



Surname \_\_\_\_\_

Forename(s) \_\_\_\_\_

Centre Number \_\_\_\_\_

Candidate Number \_\_\_\_\_

Candidate Signature \_\_\_\_\_

I declare this is my own work.

**GCSE  
MATHEMATICS**

**F**

Foundation Tier      Paper 2 Calculator

**8300/2F**

**Friday 10 November 2023**

**Morning**

**Time allowed: 1 hour 30 minutes**

**At the top of the page, write your surname and forename(s), your centre number, your candidate number and add your signature.**

**[Turn over]**



N 0 V 2 3 8 3 0 0 2 F 0 1

## MATERIALS

For this paper you must have:

- a calculator
- mathematical instruments
- the Formulae Sheet (enclosed).



## INSTRUCTIONS

- Use black ink or black ball-point pen. Draw diagrams in pencil.
- Answer ALL questions.
- You must answer the questions in the spaces provided. Do not write on blank pages.
- If you need extra space for your answer(s), use the lined pages at the end of this book. Write the question number against your answer(s).
- Do all rough work in this book. Cross through any work you do not want to be marked.



## **INFORMATION**

- The marks for questions are shown in brackets.
- The maximum mark for this paper is 80.
- You may ask for more answer paper, graph paper and tracing paper. These must be tagged securely to this answer book.

## **ADVICE**

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

**DO NOT TURN OVER UNTIL TOLD TO DO SO**



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

- 1 Convert 800 centimetres to metres. [1 mark]**

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**Answer** \_\_\_\_\_ **m**

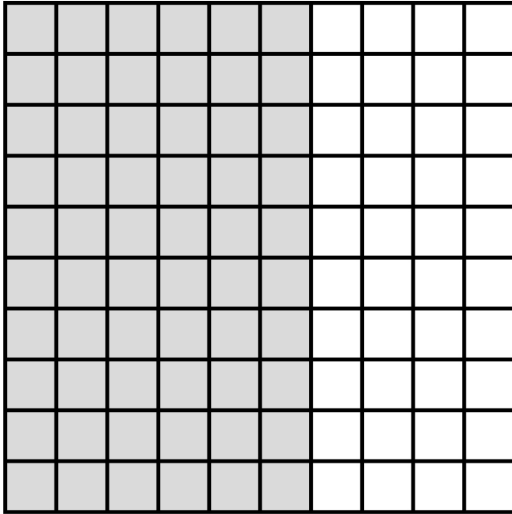
- 2 The temperature was  $-11^{\circ}\text{C}$  and INCREASES by  $5^{\circ}\text{C}$**

**Work out the new temperature. [1 mark]**

**Answer** \_\_\_\_\_  **$^{\circ}\text{C}$**



3 (a) Here is a grid.



What percentage of the grid is shaded? [1 mark]

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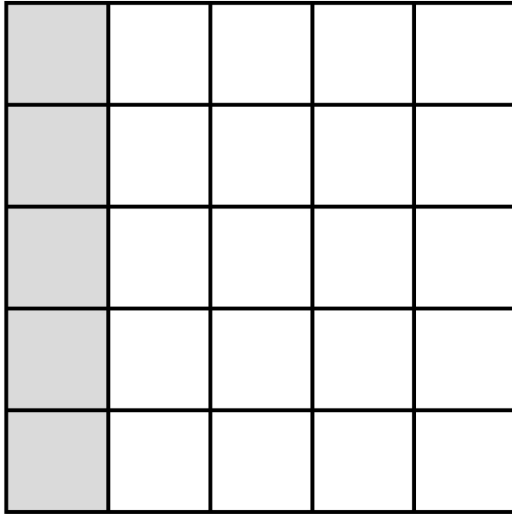
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Answer \_\_\_\_\_ %

[Turn over]



3 (b) Here is a different grid.



