

A



**Surname** \_\_\_\_\_

**Other Names** \_\_\_\_\_

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

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

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

**GCSE**

**MATHEMATICS**

**F**

**Foundation Tier Paper 3 Calculator**

**8300/3F**

**Monday 12 November 2018**

**Morning**

**Time allowed: 1 hour 30 minutes**

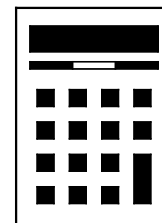
**At the top of the page, write your surname and other names, your centre number, your candidate number and add your signature.**

**[Turn over]**



**For this paper you must have:**

- **a calculator**
- **mathematical instruments.**



## **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.**
- **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**



4

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

**1 Add 8 mm to 7 cm**

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

**150 mm**

**1.5 cm**

**7.8 cm**

**708 mm**

**2 In a pie chart, one sector represents  $\frac{1}{4}$  of the data.**

**What is the angle of that sector?**

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

**4 °**

**25 °**

**45 °**

**90 °**



5

- 3 Which of these **CANNOT** be the number of lines of symmetry of a triangle?

Circle your answer. [1 mark]

0                      1                      2                      3

- 4 Circle the fraction equal to 0.12  
[1 mark]

$\frac{1}{12}$                        $\frac{3}{25}$                        $\frac{1}{8}$                        $\frac{6}{5}$

[Turn over]



6

5 (a) Solve  $n + 7 = 103$  [1 mark]

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$n =$  \_\_\_\_\_

5 (b) Solve  $\frac{m}{6} = 12$  [1 mark]

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$m =$  \_\_\_\_\_

6



7

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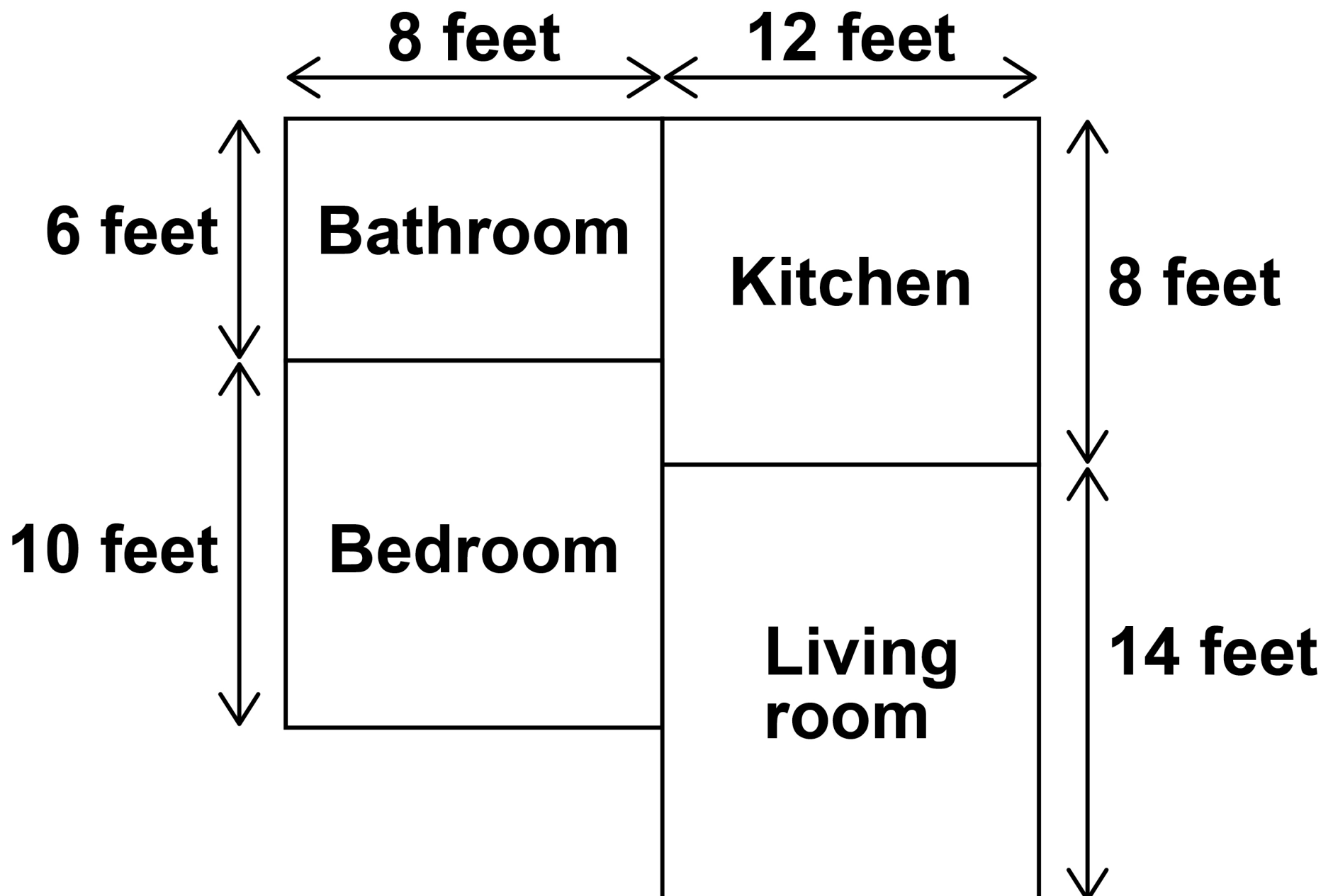
**[Turn over]**



8

6 Here is a plan of a flat with four rectangular rooms.

The diagram is not drawn accurately.



