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 – 23	
TOTAL	

General Certificate of Secondary Education
Foundation Tier
January 2013

Mathematics (Linear) 43652F

Paper 2

F

Tuesday 15 January 2013 1.30 pm to 3.15 pm

For this paper you must have:
- a calculator
- mathematical instruments.

Time allowed
- 1 hour 45 minutes

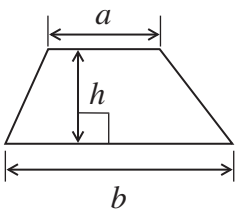
Instructions
- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Fill in the boxes at the top of this page.
- Answer **all** questions.
- You must answer the questions in the spaces provided. Do not write outside the box around each page or on blank pages.
- Do all rough work in this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

Information
- The marks for questions are shown in brackets.
- The maximum mark for this paper is 105.
- The quality of your written communication is specifically assessed in Questions 5, 9, 17 and 22. 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.

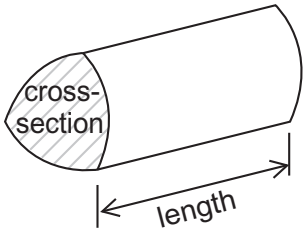
Advice
- In all calculations, show clearly how you work out your answer.

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 (a) Write four thousand and nineteen in figures.

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

1 (b) What is the value of the 7 in 2780?

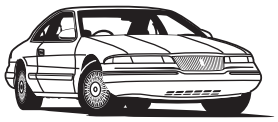
Answer ..... *(1 mark)*

2 These cars are for sale.

Car A

£13 420

Car B



£17 860

Car C

£12 590

2 (a) Which car is the cheapest?

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

2 (b) The price of each car is rounded to the nearest £100.

Which price changes by the **greatest** amount?
You **must** show your working.

.....

.....

.....

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

6

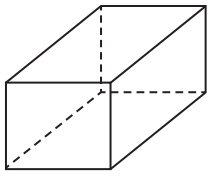
Turn over ▶

3 (a) Match each shape to its number of sides.
One has been done for you.

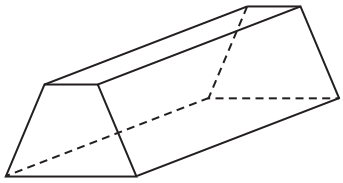
Hexagon	3 sides
Quadrilateral	4 sides
Triangle	5 sides
Pentagon	6 sides
	8 sides

(3 marks)

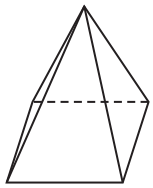
3 (b)



shape *A*

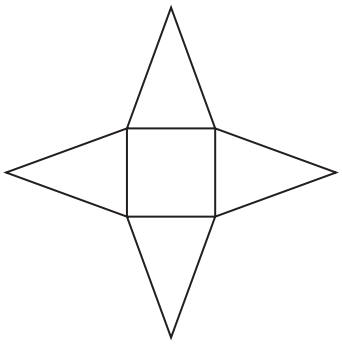


shape *B*



shape *C*

Here is a net for one of these shapes.



Which shape is it?

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

4 Circle the most suitable unit for each of the following.

The length of a human finger	centimetres	metres	kilometres
The amount of water in a bath	millilitres	centilitres	litres
The weight of a pencil	grams	kilograms	tonnes

(3 marks)

5 Kim used 805 units of gas from April to July.
The meter reading in April was 24 259 units.

5 (a) Work out the meter reading in July.

.....

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

***5 (b)** Each unit costs 8p.

How much do 805 units cost?

.....

.....

Answer £ ..... *(2 marks)*

11

6 Students were asked how long they spent on homework last night.

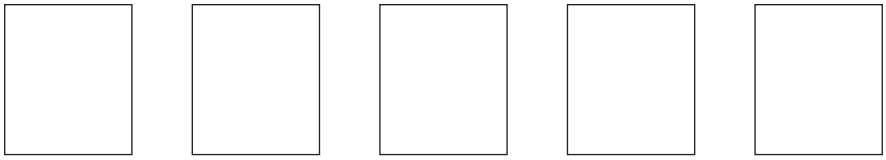
Complete the table.