What percentage of the grid is shaded? [1 mark]

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Answer \_\_\_\_\_ %

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4



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**[Turn over]**



4 (a) Solve  $\frac{x}{3} = 6$  [1 mark]

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$x =$  \_\_\_\_\_

4 (b) Solve  $2x + 3 = 27$  [2 marks]

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$x =$  \_\_\_\_\_



5 Work out  $\frac{9}{4}$  as a decimal. [1 mark]

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Answer \_\_\_\_\_

[Turn over]



**6 Complete the bank statement. [3 marks]**

<b>Date</b>	<b>Description</b>	<b>Credit (£)</b>	<b>Debit (£)</b>	<b>Balance (£)</b>
<b>01/11/2021</b>	<b>Starting balance</b>			<b>736.28</b>
<b>05/11/2021</b>	<b>Rent</b>		<b>450.00</b>	_____
<b>14/11/2021</b>	<b>Refund</b>	<b>25.00</b>		_____
<b>27/11/2021</b>	<b>Wages</b>	<b>1830.29</b>		_____



7 Put all the numbers 4, 5, 6, 10 and 20 into the grid

so that the numbers in each row and each column MULTIPLY to 120 [3 marks]

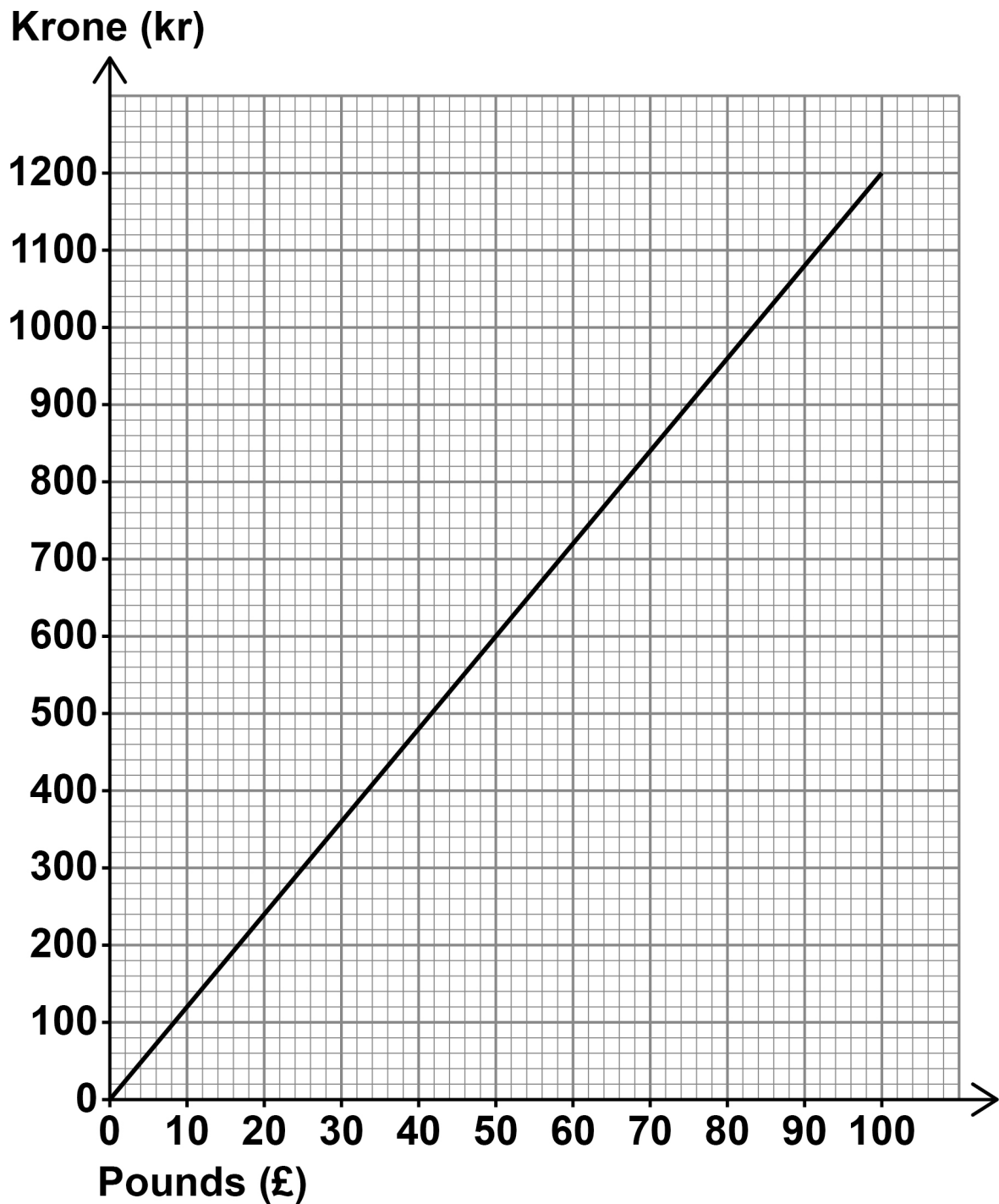
	3		120
	2	12	120
		1	120
120	120	120	

[Turn over]

10



- 8 The graph below is used to convert between pounds (£) and Norwegian krone (kr).



