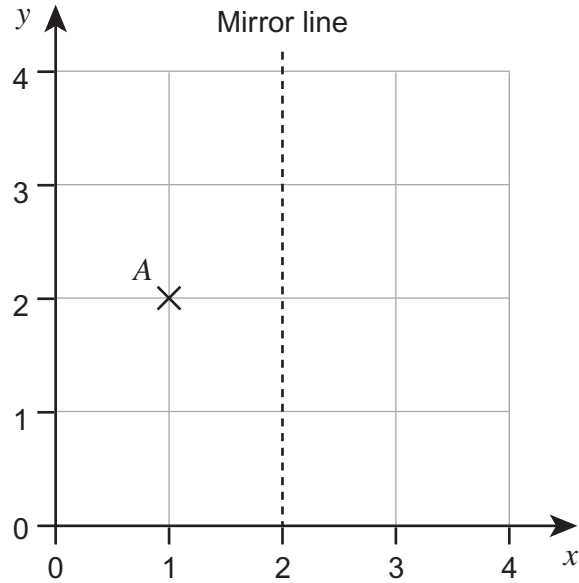
Key:                    represents ..... people

|                  |     |
|------------------|-----|
| Plain            |     |
| Cheese and Onion |     |
| Barbecue         | ○ ◐ |

(3 marks)



3



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

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

3 (b) Circle the equation of the mirror line.

$y = 2$

$x + y = 2$

$x = 2$

$y = x + 2$

(1 mark)

3 (c) The point  $A$  is **reflected** in the mirror line.

Work out the coordinates of the reflected point.

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

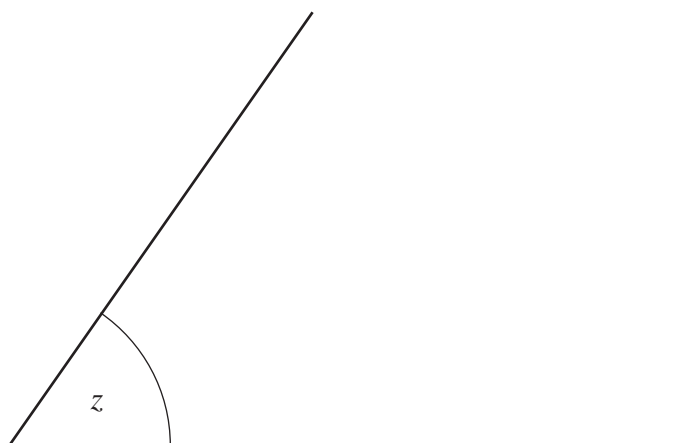


- 4 (a) Measure the length of this line.  
Give your answer in centimetres.



Answer ..... cm (1 mark)

- 4 (b) Measure the size of angle  $z$ .



Answer ..... degrees (1 mark)



5 Here is a café menu.

|                |       |
|----------------|-------|
| Sandwich       | £2.20 |
| Slice of Pizza | £1.80 |
| Drink          | 50p   |
| Piece of Fruit | 60p   |
| Cake           | 80p   |

The café offers a Meal Deal.

**Meal Deal**

Get 80p off if you buy

1 sandwich  
1 drink  
**and**  
1 piece of fruit.

How much does a meal deal cost?  
You **must** show your working.

.....

.....

.....

.....

Answer £ ..... (3 marks)


|   |
|---|
| 5 |
|---|

Turn over ►



6

Cola



£1.25

Machine takes £1, 50p,  
20p, 10p, and 5p coins  
only.  
**Change given**

Ann wants a cola.

She has these coins.



What coins could Ann use?

How much change will she get?

Ann uses .....

Change she gets is .....

(2 marks)



7 (a) Put these in order starting with the smallest.

33.3                       $\frac{1}{3}$                       -0.3                      3.03

Answer ..... , ..... , ..... , ..... (2 marks)

\*7 (b) Jo thinks the difference between - 0.3 and 33.3 is 33.

Is she correct?  
Tick a box.

