Surname

Other Names

Candidate Signature

Mathematics (Linear)   4365/1F

F

Paper 1

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.

4365/1F

Formulae Sheet: Foundation Tier

Area of trapezium = $\frac{1}{2}(a+b)h$
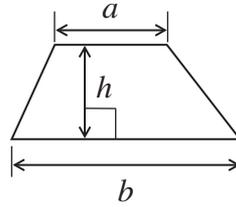
Volume of prism = area of cross-section × length
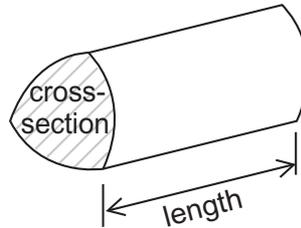
Answer **all** questions in the spaces provided.

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

Turn over ▶

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	ⅲⅲ ⅲⅲ ‖	12
Cheese and Onion	ⅲⅲ	
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)

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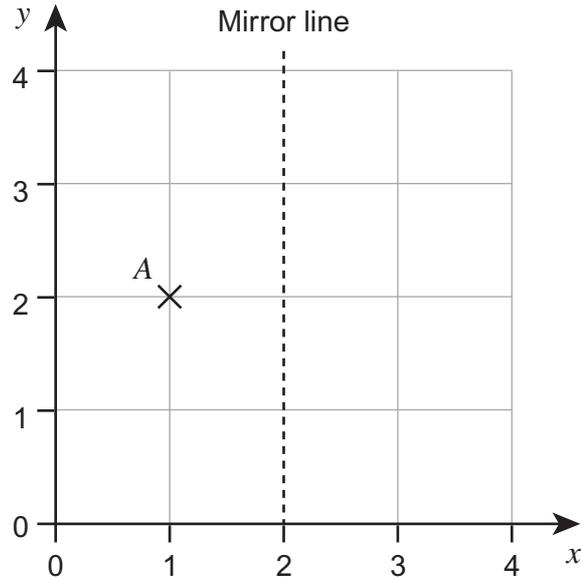
3 (a) Write down the coordinates of A.

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

Turn over ▶

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.

z
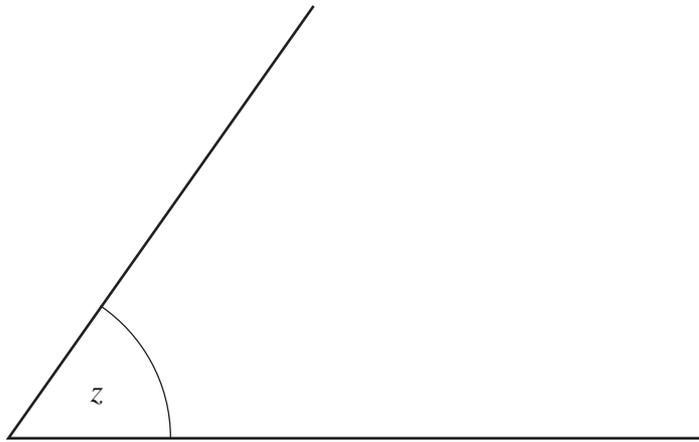
Answer .... degrees   *(1 mark)*

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)*

Turn over ▶

5

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.

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

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.
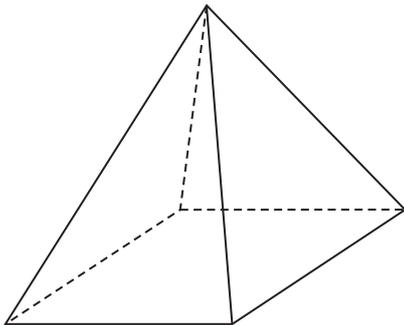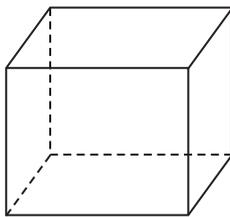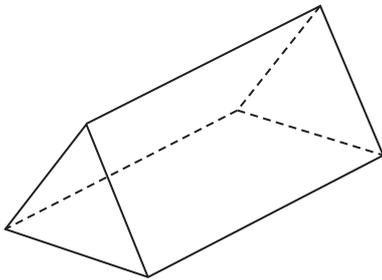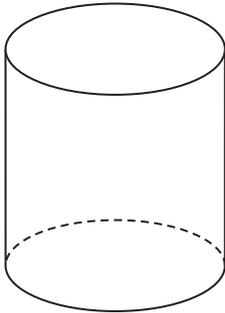
- Sphere

- Cube

- Square-based pyramid

- Triangular prism

- Cylinder

- Cone
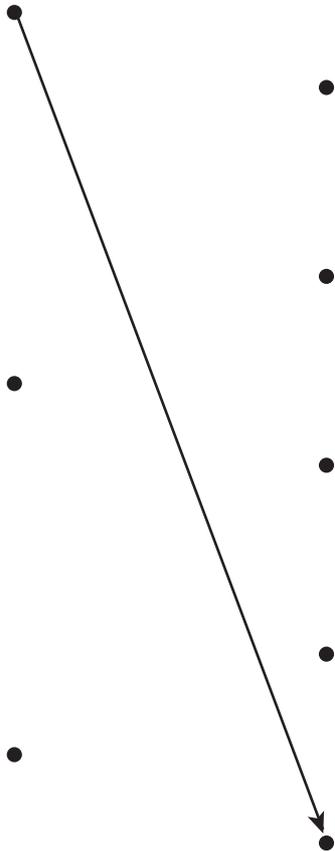
(3 marks)

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

← 10 cm →

12 cm
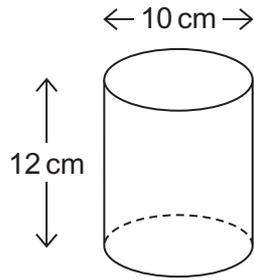
16 of the cylinders are packed tightly into a box.

h

w

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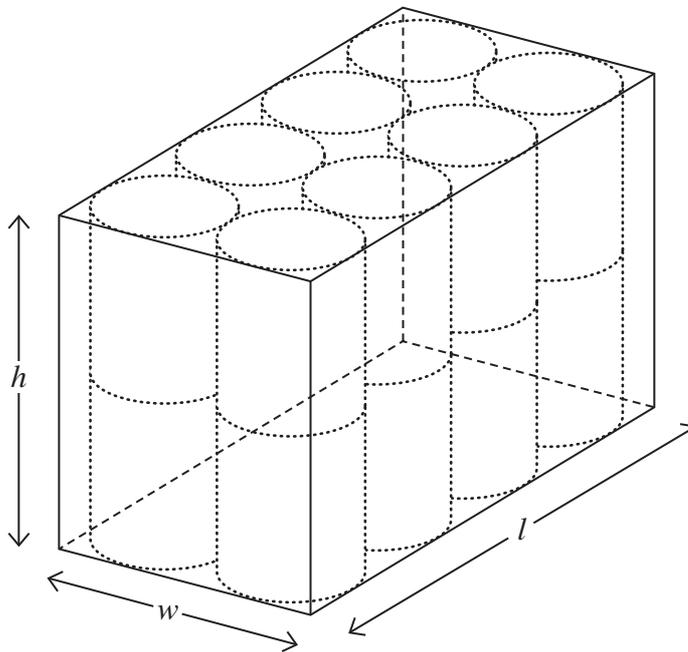
Work out the length, *l*, the height, *h* and the width, *w* of the box.

l = ... cm

h = ... cm

w = ... cm

(3 marks)

6

Turn over ▶

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
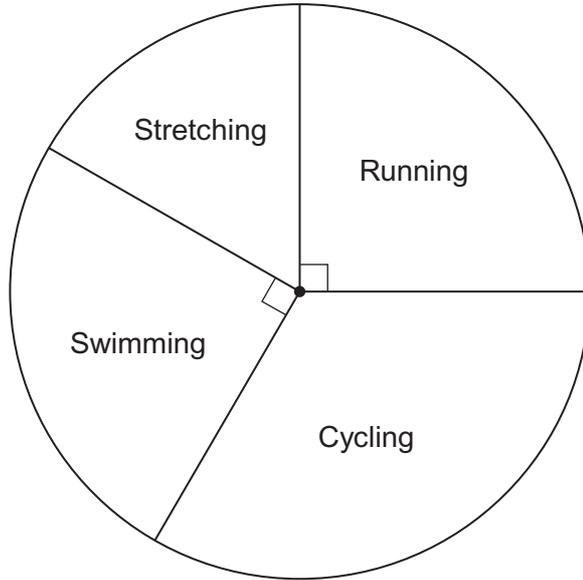
10 (a) How long did Ryan spend running?

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)*

8

Turn over ▶

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.

B

Not drawn accurately

110°

A   C   D
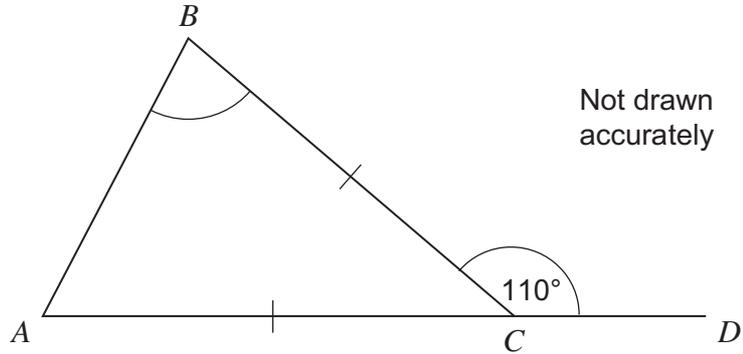
Work out the size of angle ABC.
You **must** show your working, which may be on the diagram.

....

....

....

....

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

Turn over for the next question

6

13

50°

Not drawn accurately

x

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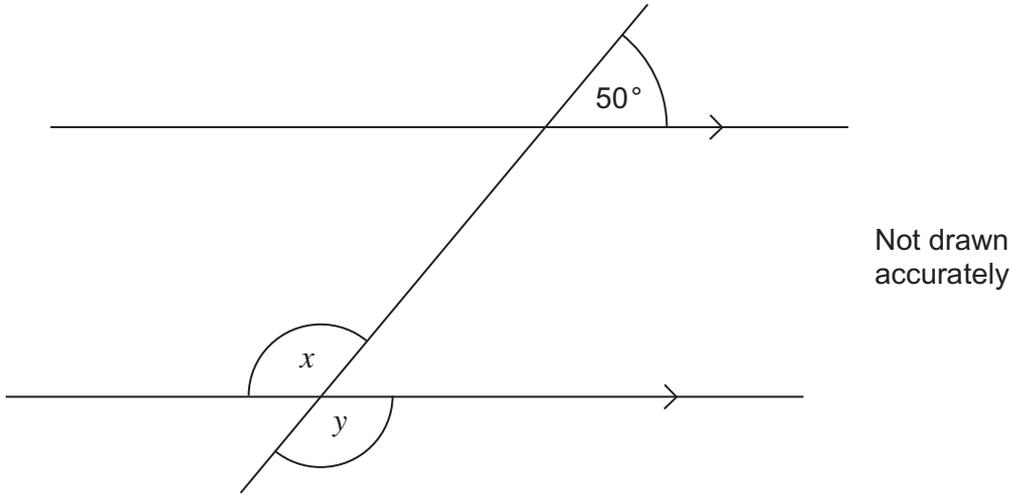
13 (a) Work out the size of angle x.

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 $4\,\text{cm}^2$.
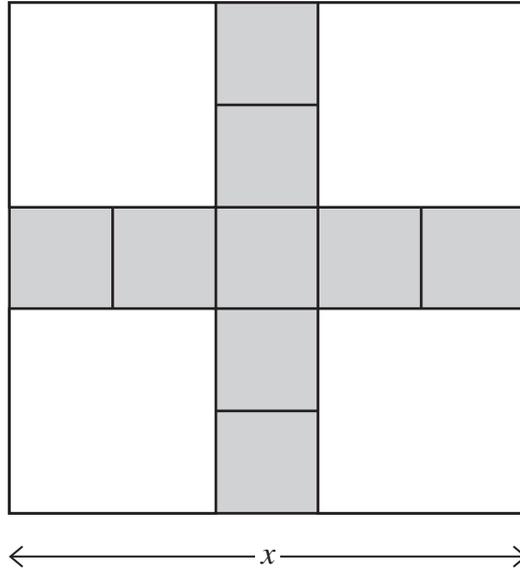
Not drawn accurately

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

← x →

Work out the length x.

....

....

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

Turn over for the next question

5

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)

16 $E = mv^2$

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

....

....

Answer .... *(2 marks)*

17 $ABCD$ is a trapezium.
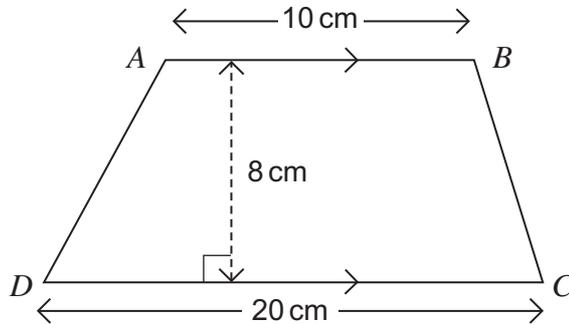
Not drawn
accurately

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

....

....

....

....

Answer .... *(3 marks)*

8

18

Usual price £65

**Sale
15% off
usual price**
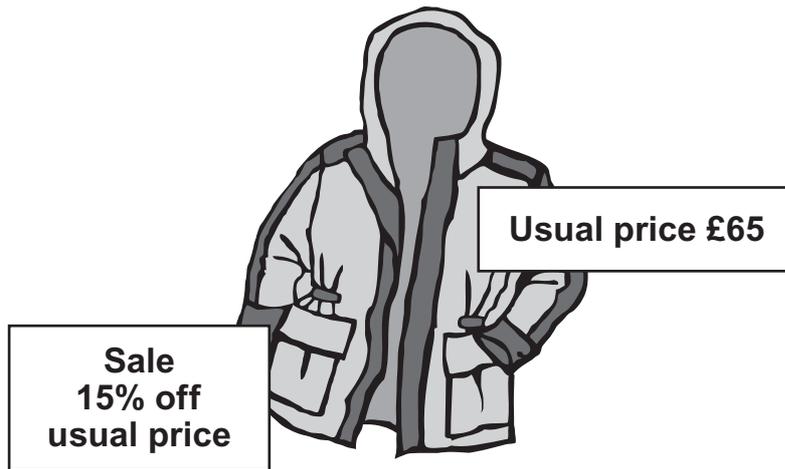
Work out the sale price.

....

....

....

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

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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