Number of hours	Tally	Number of students
1		4
2	𝍸 ||||	
3	𝍸 𝍸 ||	
4		6
		Total

(3 marks)

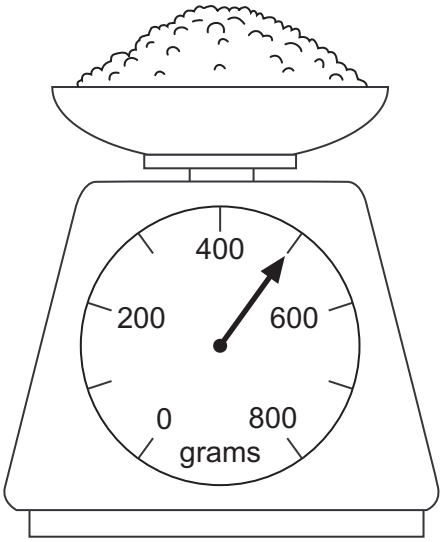
7 Put the numbers 1, 2 or 3 on each card so that

- each number is used at least once
- the mode of the numbers is 2.



(2 marks)

8 These scales weigh amounts of up to 800 grams.



8 (a) What is the weight shown by the arrow?

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

8 (b) How can the scales be used to weigh 1.2 kilograms of flour?

.....

.....

.....

(2 marks)

***9** Text messages cost 11p each.

How many do you get for £15?

.....

.....

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

11

Turn over ▶

10 The diagram shows patterns made with sticks.

Pattern 1 Pattern 2 Pattern 3

10 (a) How many sticks are in Pattern 3?

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

10 (b) Draw Pattern 4.

(1 mark)

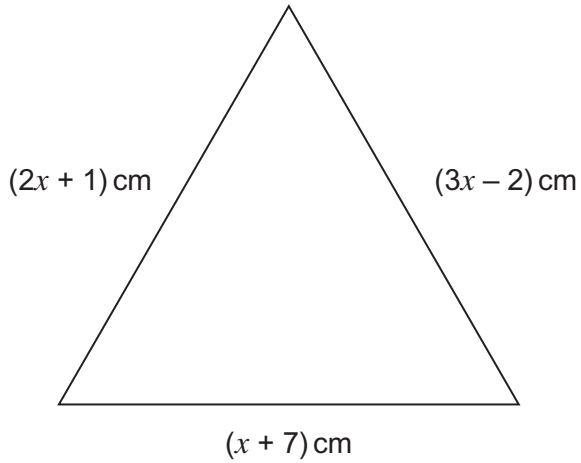
10 (c) How many sticks are in Pattern 6?

.....

.....

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

11



Not drawn accurately

Work out the length of the longest side of the triangle when $x = 5$

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.....

.....

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

12 Jack works eight hours each day.
He is paid £6.50 per hour.

He saves half of his pay.

How many working days will it take Jack to save £780?

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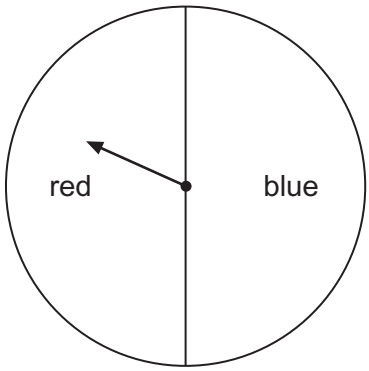
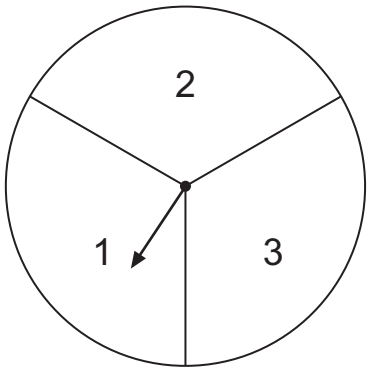
Answer ..... *(5 marks)*