Yes                       No

Show clearly how you decide.

.....  
.....

(2 marks)

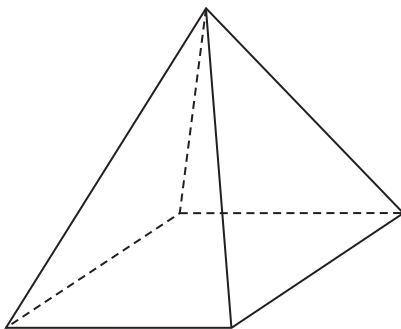
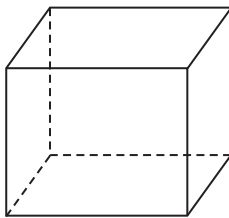
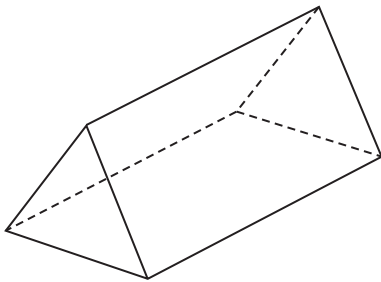
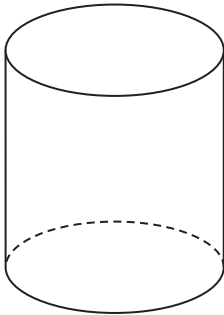
Turn over for the next question

6

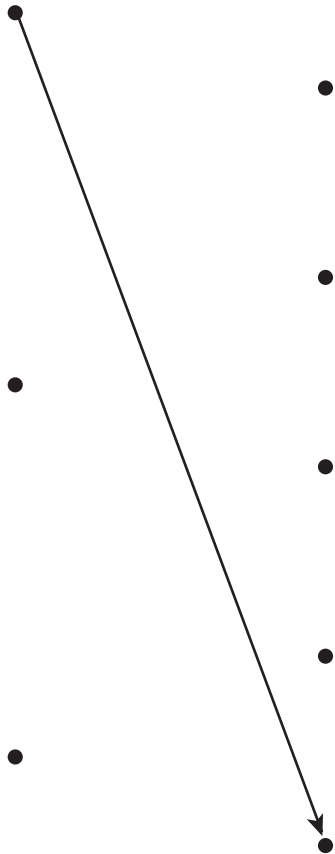
Turn over ►



- 8 (a) Match the solid to its mathematical name.  
The first one has been done for you.



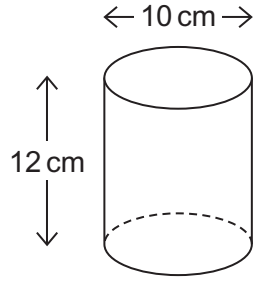
- Sphere
- Cube
- Square-based pyramid
- Triangular prism
- Cylinder
- Cone



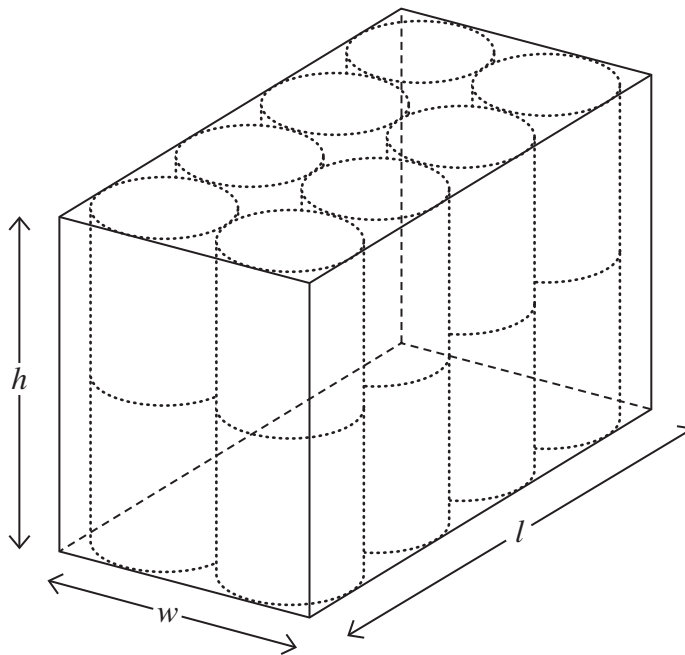
(3 marks)



8 (b) This cylinder has a diameter of 10 cm and a height of 12 cm.