On the grid on the opposite page, make an accurate scale drawing of the plan.

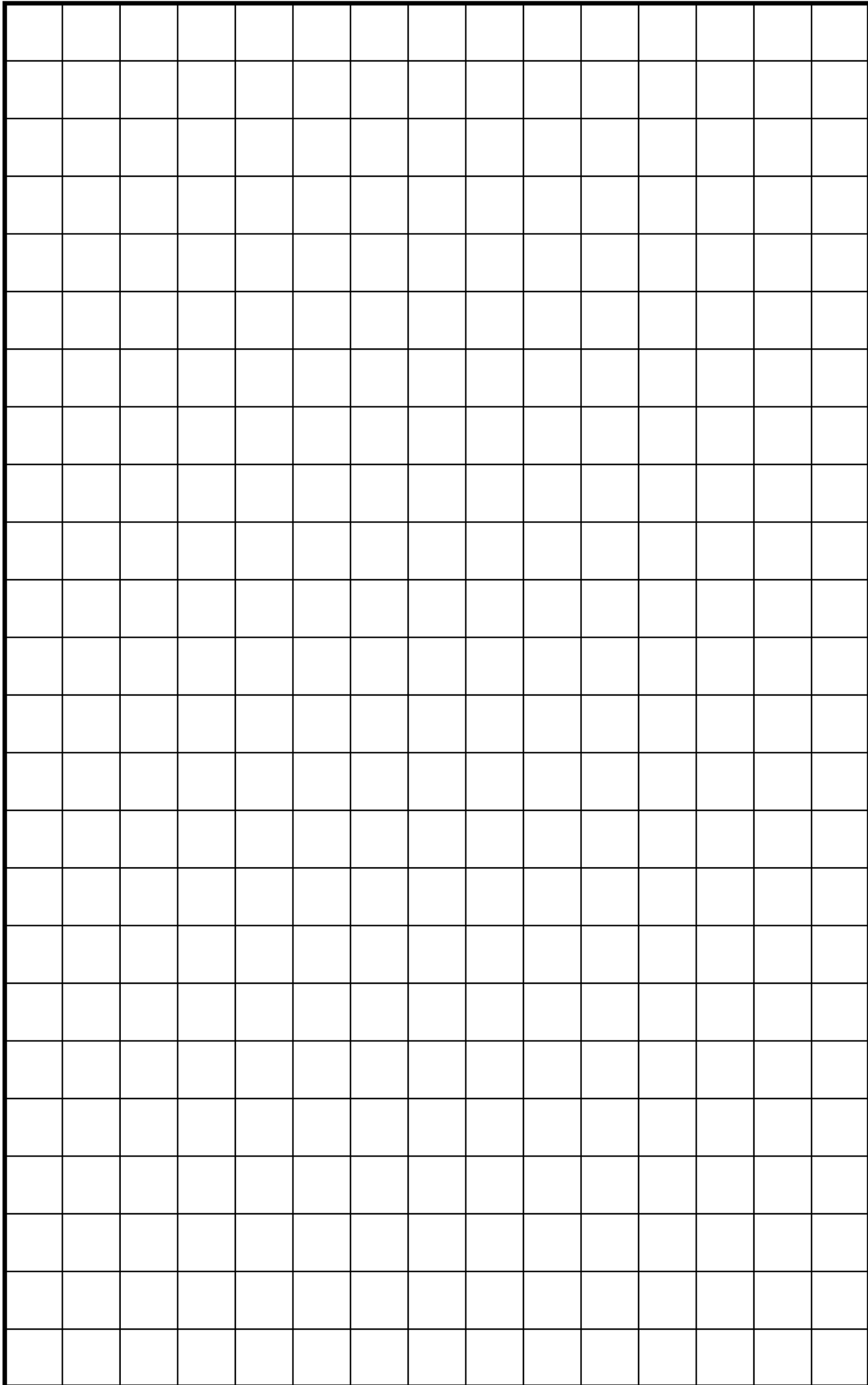
Label each room.

Take the sides of each square to be 1 cm

Use a scale of 1 cm represents 2 feet [3 marks]







**[Turn over]**

10

7 Here are two groups of numbers, A and B.

**Group A**

19	11
14	32
16	9

**Group B**

31	18
28	12

**One number is moved from A to B.**

**The sum of the numbers in B is now 20 MORE than the sum of the numbers in A.**

**Which number is moved?**

**You MUST show your working.  
[3 marks]**

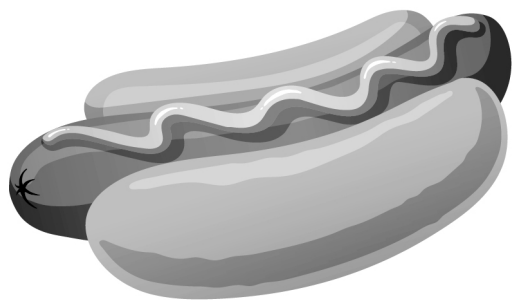




12

**8 Beth sells hot dogs at a market.**

**Each hot dog is a sausage in a bread roll.**



**Hot dogs £3 each**

**The table shows her costs.**

<b>Fee paid to market</b>	<b>£240</b>
<b>Bread rolls</b>	<b>42p per pack of 6</b>
<b>Sausages</b>	<b>£2.50 per jar of 10</b>
<b>Other costs</b>	<b>£57</b>

**Beth sells the hot dogs for £3 each.**

**She sells 300 hot dogs.**

**Work out her total profit. [5 marks]**

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14

9 A company sells houses.

The line graph shows the number sold per week for 30 weeks.