8 (a) Convert 720 krone into pounds. [1 mark]

Answer £ \_\_\_\_\_

8 (b) Convert £500 into krone. [2 marks]

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Answer \_\_\_\_\_ kr

[Turn over]



9 Connor is estimating the answer to  $385 + 1479$

9 (a) He rounds each number to the nearest 10

Work out his estimate. [2 marks]

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Answer \_\_\_\_\_

9 (b) Connor says,

“My estimate will be more than the exact answer.”

How does he know this **WITHOUT WORKING OUT THE EXACT ANSWER?** [1 mark]

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[Turn over]

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6



10 Here are the salaries, in £, of the 6 workers in a company.

18 300

20 700

21 500

21 500

21 500

99 000

10 (a) Work out the mean salary. [2 marks]

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Answer £ \_\_\_\_\_



**10 (b) Why is the mean NOT the best average to represent the salaries? [1 mark]**

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**[Turn over]**



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**Answer** \_\_\_\_\_ **stones**

\_\_\_\_\_ **pounds**

**[Turn over]**

6



12 (a) A sauce is made from cream and stock in the ratio

$$\text{cream : stock} = 1 : 6$$

How much SAUCE can be made using 80 millilitres of cream? [2 marks]

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Answer \_\_\_\_\_ ml

12 (b) A different sauce is made from olive oil and tomato juice in the ratio

$$\text{olive oil : tomato juice} = 1 : 14$$

What fraction of this sauce is olive oil? [1 mark]

Answer \_\_\_\_\_



**13** Multiplying  $y$  by 6 gives the same result as adding 15 to  $y$

**13 (a)** Write this as an equation. [2 marks]

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**Answer** \_\_\_\_\_

**13 (b)** Show that the value of  $y$  is NOT 4 [1 mark]

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[Turn over]

6



14 A golf club is organising a trip for 42 people.

The costs are shown in the table.

Minibus hire	£450 per minibus
Fuel	£26 per minibus
1 game of golf	£18.50 per person

Each minibus can hold 15 people.

Each person will play 2 games of golf.

The cost of the trip will be shared equally by the 42 people.

Work out the cost per person. [5 marks]

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15 An ordinary fair dice is rolled ten times.

Here are the first nine results.

6 1 3 2 1 5 5 5 5

Write down the probability of getting a 5 on the tenth roll. [1 mark]

Answer \_\_\_\_\_

16  $r : w = 1 : 4$

Write down the ratio  $r^2 : w^2$   
[1 mark]