16 of the cylinders are packed tightly into a box.



Work out the length,  $l$ , the height,  $h$  and the width,  $w$  of the box.

$l = \dots\dots\dots$  cm

$h = \dots\dots\dots$  cm

$w = \dots\dots\dots$  cm

(3 marks)

|   |
|---|
| 6 |
|---|

Turn over ►



**9 (a)** Work out the next term in this sequence.

0            3            6            9            12            .....

Answer ..... (1 mark)

**9 (b)** Describe the rule for continuing this sequence.

45            41            37            33            29            .....

Answer ..... (1 mark)

**9 (c)** The sequences in parts **(a)** and **(b)** continue.

Work out a number that is in both sequences.

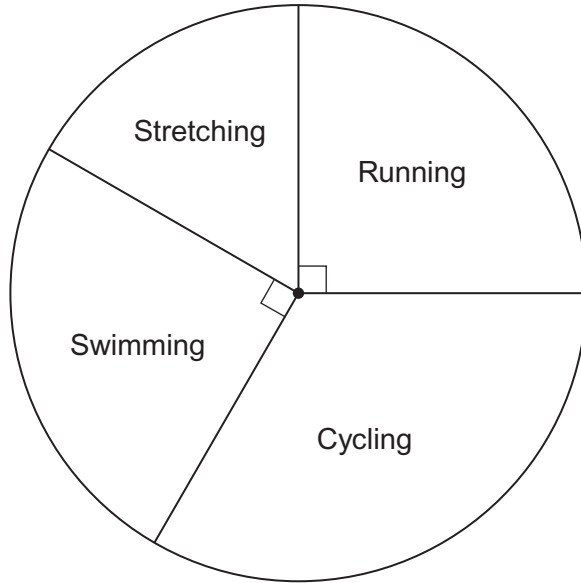
.....  
.....

Answer ..... (2 marks)



**10** Ryan trained for 6 hours.  
Information about his training times is shown in the pie chart.

**Ryan's  
training**



**10 (a)** How long did Ryan spend running?

Answer ..... hours (1 mark)

**10 (b)** Ryan spent twice as long cycling as stretching.  
What fraction of the 6 hours did Ryan spend stretching?  
Give your answer in its simplest form.

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

Answer ..... (3 marks)



**11 (a)** Simplify  $3a + 2a - a$

Answer ..... (1 mark)

**11 (b)** Simplify  $2b \times 3b$

Answer ..... (1 mark)

**11 (c)** Multiply out  $3(2c - 1)$

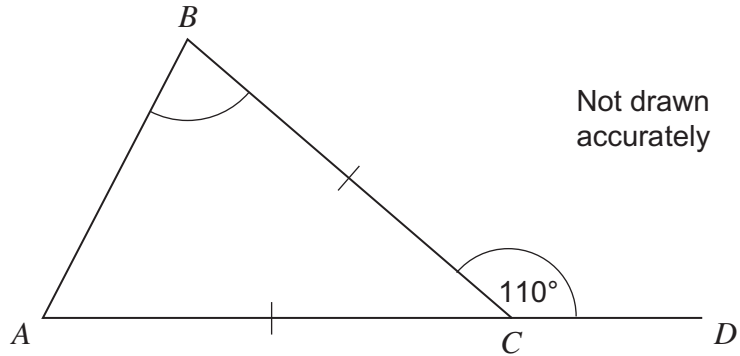
Answer ..... (1 mark)



12

$AC = BC$

$ACD$  is a straight line.



Work out the size of angle  $ABC$ .