## HOUSES SOLD

Number  
of weeks



15

- 9 (a) Work out the range of the number of houses sold per week. [2 marks]**

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

- 9 (b) Work out the median number of houses sold per week. [2 marks]**

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

**[Turn over]**



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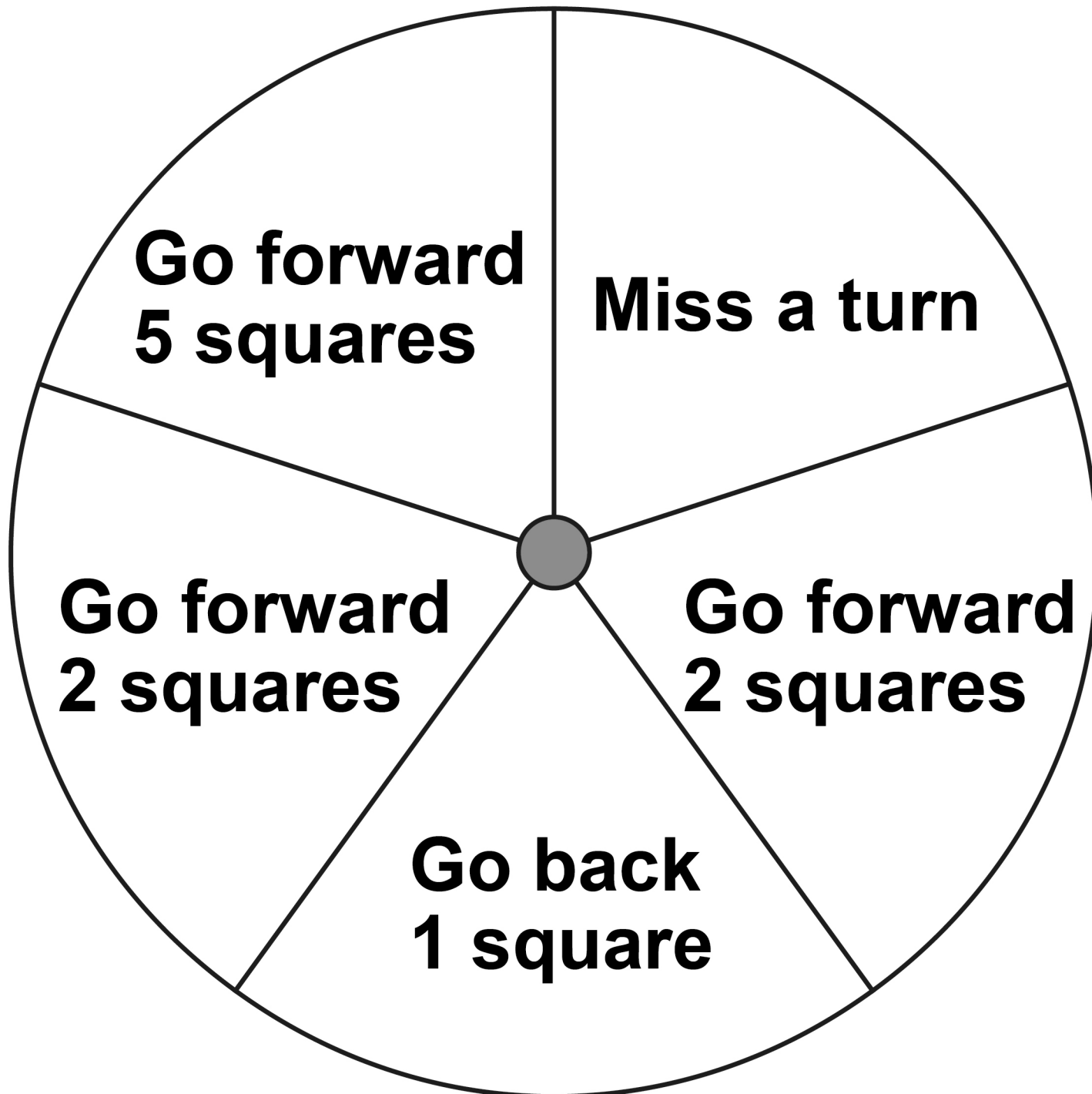






18

- 10 In a game, a fair spinner has five equal sections as shown.



**10 (a) Chloe spins the spinner.**

**Write down the probability that she gets 'Miss a turn'. [1 mark]**

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

**10 (b) The spinner lands on 'Go back 1 square' three times in a row.**

**Jamal is next to spin.**

**Write down the probability that he gets 'Go back 1 square'. [1 mark]**

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

**[Turn over]**



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**10 (c) In one game there are 85 spins.**

