Centre Number						Candidate Number				
Surname										
Other Names										
Candidate Signature										

For Examiner's Use	
Examiner's Initials	
Pages	Mark
3	
4–5	
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10–11	
12–13	
14–15	
16–17	
18–19	
20–21	
22–23	
TOTAL	

General Certificate of Secondary Education
Foundation Tier
November 2012

Mathematics (Linear) 43651F

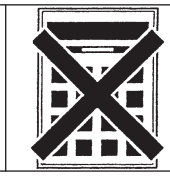
Paper 1

Thursday 8 November 2012 1.30 pm to 2.45 pm

F

For this paper you must have:
- mathematical instruments.

You must **not** use a calculator.



Time allowed
- 1 hour 15 minutes

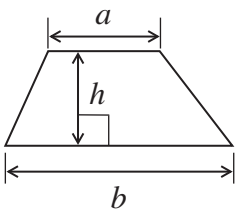
Instructions
- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this 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 10 and 11. 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.

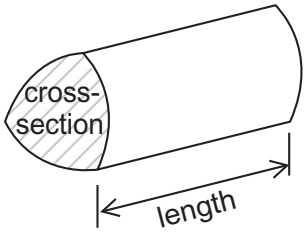
Advice
- In all calculations, show clearly how you work out your answer.

Formulae Sheet: Foundation Tier

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

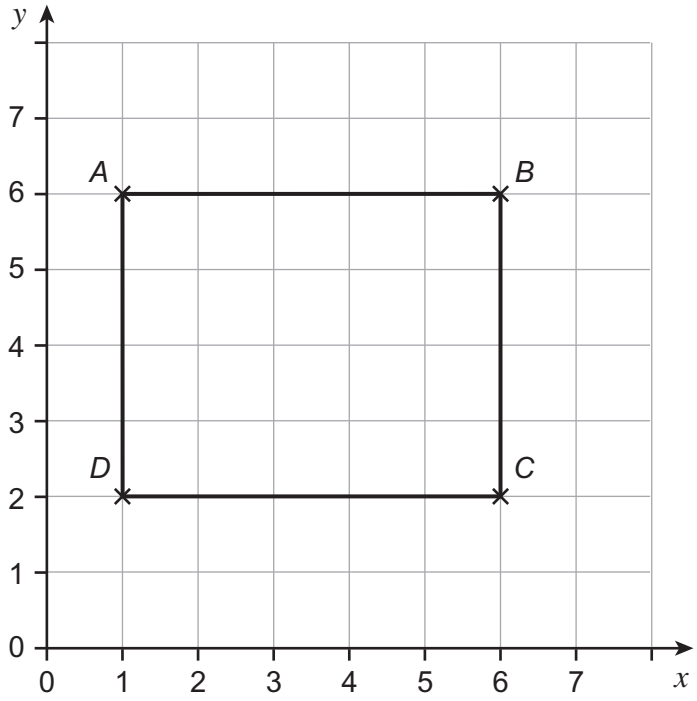


Volume of prism = area of cross-section × length



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

1 *ABCD* is a rectangle on a centimetre grid.



1 (a) Write down the coordinates of *A*.

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

1 (b) Mark the midpoint of *BC* with a cross.

(1 mark)

1 (c) Work out the perimeter of the rectangle.

.....

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

4

Turn over ▶

2 Work out the following.

2 (a) 184 + 139

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

2 (b) 362 – 207

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

2 (c) 8×65

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

2 (d) 138 ÷ 6

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

3 Work out the **two** missing values in this shopping bill.

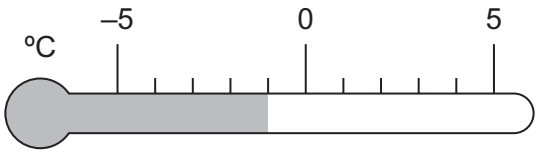
4 doughnuts at 60p each	£2.40
3 coffees at ..... each	.....
Total	£6.00

(2 marks)