You **must** show your working, which may be on the diagram.

.....

.....

.....

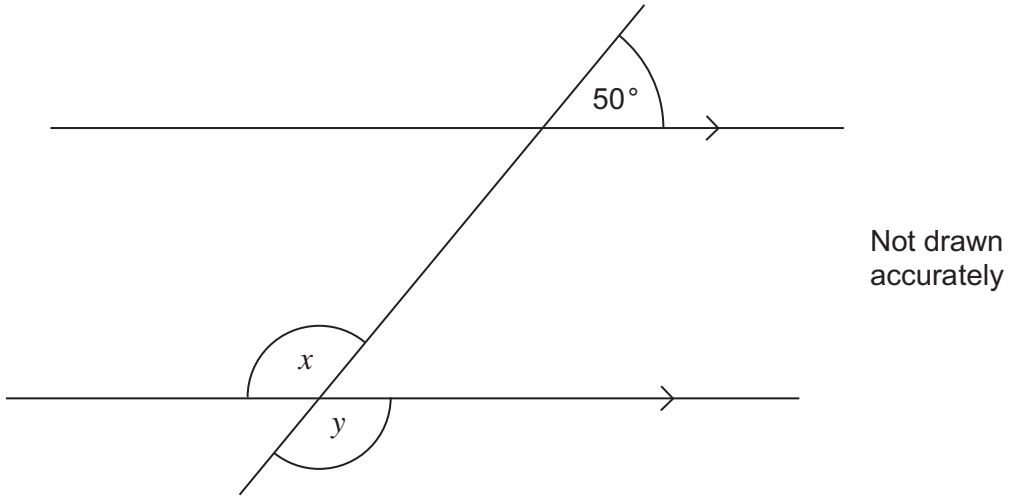
.....

Answer ..... degrees (3 marks)

Turn over for the next question



13



13 (a) Work out the size of angle  $x$ .

Answer ..... degrees (1 mark)

\*13 (b) Which **one** of these describes angles  $x$  and  $y$ ?  
Circle your answer.

alternate angles

corresponding angles

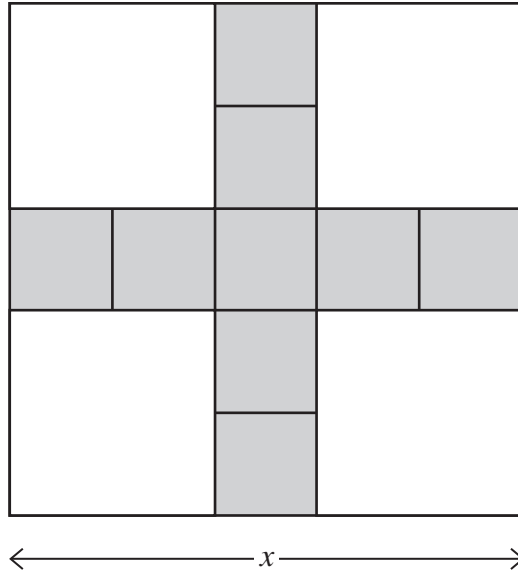
interior angles

vertically opposite angles

(1 mark)



14 Each small shaded square has an area of  $4 \text{ cm}^2$ .



Not drawn accurately



Area =  $4 \text{ cm}^2$

Work out the length  $x$ .

.....

.....

Answer ..... cm (3 marks)

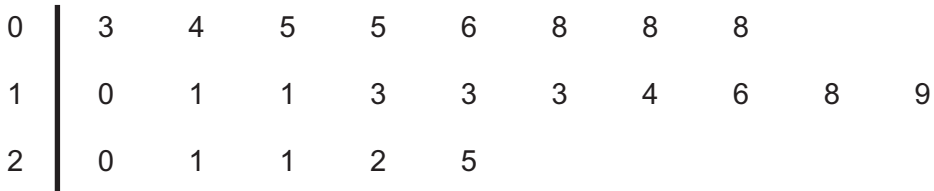
Turn over for the next question



15 A dentist records the number of fillings she did during the 23 working days in October 2012.

The stem-and-leaf diagram shows the results.