**How many of these spins are expected to be 'Go forward 2 squares'? [2 marks]**

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

**[Turn over]**



22

**11 Circle the cube number. [1 mark]**

9

10 000

333

729

**12 How many minutes is 225 seconds?**

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

 $2 \frac{5}{12}$ 
 $2 \frac{1}{4}$ 
 $3 \frac{1}{4}$ 
 $3 \frac{3}{4}$ 

<hr style="width: 50%; margin: 0 auto;"/> <b>6</b>
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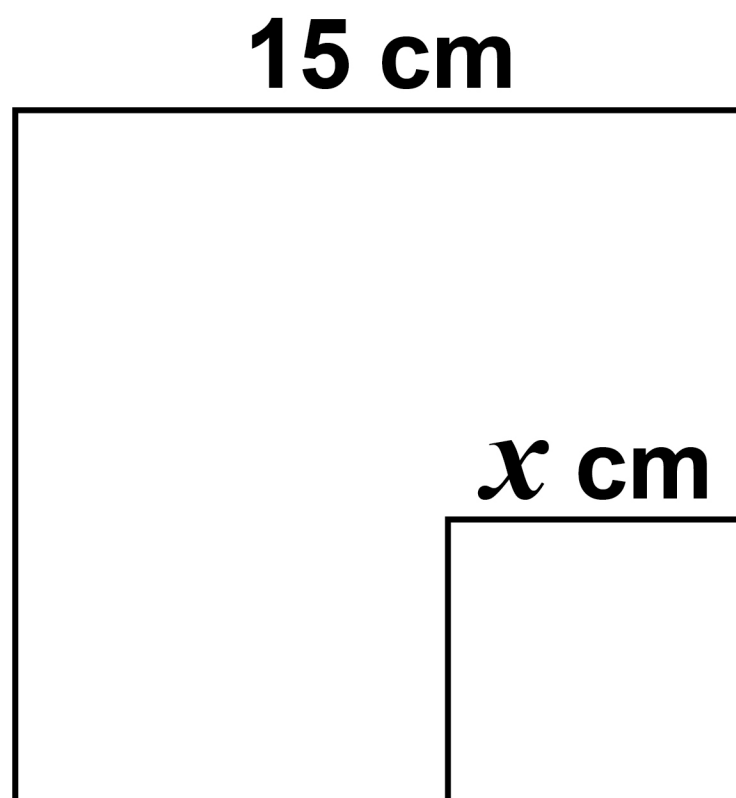


24

13 A small square has length  $x$  cm

A large square has length 15 cm

The diagram is not drawn accurately.



The area of the small square is  $\frac{1}{9}$  of the area of the large square.







26

**14 (a) The term-to-term rule of a sequence is**

**Add 8 and divide by 2**

**The first term of the sequence is -24**

**Work out the next two terms.  
[2 marks]**

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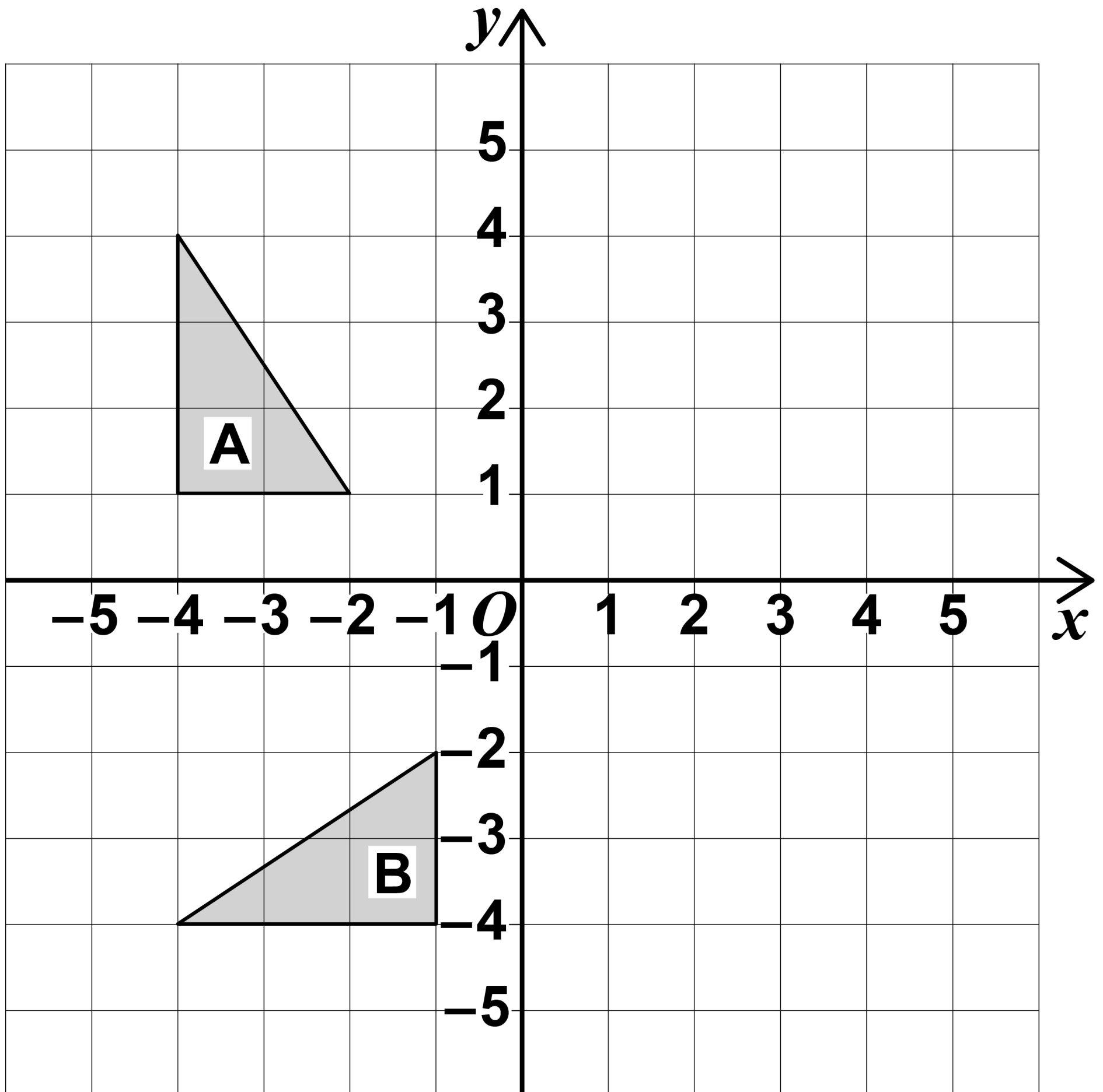
**Answer**