Turn over for the next question

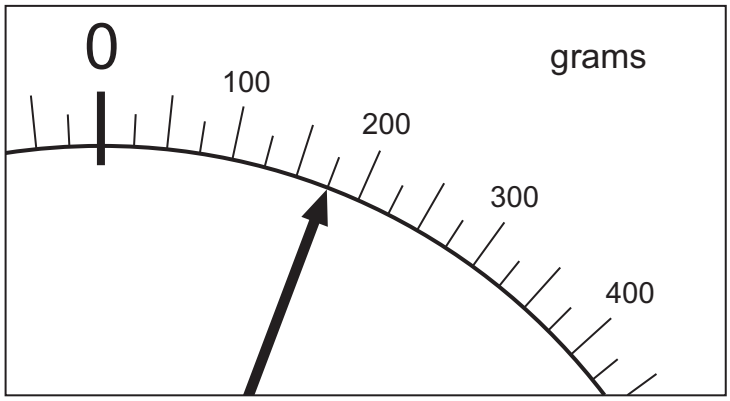
6

4 (a) Write down the temperature shown.



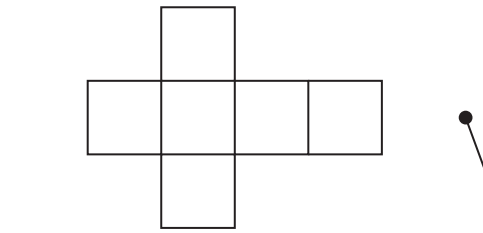
Answer ..... ºC *(1 mark)*

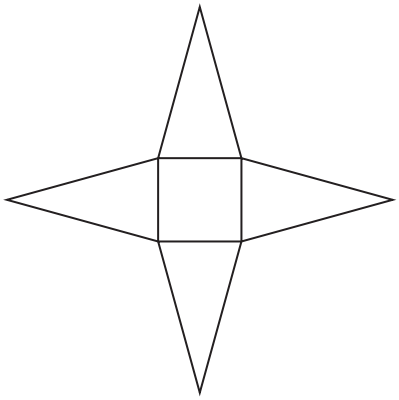
4 (b) Write down the weight shown.