Key: 1 | 2 represents 12 fillings



15 (a) Work out the range.

Answer ..... (1 mark)

15 (b) Work out the median.

Answer ..... (1 mark)

15 (c) During 2013 the dentist ran a 'healthy teeth' campaign with her patients. In October 2013 the median number of fillings per working day was 9.

Was the dentist successful with her campaign?  
Tick a box.

Yes     
  No     
  Cannot tell

Give a reason for your answer.

.....

.....

(1 mark)



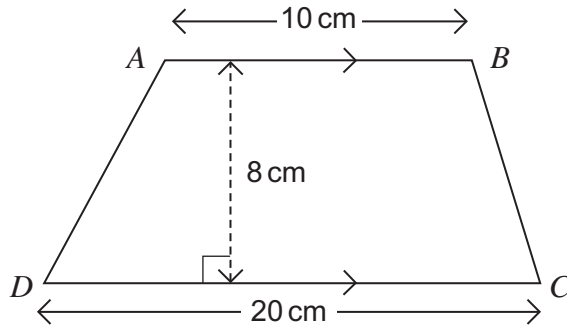
16  $E = mv^2$

Work out the value of  $E$  when  $m = 3$  and  $v = 10$

.....  
.....

Answer ..... (2 marks)

17  $ABCD$  is a trapezium.



Not drawn accurately

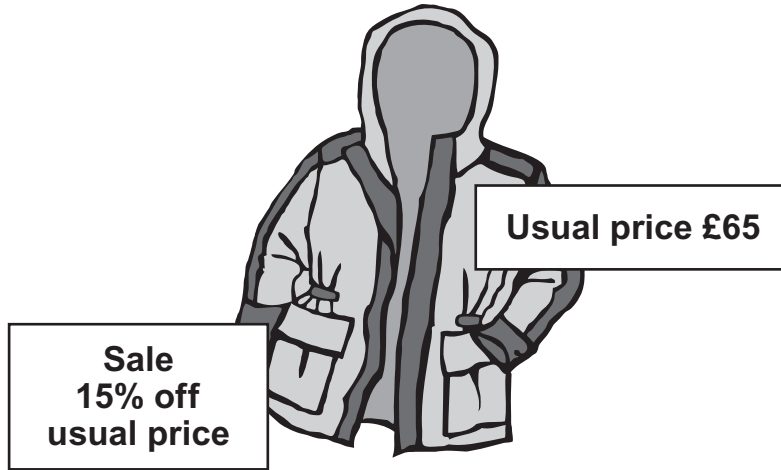
Calculate the area of  $ABCD$ .  
State the units of your answer.

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

Answer ..... (3 marks)



18



Work out the sale price.

.....

.....

.....

Answer £ ..... (3 marks)



\*19

There are 24 counters in a bag.

One-third of the counters are blue.

5 red, 5 white and 5 blue counters are added to the bag.

Tom says,

“The probability of taking a blue counter from the bag is still  $\frac{1}{3}$ ”

Is he correct?

Tick a box.

Yes

No

Cannot tell

Give a reason for your answer.

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

(3 marks)

20

Which of these fractions is closest to  $\frac{3}{4}$ ?

$\frac{2}{3}$

$\frac{3}{5}$

$\frac{7}{10}$

$\frac{13}{20}$

You **must** show your working.

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

Answer .....

(3 marks)

|   |
|---|
| 9 |
|---|

Turn over ►



**21** A fruit drink is made by mixing juice and lemonade in the ratio

$$\text{juice : lemonade} = 1 : 4$$

Juice costs £6.00 per litre.

Lemonade costs 50p per litre.

**21 (a)** Show that 1 litre of the fruit drink costs £1.60 to make.

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

(3 marks)

**21 (b)** The fruit drink is sold for £2 a litre.

Work out the percentage profit.

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

Answer ..... % (2 marks)

**END OF QUESTIONS**



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

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



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

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