12

13





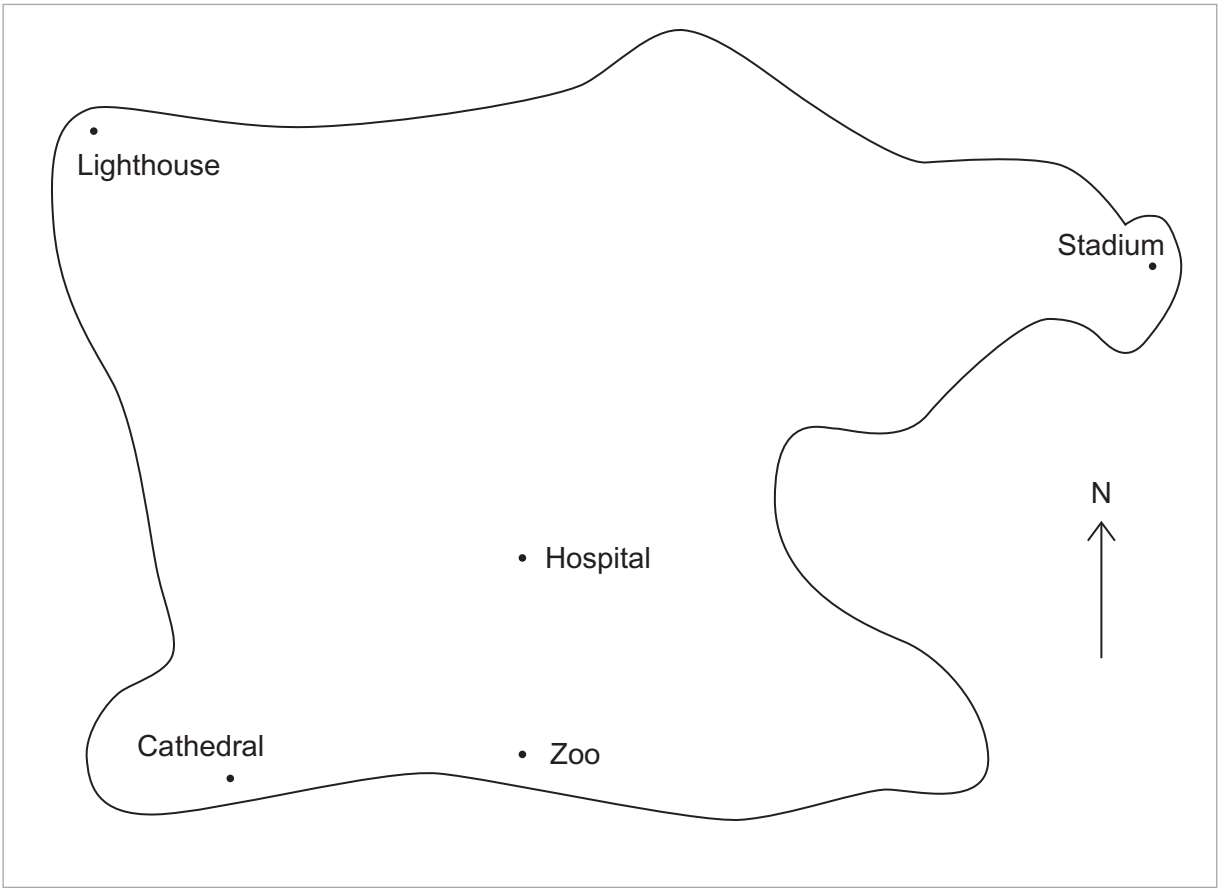
The two arrows are spun.

One possible outcome is **red** and **1**.

Write down **all** the other possible outcomes.

(2 marks)

14



14 (a) What is South of the Hospital?

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

14 (b) What is South-East of the Lighthouse?

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

14 (c) Measure the three-figure bearing of the Stadium from the Hospital.

Answer ..... ° *(2 marks)*

6

15 (a) A bag contains 20 counters.
8 of the counters are yellow.

A counter is picked at random.

What is the probability that it is yellow?
Give your answer as a fraction in its simplest form.

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

15 (b) A different bag contains only black and white counters.
The probability that a counter is black is 0.14

A counter is picked at random.

What is the probability that it is white?

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

16 Work out $\frac{3}{4}$ of 180

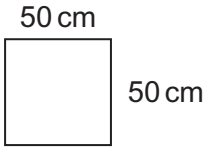
.....