\_\_\_\_\_ and \_\_\_\_\_





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



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**[Turn over]**

30

**16 Amal drives her car for work.**

**She claims 40p per mile from her employer.**

**Amal's car travels 52 miles for each gallon of petrol.**

**She pays £5.36 per gallon for petrol.**

**On one journey Amal drives 260 miles.**

**For this journey, how much MORE does she claim than she pays for petrol? [4 marks]**

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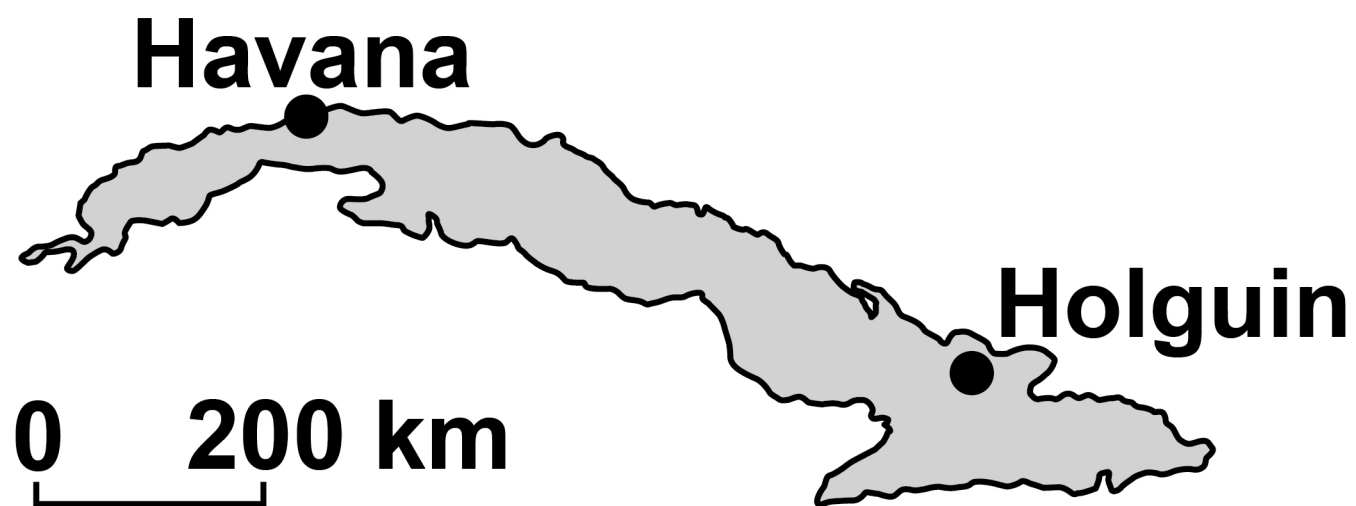
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17 Here is a map of Cuba.

The scale line below represents  
200 km



Work out the actual distance from  
Havana to Holguin. [3 marks]

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Answer \_\_\_\_\_ km





**18 Four friends all give each other presents.**

**The total cost of the presents is £83.40**

**Work out the mean cost of a present. [3 marks]**

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**Answer £** \_\_\_\_\_

**[Turn over]**



34

**19 A forest has 6500 trees.**

**The trees are beech or maple.**

**number of beech : number of  
maple = 1.6 : 1**

**19 (a) What fraction of the trees are  
beech? [2 marks]**

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



35

**19(b) Write****number of beech : number of  
maple****in the form  $1 : n$  [1 mark]****Answer** \_\_\_\_\_ : \_\_\_\_\_**[Turn over]**

20 A shape is translated by the vector

$$\begin{pmatrix} 0 \\ 4 \end{pmatrix}$$

In which direction does the shape move?

Circle your answer. [1 mark]

up

down

left

right

21 The length of a table is 110 cm to the nearest cm

Complete the error interval.  
[2 marks]

\_\_\_\_\_ cm  $\leq$  length  $<$  \_\_\_\_\_ cm

6



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**[Turn over]**



22  $k = n^2 + 9n + 1$

**Mo says,**

**“ $k$  will be a prime number for all integer values of  $n$  from 1 to 9”**

**Show that Mo is wrong.**

**You MUST show that your value of  $k$  is NOT prime. [3 marks]**

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**[Turn over]**







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**Tea**

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**Coffee**

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**[Turn over]**

<hr/>
<b>7</b>



42

**24** A music festival has taken place each year from 2011

The table shows the number of people who attended each year.