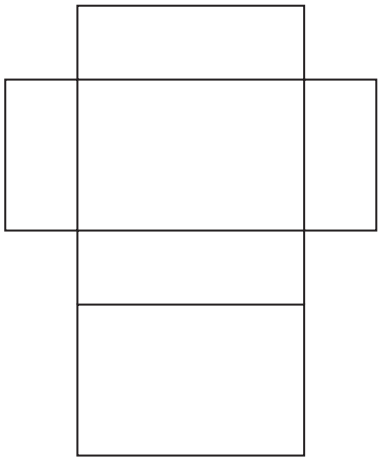


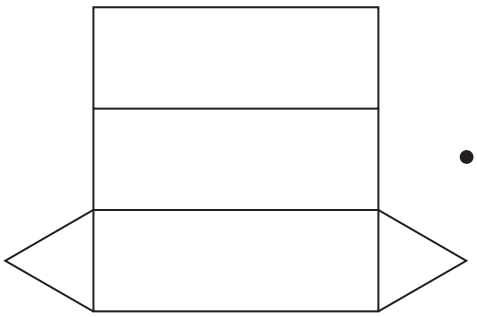
Answer ..... grams *(1 mark)*

5 Match each net with a solid.
The first one has been done.







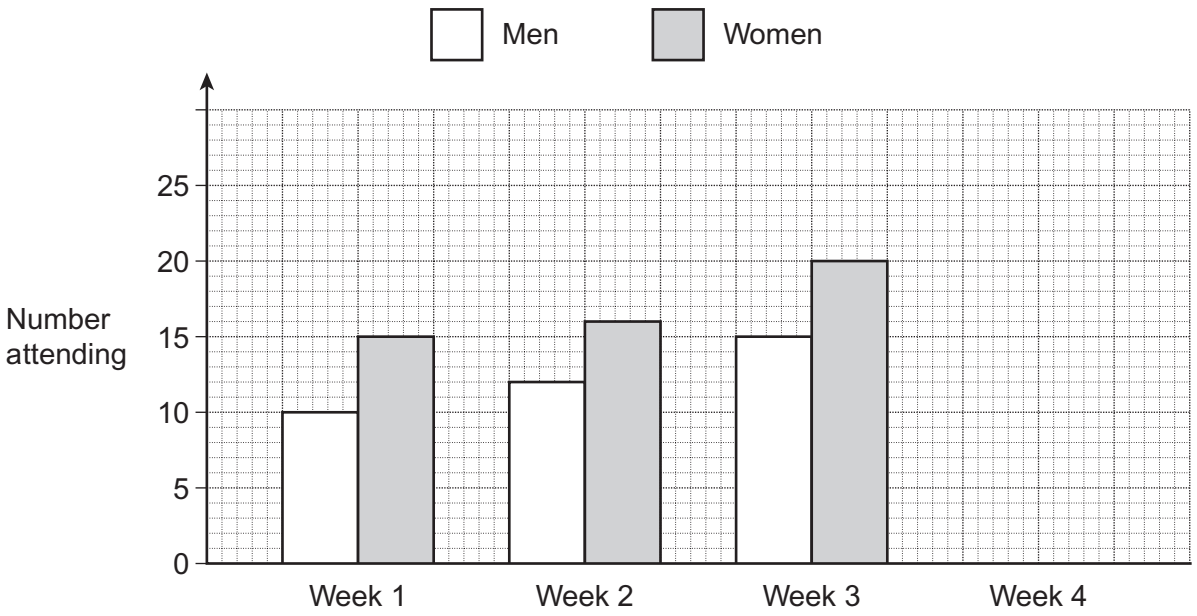


- Cuboid
- Pyramid
- Cylinder
- Cube
- Triangular prism

(3 marks)

5

6 Alison records how many men and women attend her fitness class over four weeks. The bar chart shows the information for Weeks 1, 2 and 3.



6 (a) How many **men** attended in Week 2?

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

6 (b) How many people attended in Week 3 **altogether**?

.....

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

6 (c) 40 people attended the class in Week 4.
There were 8 **more** women than men.

Complete the bar chart for Week 4.

.....

.....

(2 marks)

6 (d) Each week,

- Alison pays out £30 to run the class
- she charges each person £5 to attend.

How much profit did she make in Week 1?

.....

.....

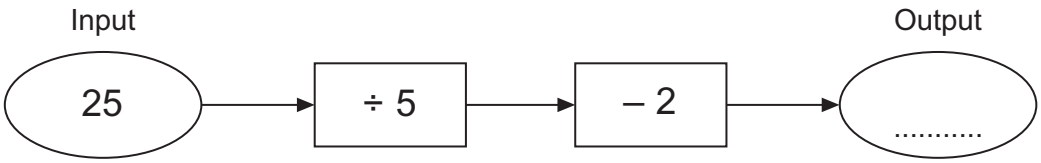
.....

Answer £ ..... *(3 marks)*

Turn over for the next question

7

7 (a) Here is a number machine.

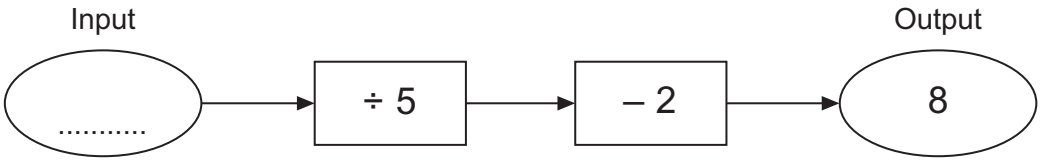


Work out the **output** when the input is 25.

.....

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

7 (b) Here is the same number machine.



Work out the **input** when the output is 8.

.....

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

8 Here are eight coins.

Ben and Yusaf take **four** coins each.
They both have exactly the same amount of money.

Which coins could they each have?

.....

.....

.....

.....

Ben .....

Yusaf ..... *(3 marks)*

6

Turn over ▶

9 (a) What **percentage** of this shape is shaded?

.....

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

9 (b) Circle the **two** fractions that are equivalent to $\frac{4}{5}$

$\frac{2}{10}$ $\frac{6}{8}$ $\frac{8}{10}$ $\frac{20}{25}$ $\frac{8}{9}$

(2 marks)

9 (c) Work out 40% of 70

.....

.....

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

***10** Harry is paid £800 per month.

These amounts are taken off his pay.

$\frac{1}{10}$ of his pay for National Insurance.

$\frac{1}{5}$ of his pay for tax.

How much money does he have left each month?

.....

.....

.....

.....

.....

.....

Answer £ ..... *(4 marks)*

11 (a) Simplify fully $7a + 3a - 4a$

.....