.....

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

17 (a) This rectangular patio is tiled using 50 cm by 50 cm square tiles.

Not drawn accurately



How many tiles are used?

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

***17 (b)** This formula is used to work out the cost (£) of tiling a path.

$$\text{Cost} = \text{number of tiles} \times 5 + 25$$

46 tiles are needed to tile a path.

Can the path be tiled for less than £250?
You **must** show your working.

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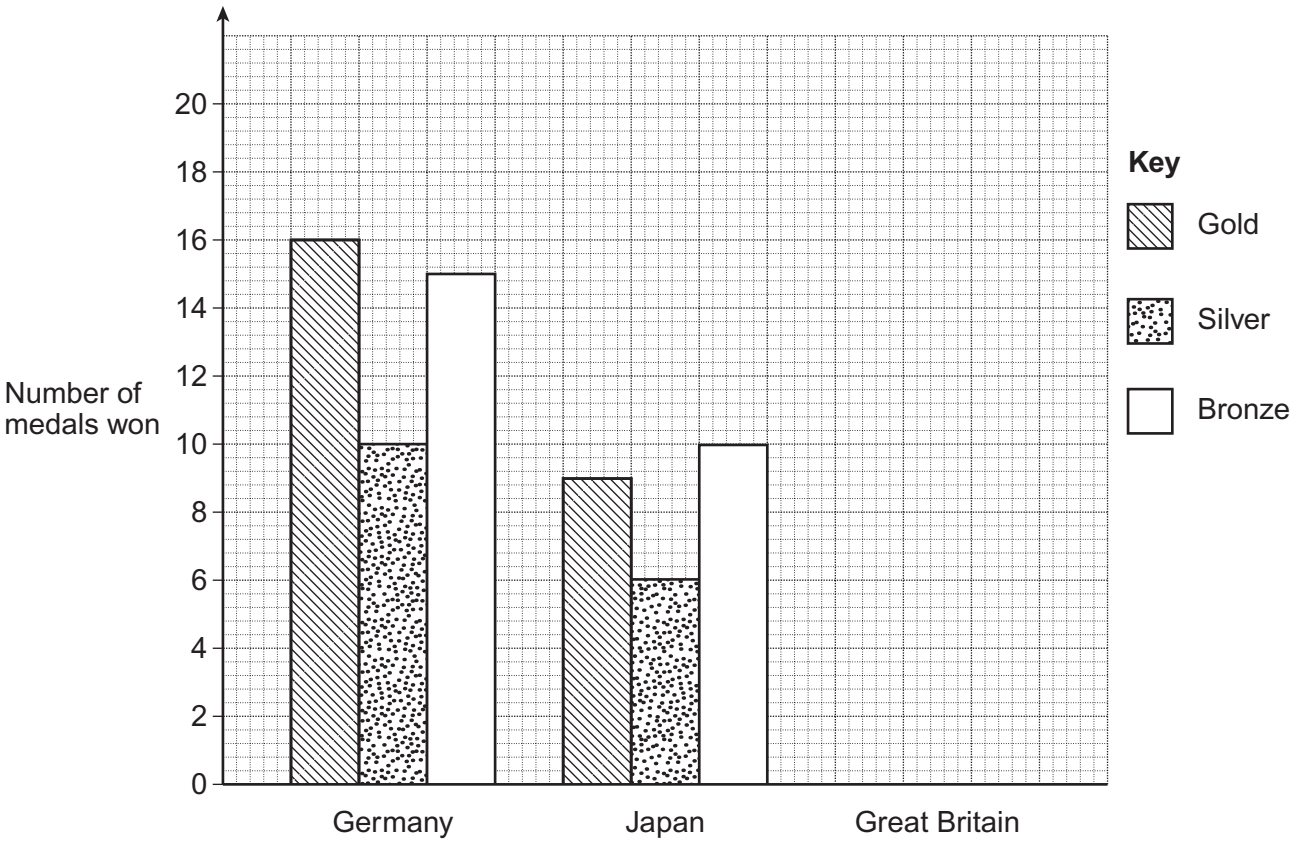
(3 marks)

12

Turn over ▶

18 Germany, Japan and Great Britain took part in the 2008 Olympics.



Great Britain won 19 gold medals and two more bronze medals than silver.