Answer \_\_\_\_\_ : \_\_\_\_\_

7



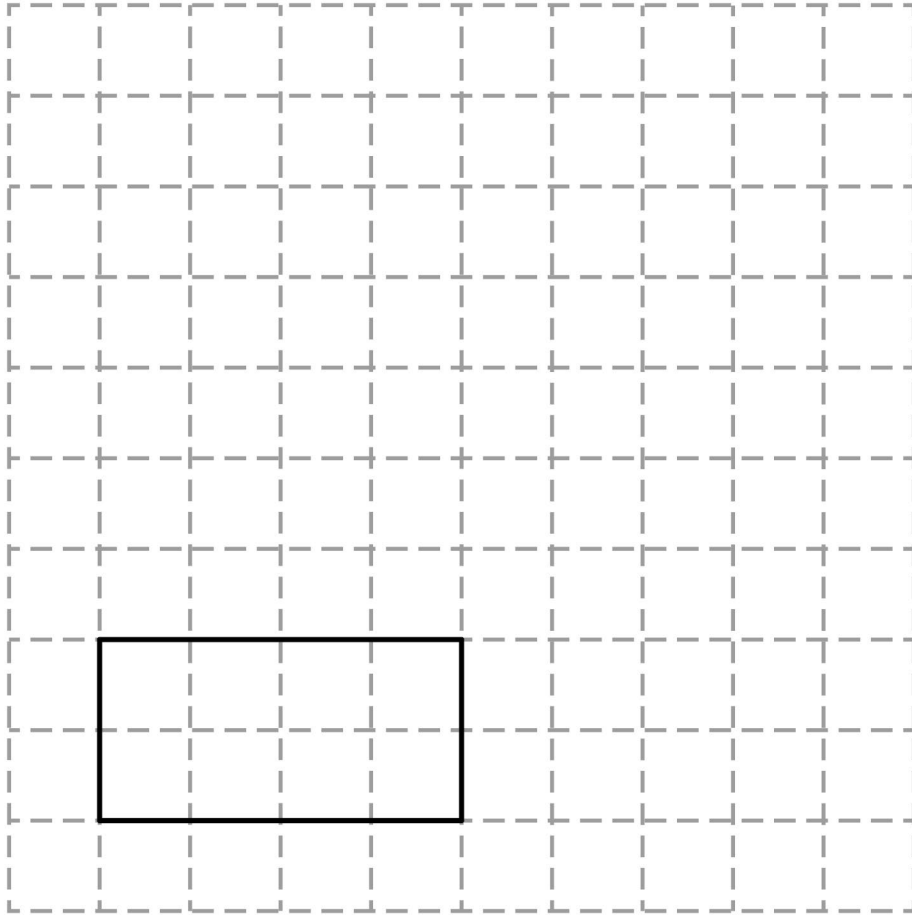
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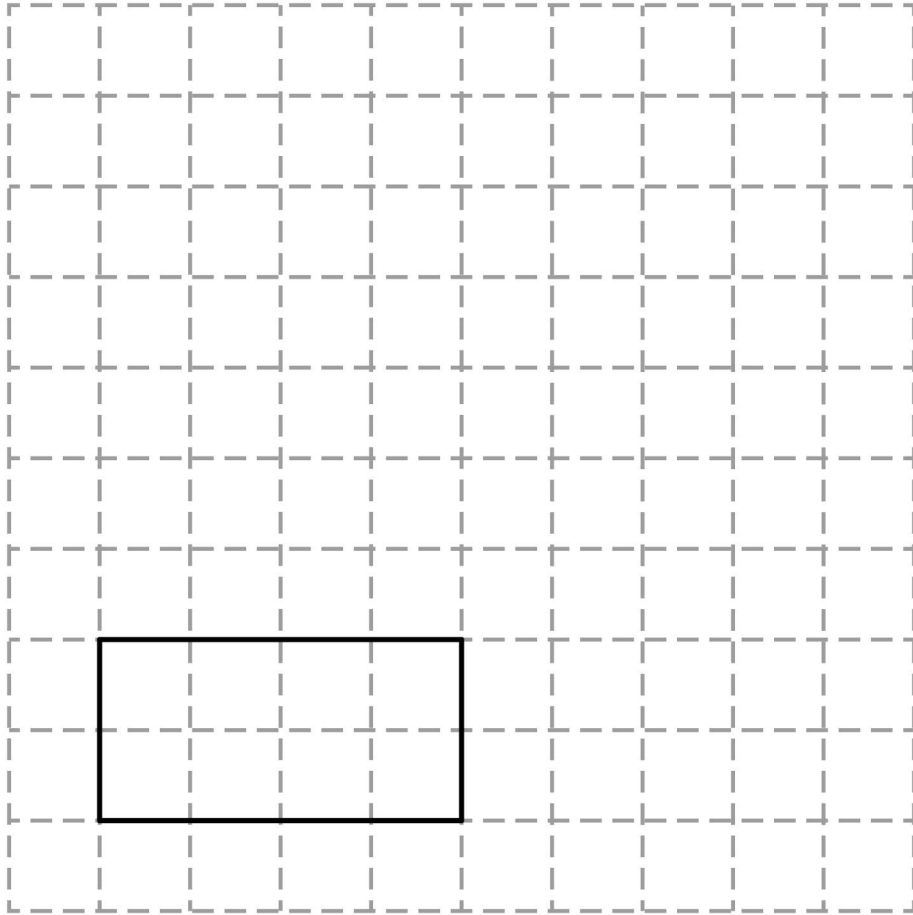
17 (a) A rectangle is drawn on a square grid.