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

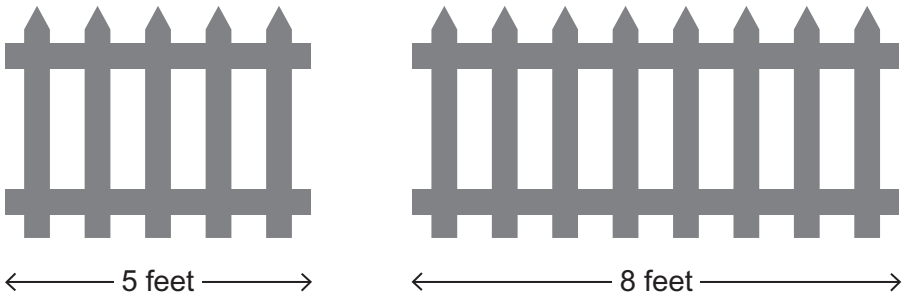
***11 (b)** Simplify fully $3 \times m \times 2 \times p$

.....

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

11

12 Fence sections are 5 feet or 8 feet long.



The side of a garden is 36 feet long.

How many of each section are needed to fence the side **without** cutting any of the sections?
You **must** show your working.

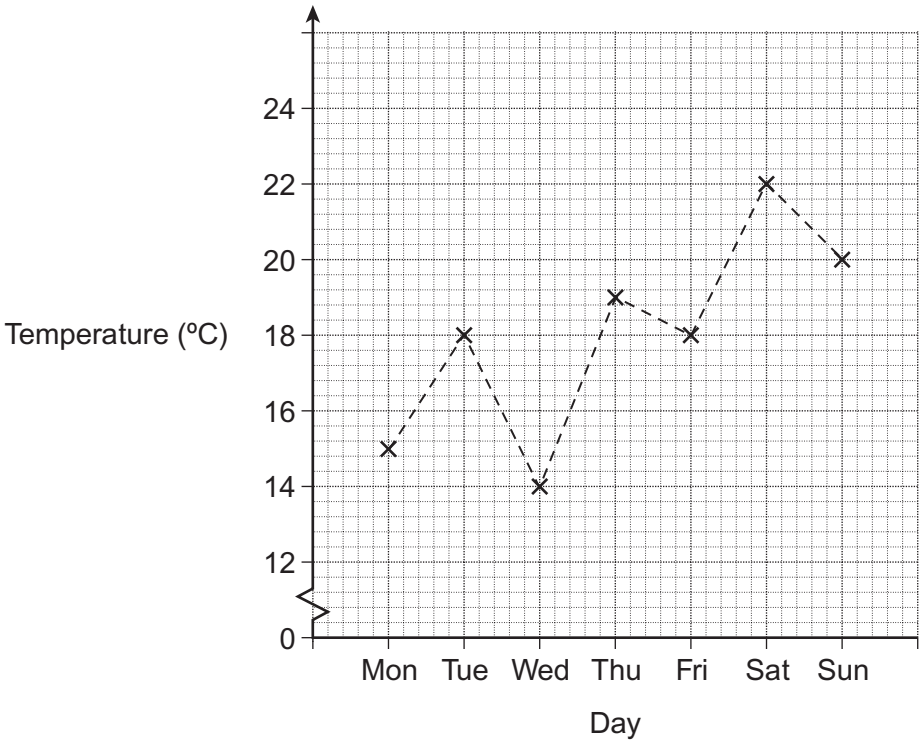
.....

.....

Answer ..... 5 feet sections

..... 8 feet sections *(3 marks)*

13 The graph shows the midday temperatures in a seaside town for a week.



What is the range of the midday temperatures?

.....

.....

.....

Answer ..... ºC *(2 marks)*

5

Turn over ▶

14 Work out the value of $4x + 3y$ when $x = -2$ and $y = 5$

.....

.....

.....

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

15 Expand and simplify $5(x - 3) - 2(x - 1)$

.....

.....

.....

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

16 A school science department has 13 teachers.
The stem-and-leaf diagram shows their ages.

Key: 2 | 4 represents 24 years old

2	3	7		
3	2	2	6	8
4	6	9		
5	1	5	8	9
6	3			

16 (a) How many teachers are over 50 years old?

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

16 (b) Work out the median age.