The total number of medals won by the three countries was 113.

Complete the bar chart to show the data for Great Britain.

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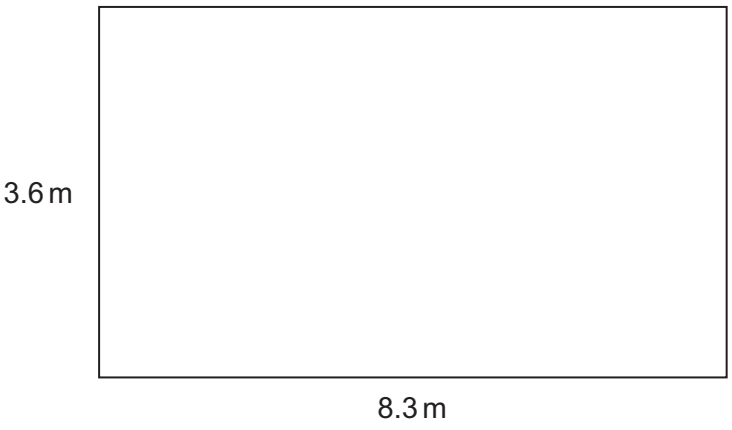
(5 marks)

19 This rectangular wall is to be painted.



Not drawn accurately

Paint is sold in tins.

How much does it cost to paint the wall?

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Answer £ ..... *(5 marks)*

10

Turn over ▶

20 (a) Solve $6x - 5 = 28$

.....

.....

x = ... *(2 marks)*

20 (b) Simplify fully $3a + 5b - a + 2b$

.....

.....

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

21 (a) Work out the value of 7^3

.....

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

21 (b) The sum of two consecutive cube numbers is 341.

Work out the two numbers.

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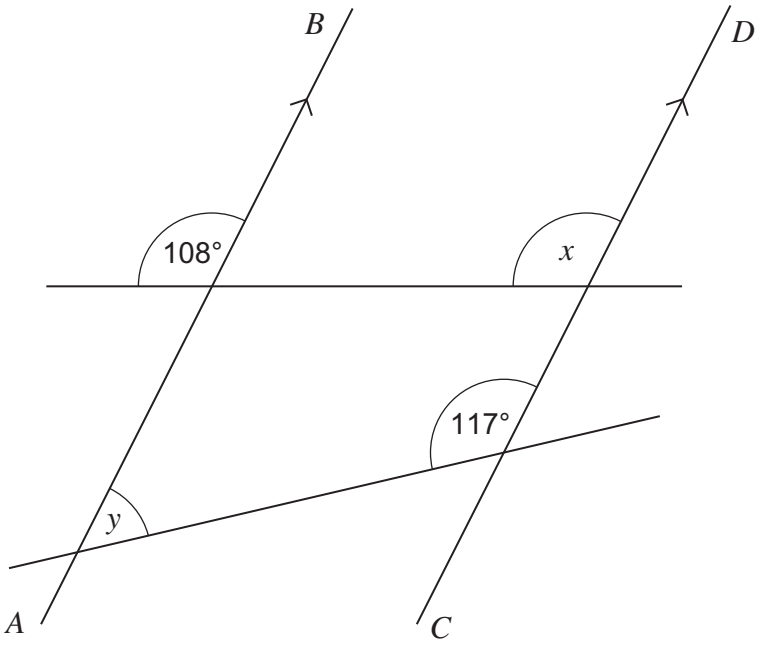
.....

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

22 AB is parallel to CD.



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***22 (a)** Write down the size of angle x.
Give a reason for your answer.

Answer ..... degrees

Reason .....

(2 marks)

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

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

11

Turn over ▶

23 Pens cost 15 pence each.
Rulers cost 20 pence each.

23 (a) Write down an expression for the cost of x pens and y rulers.

.....

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

23 (b) A school buys 150 pens and 90 rulers.

The total cost is reduced by $\frac{1}{5}$

How much does the school pay?

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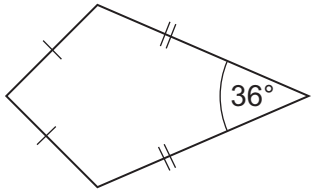
Answer £ ..... *(5 marks)*

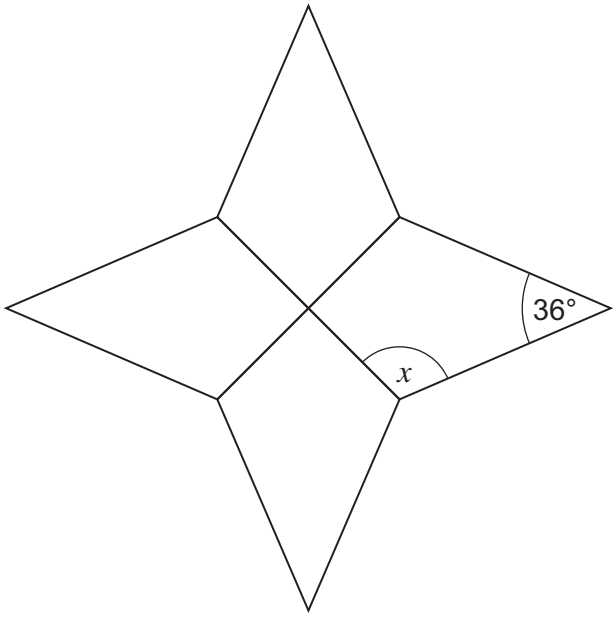
24 The diagram shows a kite.

Not drawn accurately



Four identical kites are joined to make this shape.

Not drawn accurately



Work out the size of angle x.

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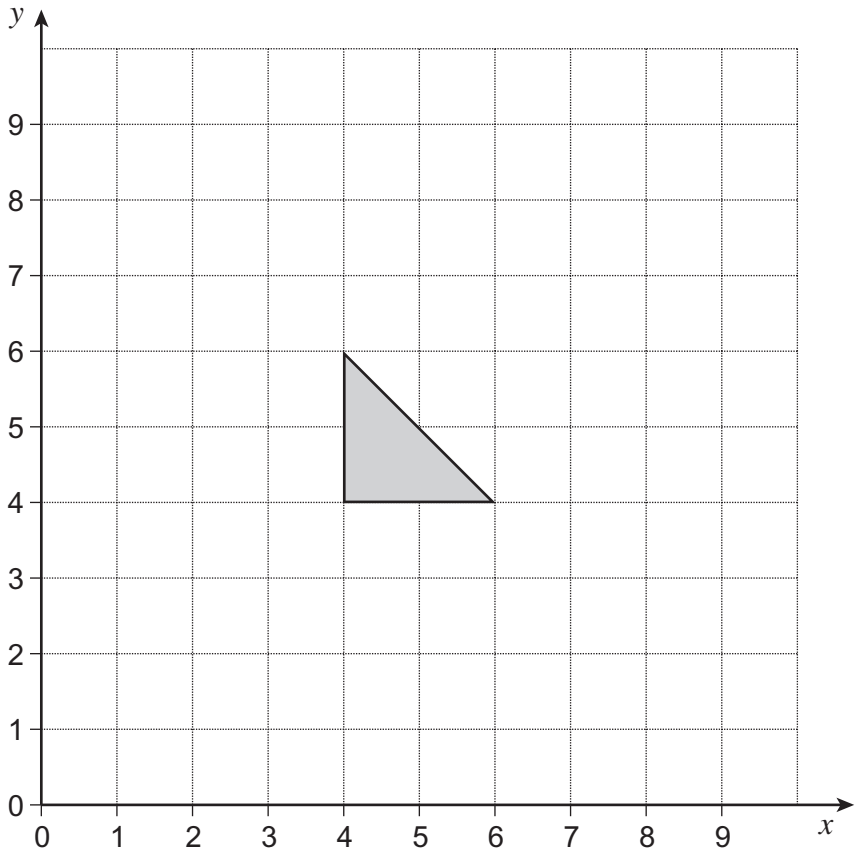
.....