<b>Year</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
<b>Number of people</b>	<b>350</b>	<b>583</b>	<b>906</b>	<b>1471</b>

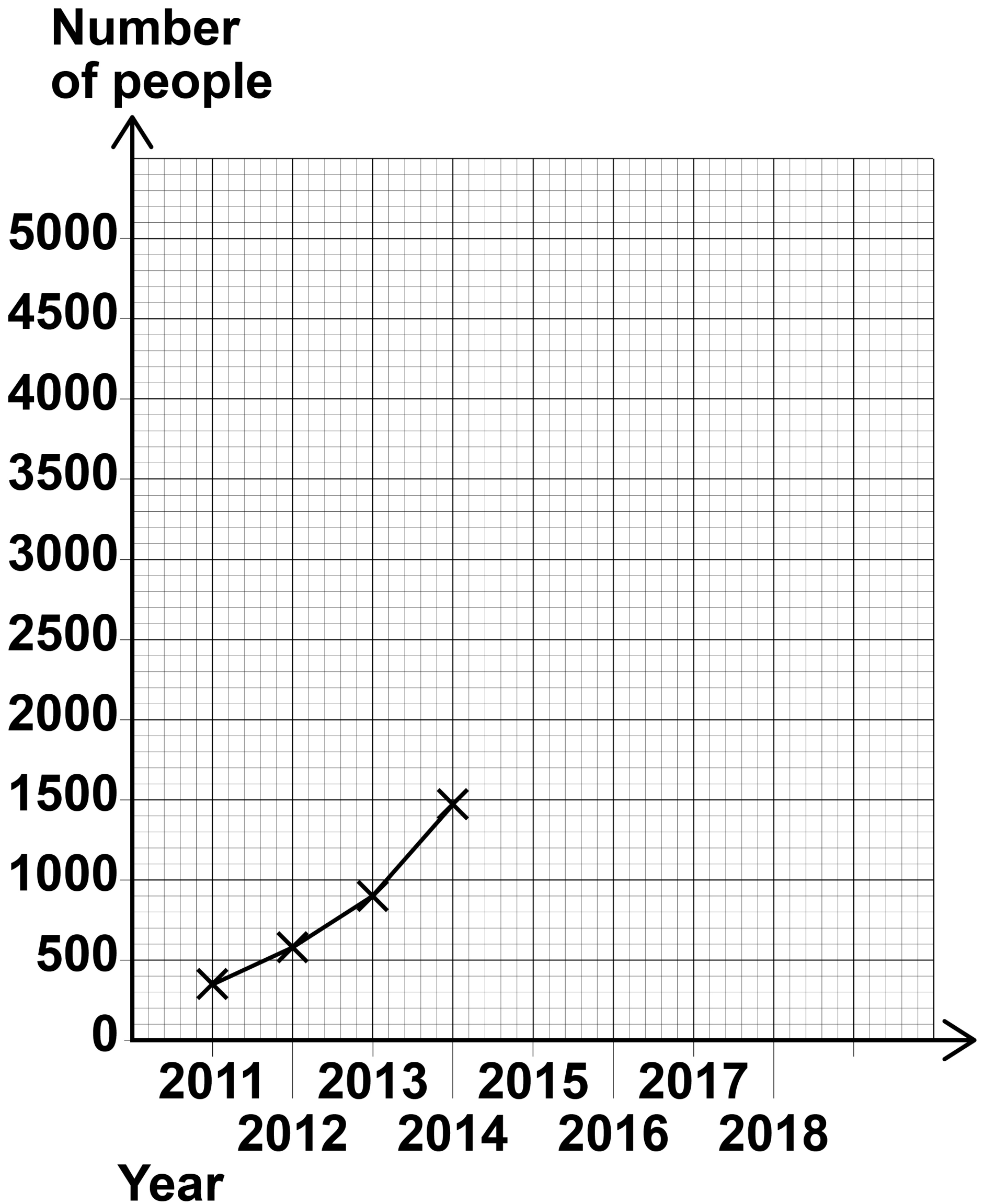
<b>Year</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>
<b>Number of people</b>	<b>2023</b>	<b>2612</b>	<b>3251</b>	<b>3780</b>

The festival organisers draw a time series graph to represent the data.

The first four years have been plotted.

**24 (a)** Complete the graph on page 43.  
[2 marks]





[Turn over]