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

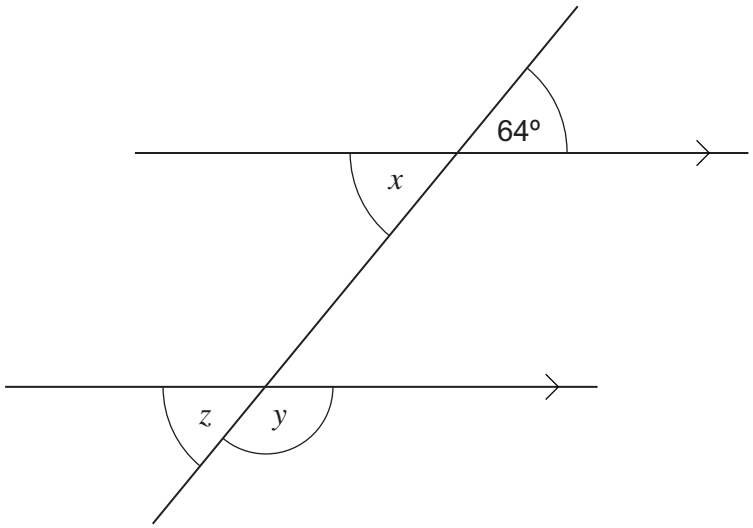
16 (c) The oldest teacher retires.
She is replaced by a new teacher aged 22 years.

Work out the new median age.

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

8

17



Not drawn accurately

17 (a) Write down the size of angle x.

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

17 (b) Work out the size of angle y.

.....

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

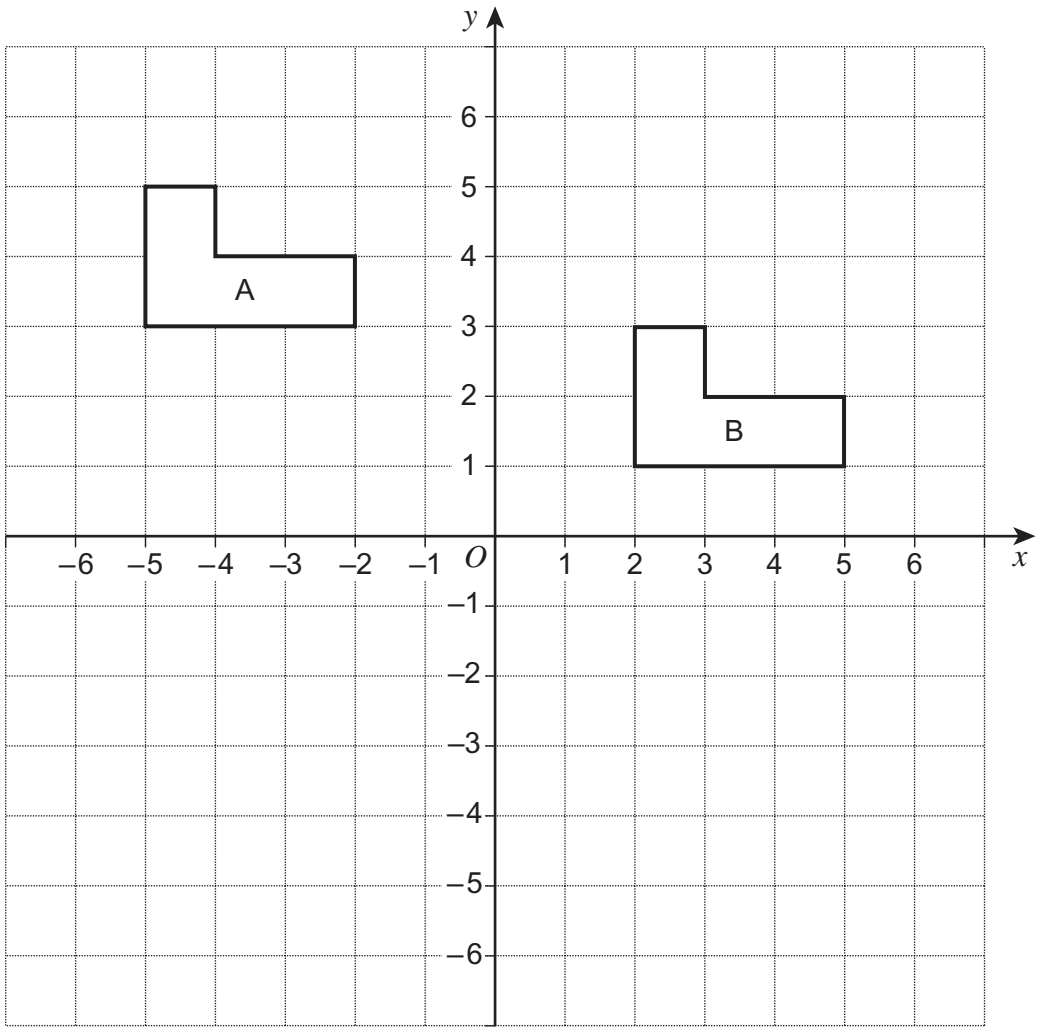
17 (c) Choose the correct word from the list to complete the sentence.

opposite **alternate** **corresponding** **interior**

Angle x and angle z are ..... angles.

