



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

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

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

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

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

**GCSE**

**MATHEMATICS**

**F**

**Foundation Tier Paper 2 Calculator**

**8300/2F**

**Thursday 6 June 2019**

**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.**

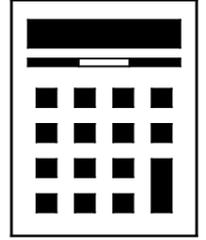
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JUN1983002F01

**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**



**Answer ALL questions in the spaces provided**

**1**

**Circle the number that is one LESS than a cube number. [1 mark]**

**20**

**22**

**24**

**26**

**2**

**Circle the fraction which is equal to 0.25 [1 mark]**

**$\frac{1}{40}$**

**$\frac{2}{5}$**

**$\frac{3}{12}$**

**$\frac{4}{100}$**



5

3

Here is a number line.



Which number is at A?

Circle your answer. [1 mark]

3.3

3.55

3.6

3.8

4

How many millimetres are equal to 3.27 metres?

Circle your answer. [1 mark]

32.7

327

3270

32 700

[Turn over]





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**[Turn over]**



6 (a)

Use your calculator to work out

$$\frac{9.75^3}{1.875} + 6.4^2$$

Give your answer as a decimal.

Write down your full calculator display.  
[2 marks]

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Answer \_\_\_\_\_



**6 (b)**

**Is your answer to part (a) sensible?**

**Check by rounding each of 9.75, 1.875 and 6.4 to the nearest whole number.**

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

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**Tick a box.**

**Sensible**

**Not sensible**



7

Complete the bank statement. [3 marks]

Date	Description	Credit (£)	Debit (£)	Balance (£)
01/04/2019	Starting balance			_____
05/04/2019	Council tax		189.34	72.09
10/04/2019	Refund	_____		86.75
12/04/2019	Salary	1430.29		_____

10

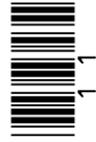
8



10

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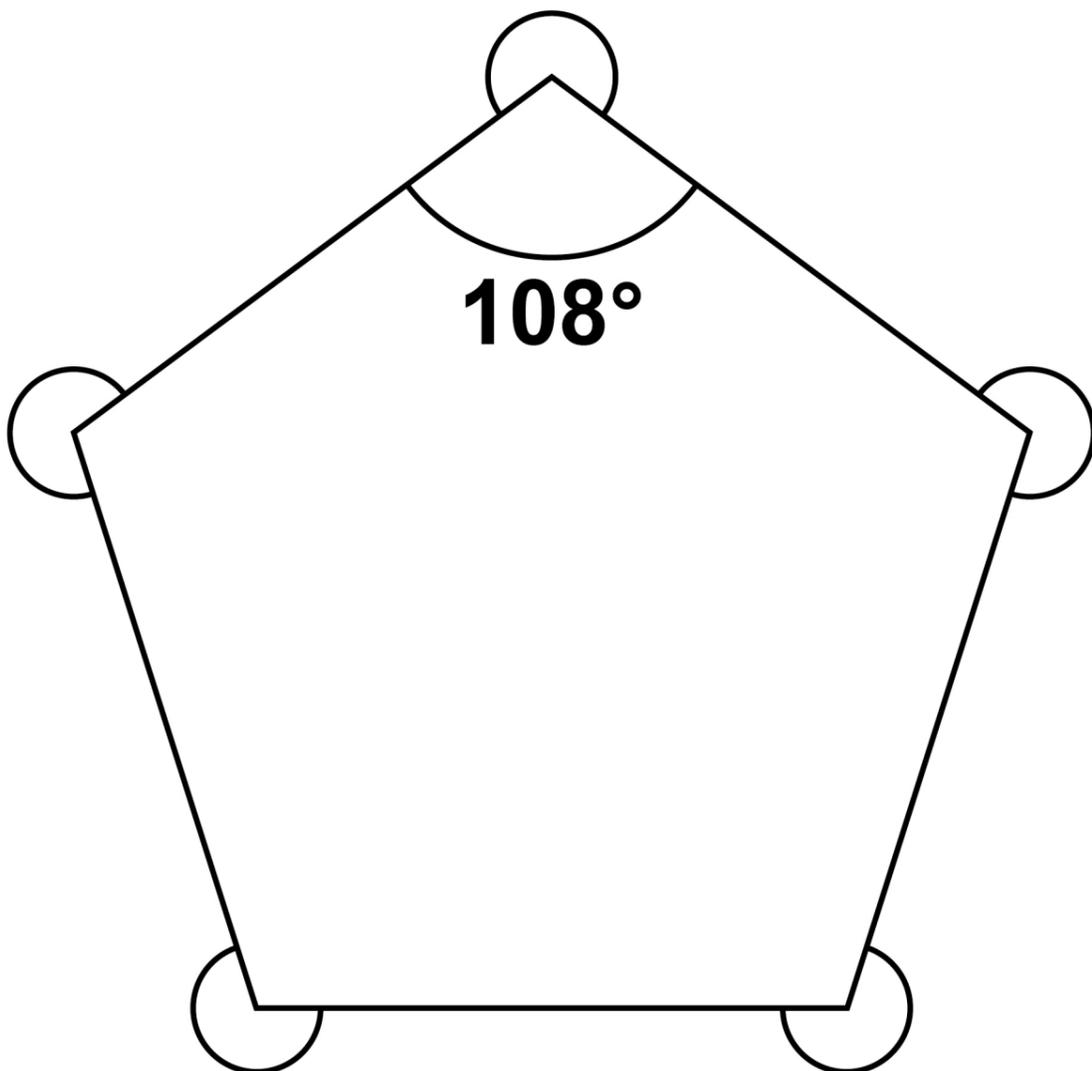