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45

**24 (b) Use the graph on page 43 to estimate the number of people who will attend the festival in 2019 [2 marks]**

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

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<b>4</b>

**[Turn over]**





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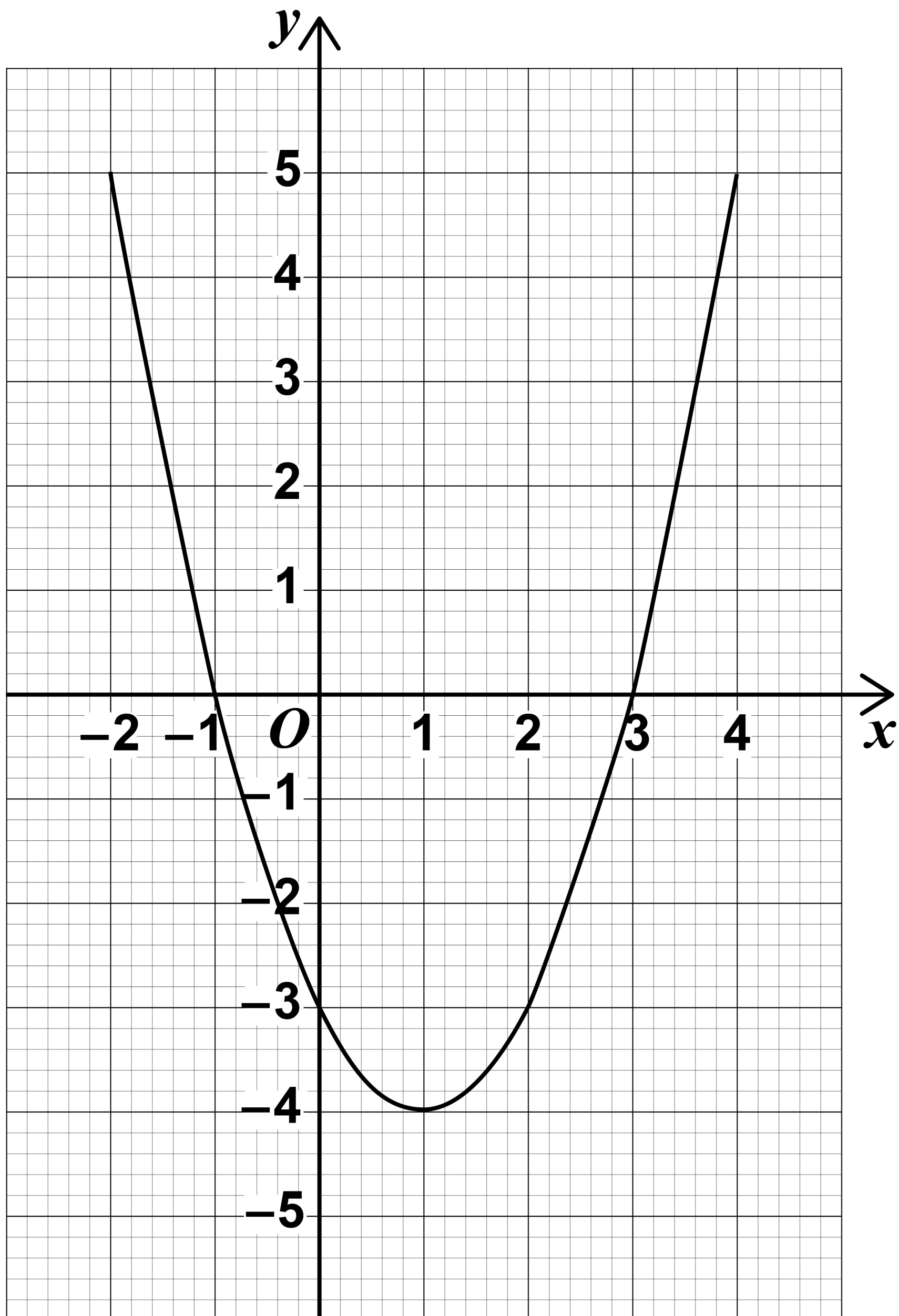
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**[Turn over]**



26 Here is a quadratic graph.





49

Circle the  $x$ -coordinate of the turning point of the graph. [1 mark]

-4

-1

1

3

4

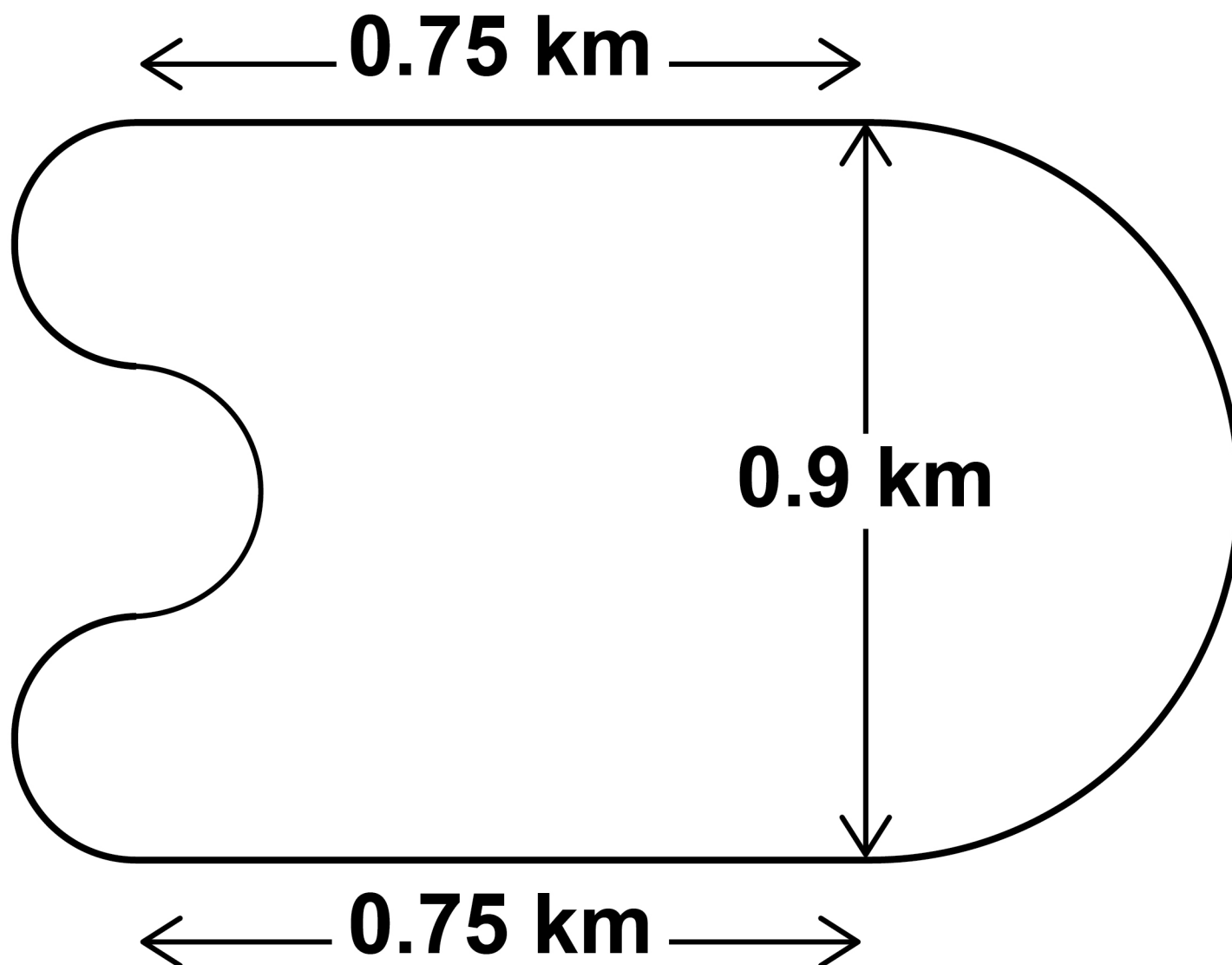
- 27** A motor racing circuit consists of two parallel straight sections, each of length 0.75 km
- a semicircle of diameter 0.9 km
- three equal, smaller semicircles.