On the grid, draw a **CONGRUENT** rectangle.  
[1 mark]



17 (b) Here is the rectangle on a different square grid.

On this grid, draw a **SIMILAR** rectangle which is **NOT** congruent. [1 mark]



[Turn over]



18 A box contains 36 chocolates.

The chocolates are milk or dark and have hard or soft centres.

$\frac{4}{9}$  of the chocolates have soft centres.

There are twice as many milk chocolates as dark.

5 of the dark chocolates have soft centres.

18 (a) Complete the two-way table. [4 marks]

	HARD CENTRE	SOFT CENTRE
MILK		
DARK		5

One chocolate is chosen at random.

18 (b) What is the probability that it is a dark chocolate with a soft centre? [1 mark]

Answer \_\_\_\_\_

18 (c) What is the probability that it has a hard centre? [1 mark]

\_\_\_\_\_  
\_\_\_\_\_

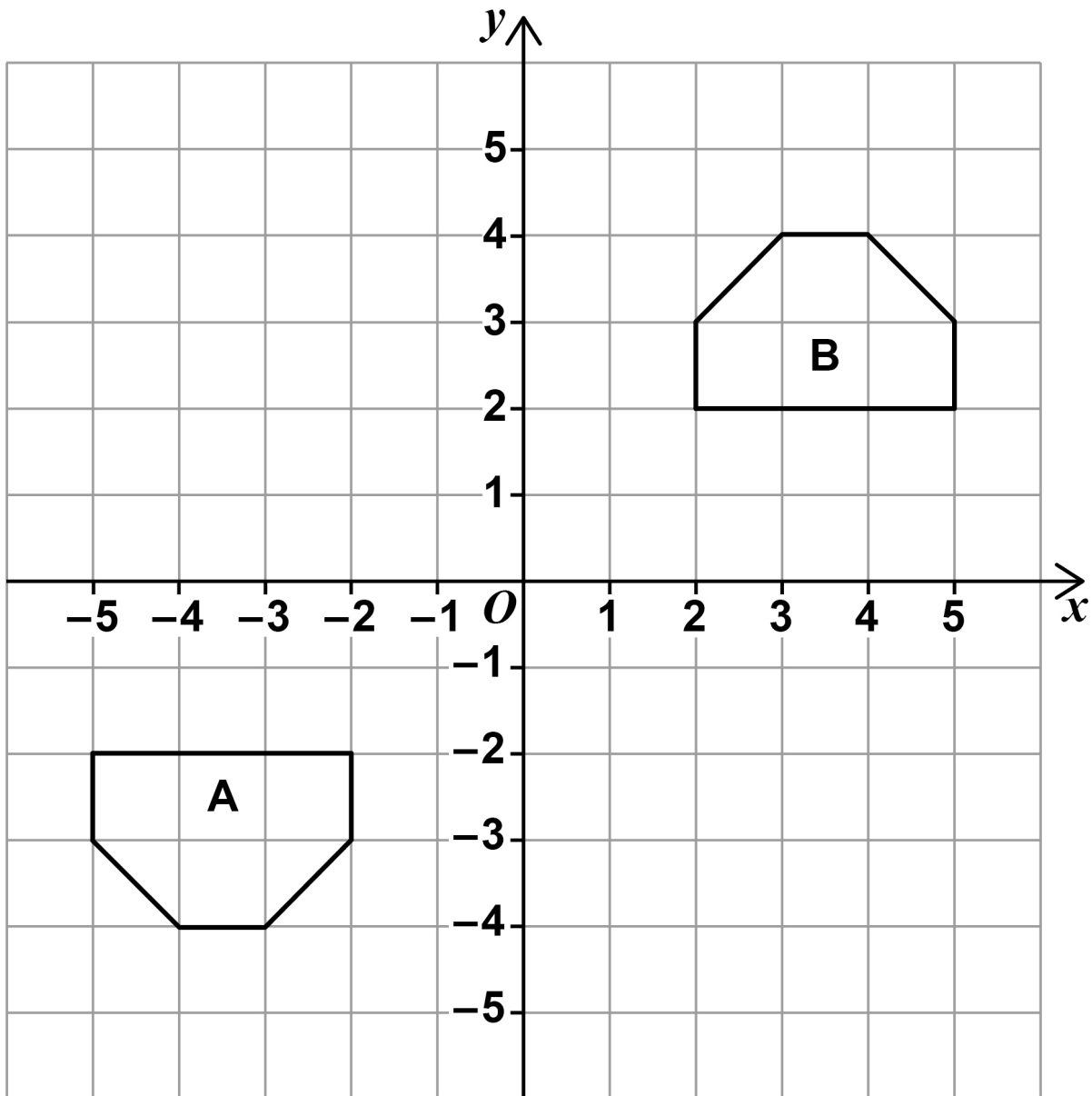
Answer \_\_\_\_\_

[Turn over]