Answer ..... degrees *(4 marks)*

11

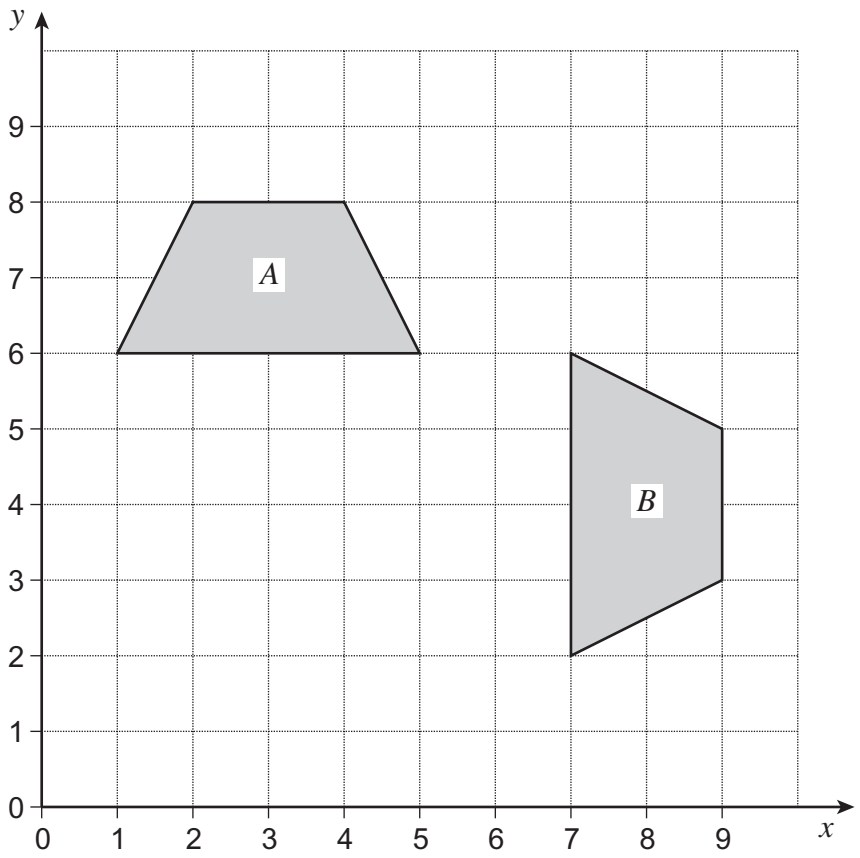
Turn over ▶

25 (a) Translate the shape by the vector $\begin{pmatrix} 2 \\ 3 \end{pmatrix}$



(2 marks)

25 (b)



Describe fully the **single** transformation that takes shape A to shape B.

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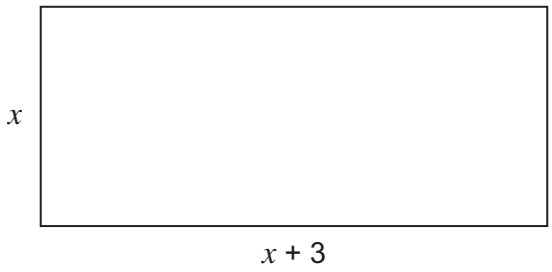
(3 marks)

Turn over for the next question

5

26 The perimeter of the rectangle is 37 cm.



Not drawn accurately

Work out the value of x.

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.....

.....

x = ... cm *(3 marks)*

27 80 patients gave information about how long they waited to see the doctor.

Time, T, (minutes)	Frequency		
$0 \leqslant T < 10$	5		
$10 \leqslant T < 20$	22		
$20 \leqslant T < 30$	28		
$30 \leqslant T < 40$	21		
$40 \leqslant T < 50$	4		

27 (a) Work out an estimate of the mean time that the patients waited.

.....

.....

.....

.....

.....

Answer ..... minutes *(4 marks)*

27 (b) The doctor says, "70% of our patients wait less than 30 minutes to be seen."

Is she correct?
You **must** show your working.

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

END OF QUESTIONS

10

There are no questions printed on this page

DO NOT WRITE ON THIS PAGE
ANSWER IN THE SPACES PROVIDED