[Turn over]



50

The diagram is not drawn accurately.



The length of a motor race must be greater than 305 km

What is the lowest number of FULL laps needed at this circuit?

You **MUST** show your working.  
[5 marks]





52

28 Solve  $8 > 3 - \frac{1}{2}x$  [2 marks]

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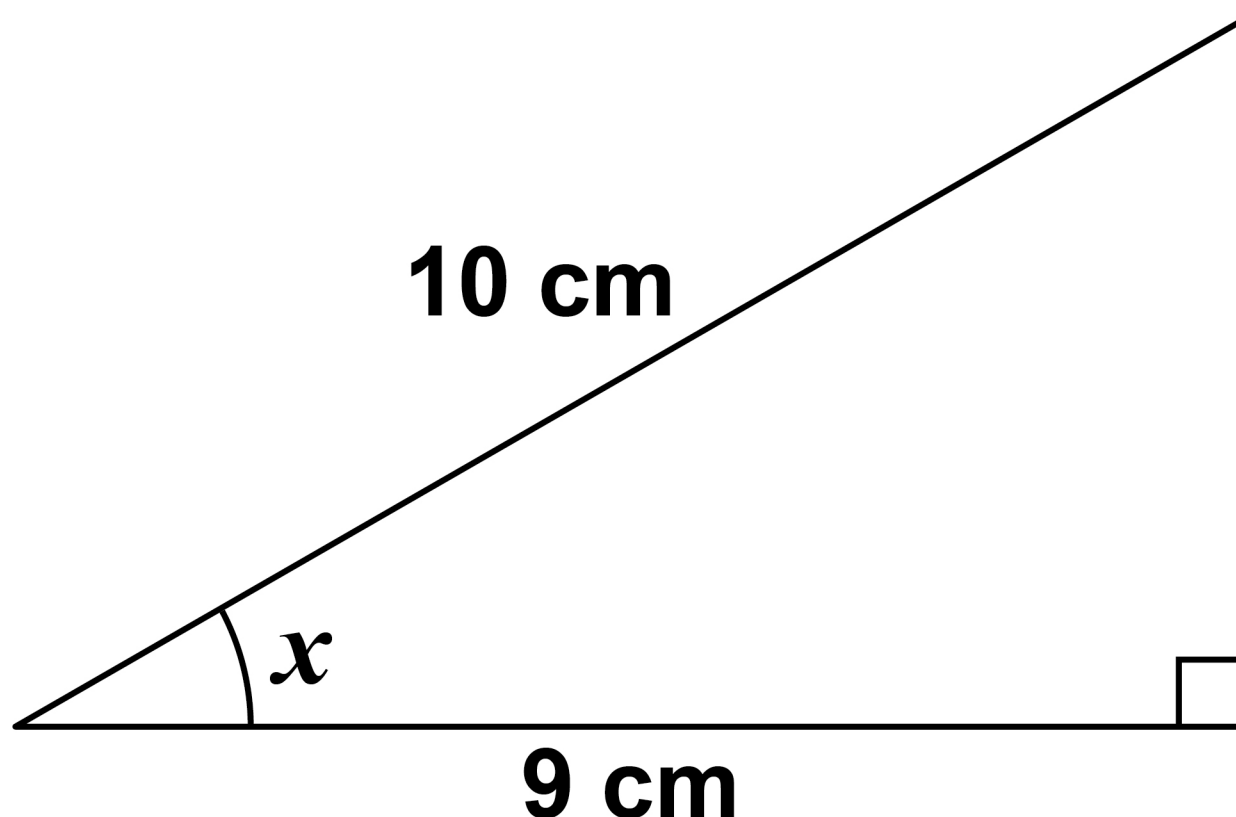
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Answer \_\_\_\_\_

29 Use trigonometry to work out the size of angle  $x$ . [2 marks]

The diagram is not drawn accurately.





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For Examiner's Use	
Pages	Mark
4–6	
8–9	
10–13	
14–17	
18–22	
24–27	
28–31	
32–33	
34–36	
38–41	
42–45	
46–49	
50–53	
<b>TOTAL</b>	

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