8



- 19 Describe fully the SINGLE transformation that maps shape A to shape B. [3 marks]



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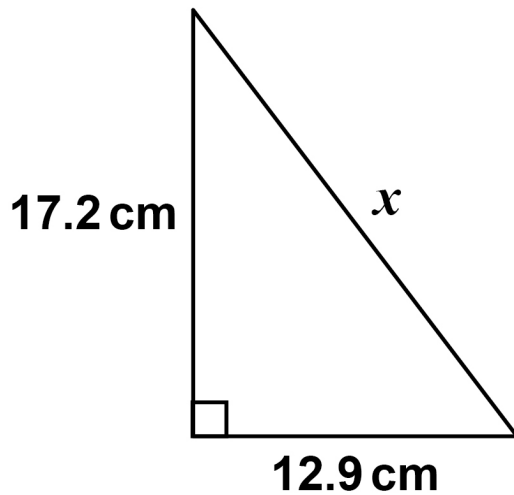
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**[Turn over]**



- 20 Use Pythagoras' theorem to work out the value of  $x$ . [3 marks]

The diagram is not drawn accurately.



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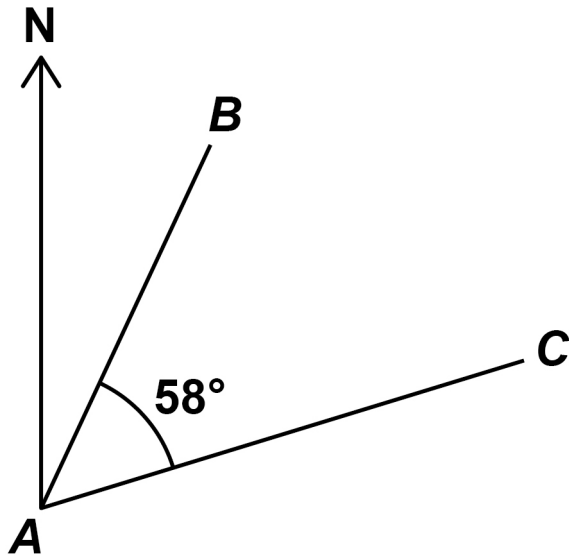
$x =$  \_\_\_\_\_ **cm**

[Turn over]

6



21



The diagram is not drawn accurately.

The 3-figure bearing of *B* from *A* is  $021^\circ$

Work out the 3-figure bearing of *C* from *A*.  
[2 marks]

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Answer \_\_\_\_\_<sup>o</sup>



- 22 How many edges does a triangular prism have?  
[1 mark]

Answer \_\_\_\_\_

[Turn over]



23 Three shops sell the same type and size of lip balm stick.

**SHOP A**

£2.39 each

**SHOP B**

£3.08 each

Buy one, get one half price

**SHOP C**

**PACK OF 4**

Was £11.40

Now  $\frac{1}{6}$  off

Which shop is the best value for 8 sticks and what is the total cost in that shop?

Show working to support your answer. [5 marks]