(1 mark)

18



18 (a) Describe fully the **single** transformation that maps shape A to shape B.

.....

.....

(2 marks)

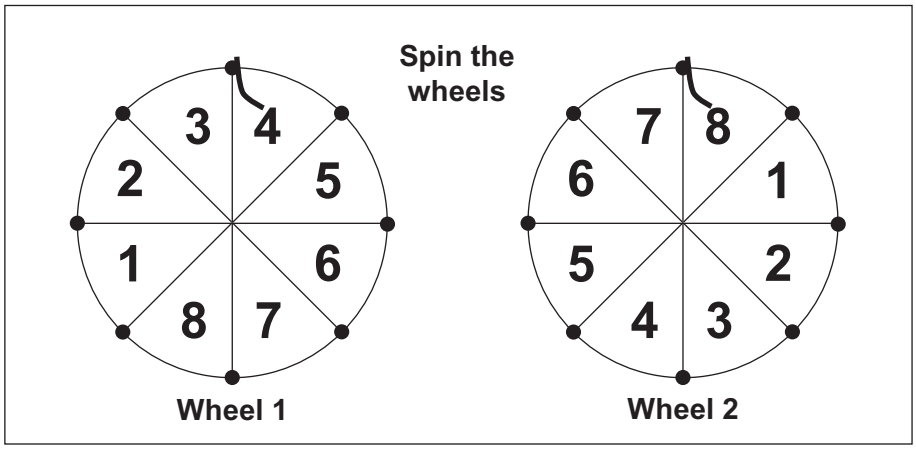
18 (b) Draw the reflection of shape B in the line $y = -1$

(2 marks)

7

19 In a game, players spin two wheels.
The wheels are fair.

The numbers are added to get a score.
The wheels show a score of 4 + 8 = 12



You may use the grid below to help you answer the questions on the next page.

Wheel 2

+	1	2	3	4	5	6	7	8
1								
2								
3								
4								12
5								
6								
7								
8								

Wheel 1

19 (a) What is the most likely score?

.....

.....

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

19 (b)

Score
2, 3, 15 or 16
to win a prize

Work out the probability of winning a prize.

.....

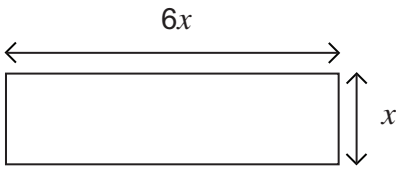
.....

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

Turn over for the next question

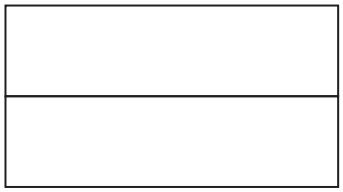
5

20 The length of this rectangular tile is 6 times the width.



Not drawn accurately

Two tiles are put together to make this shape.



Not drawn accurately

The perimeter of the new shape is 24 cm.

Work out the width of **one** tile.

.....

.....

.....

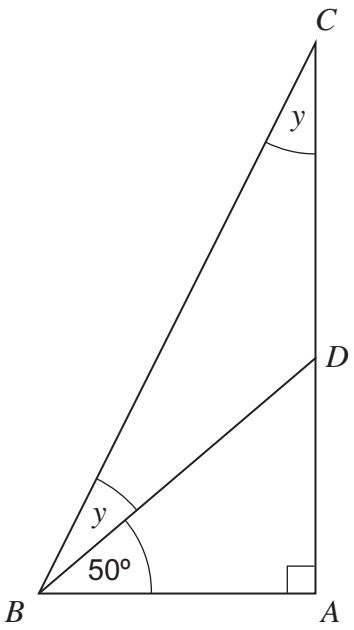
.....

.....

.....

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

21 ABC is a right-angled triangle.



Not drawn accurately

Work out the size of angle y.

.....

.....

.....

.....

.....

.....

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

END OF QUESTIONS

6

There are no questions printed on this page

DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED