| 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 | |

AQA

General Certificate of Secondary Education
Foundation Tier
November 2013

# Mathematics (Linear) 4365/1F

## Paper 1

**F**

Friday 8 November 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

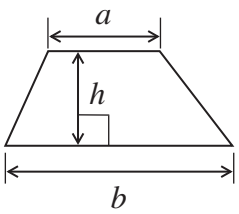
**Instructions**
- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided.
  Do not write outside the box around each page or on blank pages.
- Do all rough work in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

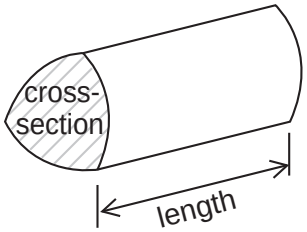
**Advice**
- In all calculations, show clearly how you work out your answer.

## Formulae Sheet: Foundation Tier

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




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



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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**

4

Do not write outside the box

**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 | 𝍸 𝍸 \|\| | 12 |
| Cheese and Onion | 𝍸 | |
| Barbecue | | 3 |
| | **Total** | 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)*

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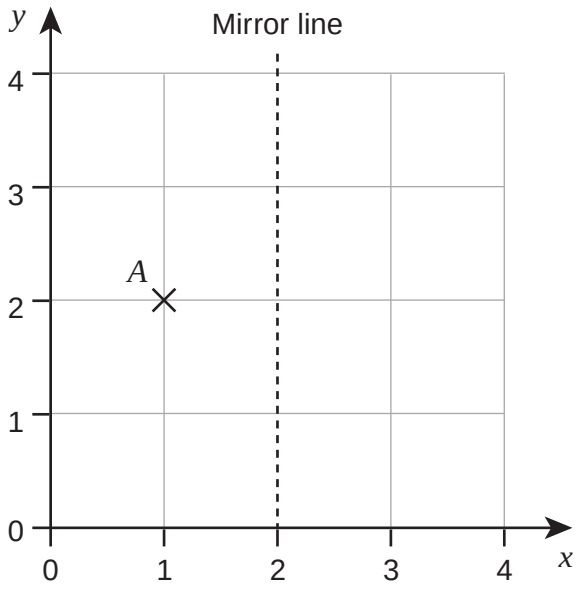
**3**




**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)*

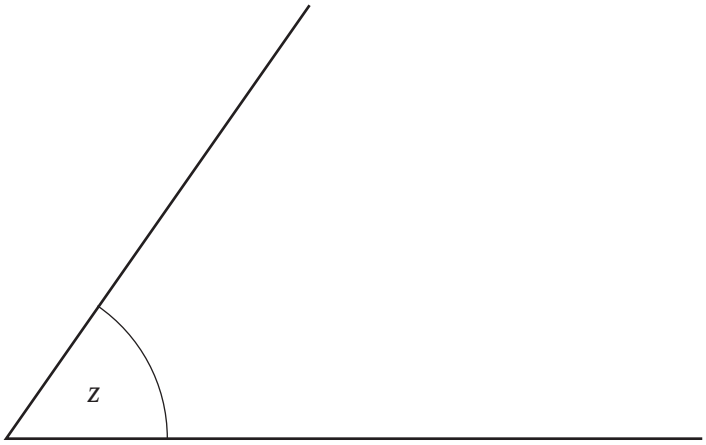
8

Do not write outside the box

**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)*

Do not write outside the box

**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 ▶**

Do not write outside the box

**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)*

Do not write outside the box

**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.

.....

.....

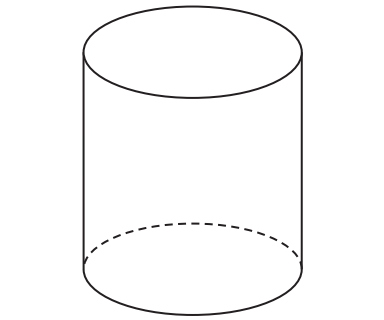
*(2 marks)*

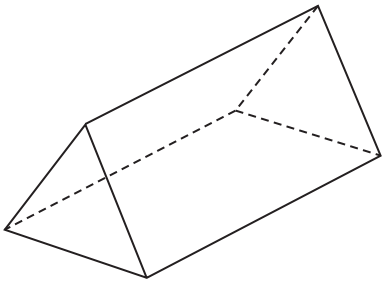
**Turn over for the next question**

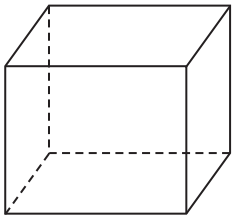
6

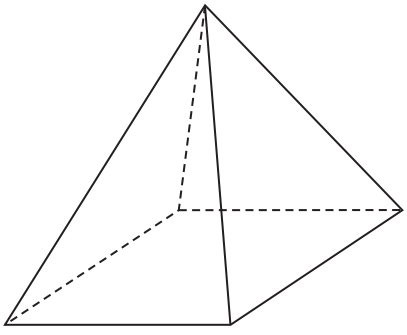
Do not write outside the box

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







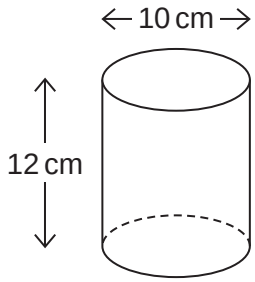


- Sphere
- Cube
- Square-based pyramid
- Triangular prism
- Cylinder
- Cone

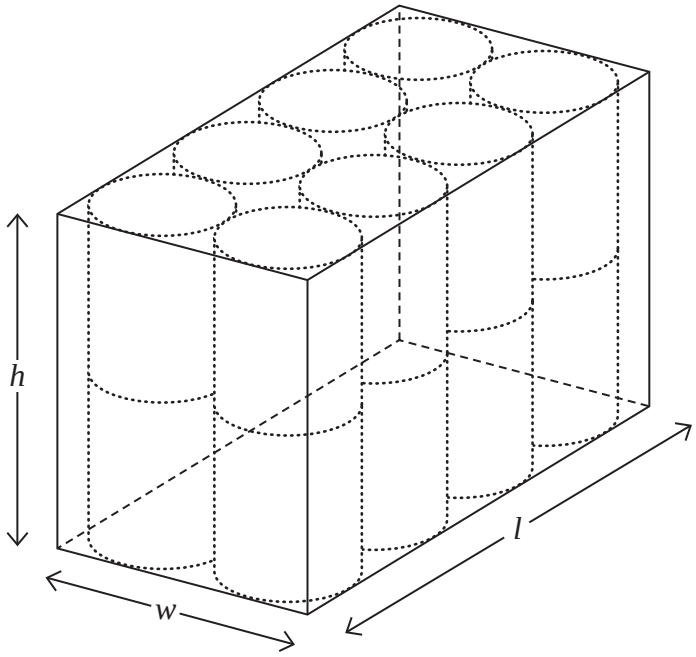
*(3 marks)*

Do not write outside the box

**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.

$l$ = ..... cm

$h$ = ..... cm

$w$ = ..... cm

*(3 marks)*

6

**Turn over ▶**

Do not write outside the box

**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.

.....

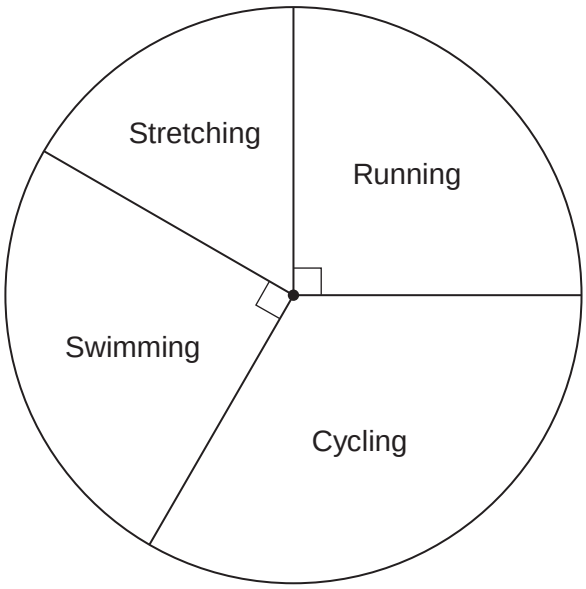
.....

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

Do not write outside the box

**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)*

8

**Turn over ▶**

Do not write outside the box

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

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

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

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

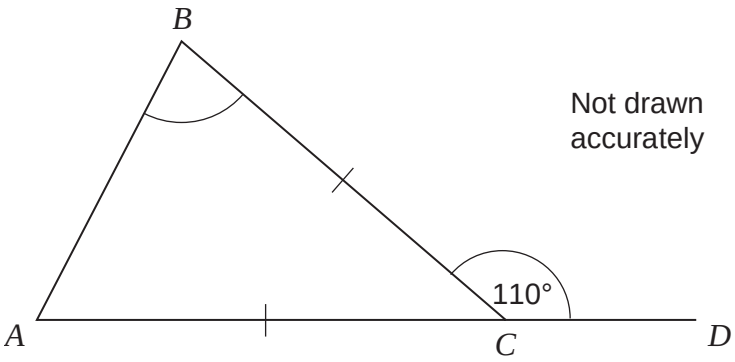
**11 (c)** Multiply out $3(2c - 1)$

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

Do not write outside the box

**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.

.....

.....

.....

.....

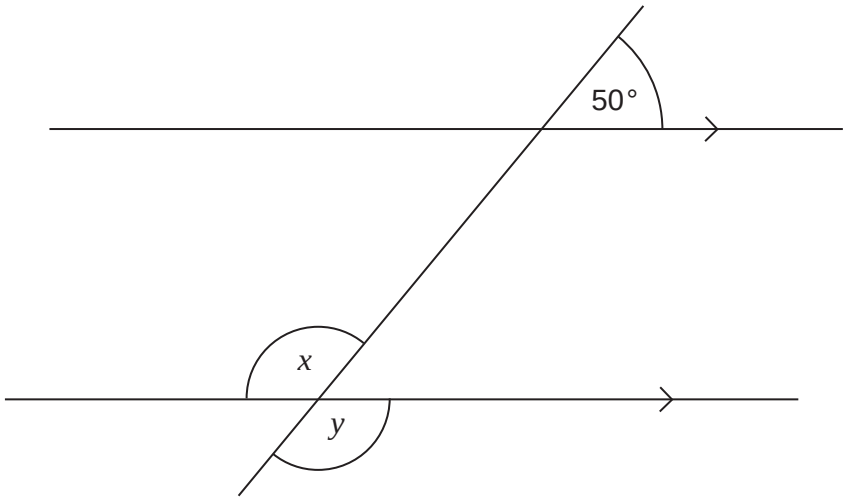
Answer ..... degrees *(3 marks)*

**Turn over for the next question**

6

Do not write outside the box

**13**




Not drawn accurately

**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.

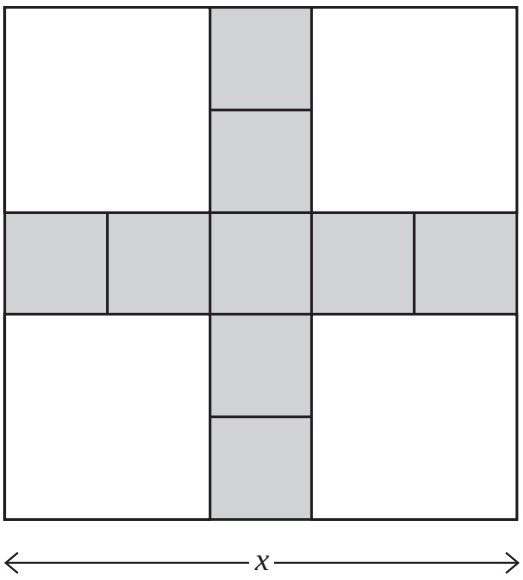
alternate angles | corresponding angles

interior angles | vertically opposite angles

*(1 mark)*

Do not write outside the box

**14** Each small shaded square has an area of $4\,cm^2$.

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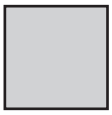


Area = $4\,cm^2$

Work out the length $x$.

.....

.....

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

**Turn over for the next question**

5

Do not write outside the box

**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

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 3 | 4 | 5 | 5 | 6 | 8 | 8 | 8 | | |
| 1 | 0 | 1 | 1 | 3 | 3 | 3 | 4 | 6 | 8 | 9 |
| 2 | 0 | 1 | 1 | 2 | 5 | | | | | |

**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)*

Do not write outside the box

**16** $E = mv^2$

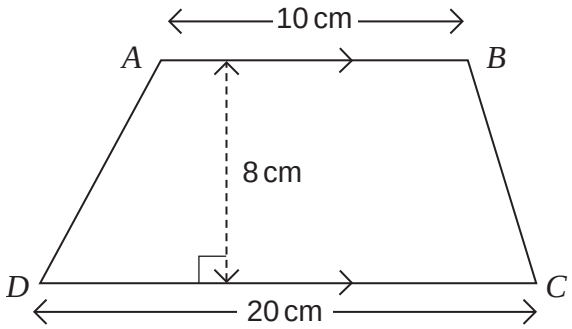
Work out the value of $E$ when $m = 3$ and $v = 10$

.....

.....

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

**17** $ABCD$ is a trapezium.

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

.....

.....

.....

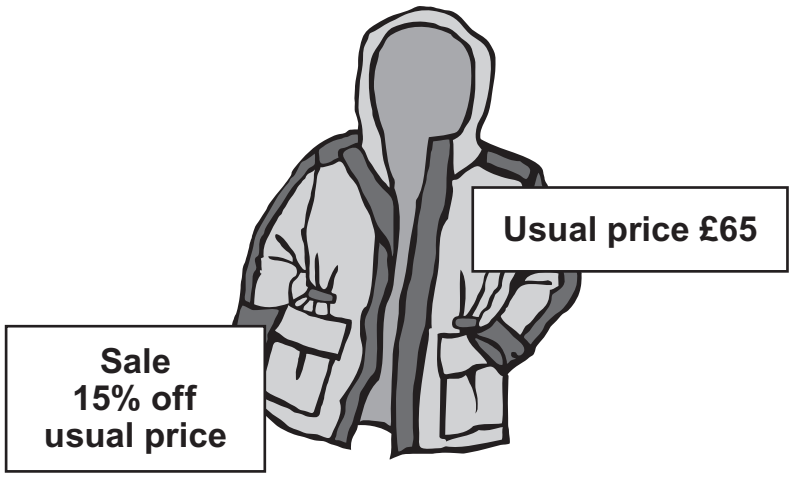
.....

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

8

Do not write outside the box

**18**




Work out the sale price.

.....

.....

.....

Answer £ ..... *(3 marks)*

Do not write outside the box

***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

Do not write outside the box

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

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**

5

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