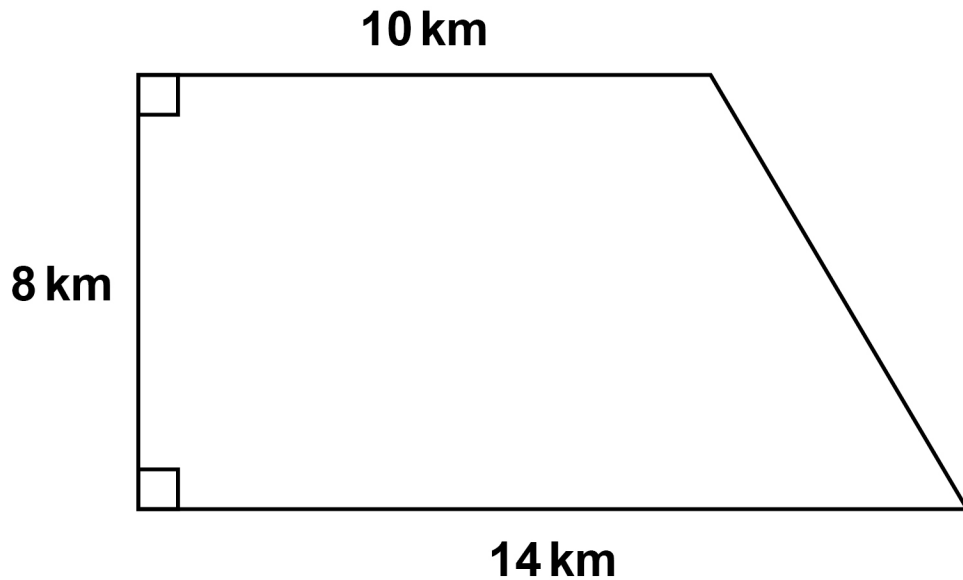
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24 The boundaries of a city form a trapezium.

The diagram is not drawn accurately.



$$\text{Population density} = \frac{\text{number of people}}{\text{area}}$$

The population density of the city is 9450 people per square kilometre.

Work out the number of people who live in the city. [4 marks]

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**25 Round 1 of voting for Head Student is taking place in a school.**

**25 (a) To reach round 2, a student must receive AT LEAST  $\frac{4}{15}$  of the votes.**

**What is the largest possible number of students that can reach round 2?**

**Circle your answer. [1 mark]**

**15**

**11**

**3**

**4**

**25(b) There are 900 votes in round 1**

**Sean receives 180 votes.**

**Amy draws a pie chart to represent the results.**

**Here is her method to work out the angle needed for Sean.**

$$180 \div 900 \times 100 = 20$$

**The angle should be  $20^\circ$**



Is Amy's method correct?

Tick a box.

Yes

No

Give a reason for your answer. [1 mark]

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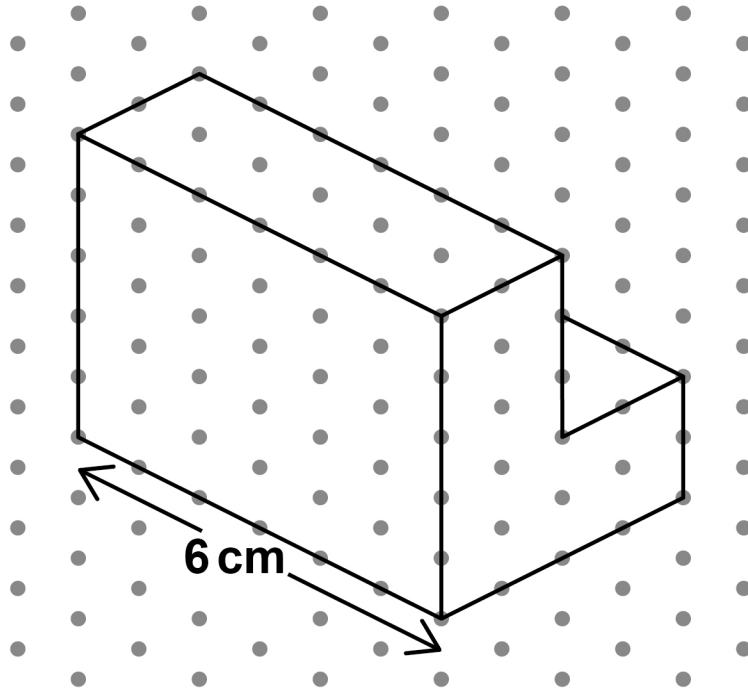
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[Turn over]

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26 Here is a prism drawn on an isometric grid.



Work out the volume of the prism. [3 marks]

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Answer \_\_\_\_\_  $\text{cm}^3$

[Turn over]









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[Turn over]





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Answer \_\_\_\_\_

END OF QUESTIONS

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For Examiner's Use	
Pages	Mark
4–6	
8–11	
12–15	
16–19	
20–21	
22–24	
26–29	
30–33	
34–37	
38–41	
42–45	
46–49	
<b>TOTAL</b>	

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