8 (a)

The interior angle of a regular pentagon is  $108^\circ$

Work out the sum of the five REFLEX angles at the vertices of a regular pentagon. [3 marks]

The diagram is NOT drawn accurately.





**Omar asks Harry,**

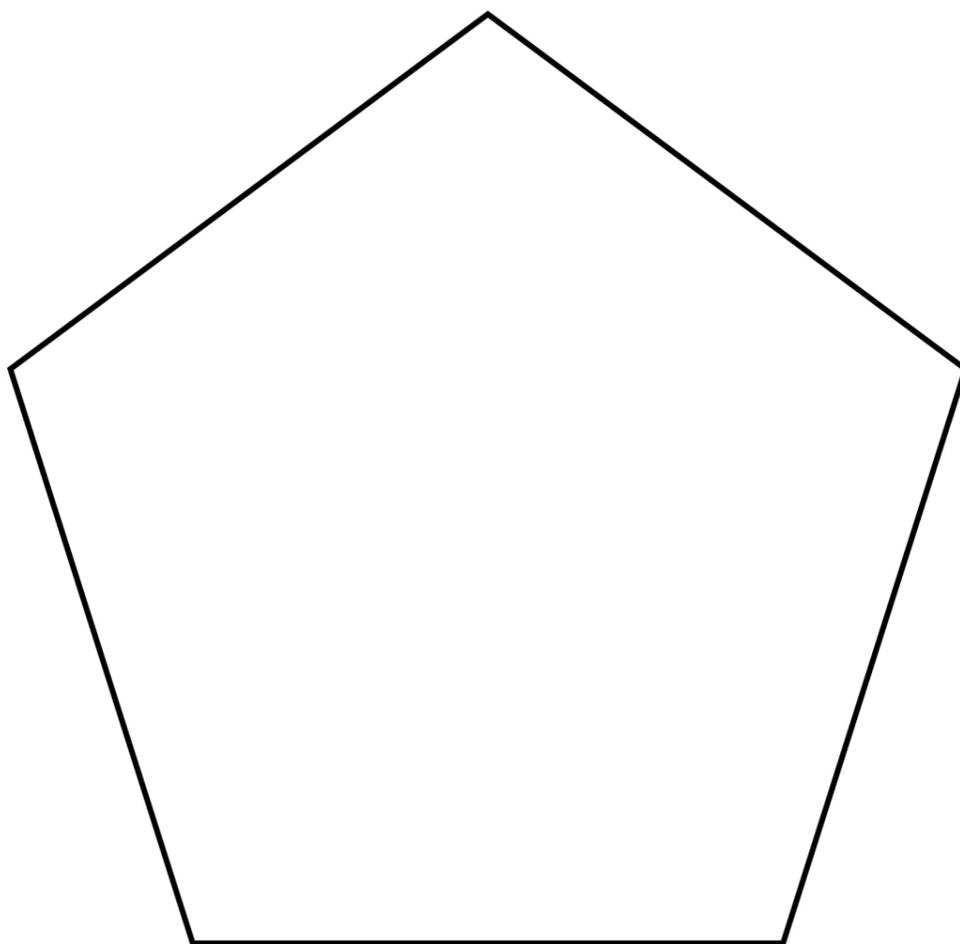
**“How many lines of symmetry does a pentagon have?”**

**Harry assumes it is a regular pentagon.**

**His answer is 5.**

**8 (b)**

**Draw the lines of symmetry on this regular pentagon. [1 mark]**



8 (c)

Omar then says,

**“What if the pentagon is NOT regular?”**

**For a pentagon that is NOT regular, what is true about the number of lines of symmetry?**

**Tick ONE box. [1 mark]**

**There must be 0**

**There could be 0 or 1**

**There could be 0, 1 or 2**

**There could be any number up to 5**

<hr/>
<b>5</b>

**[Turn over]**



9

**56 customers pay for satellite television.**

**They ALL have the Basic package for £24.50 per month.**

**Some also have**

**the Sports package for £27.50 extra per month**

**the Movie package for £18 extra per month.**

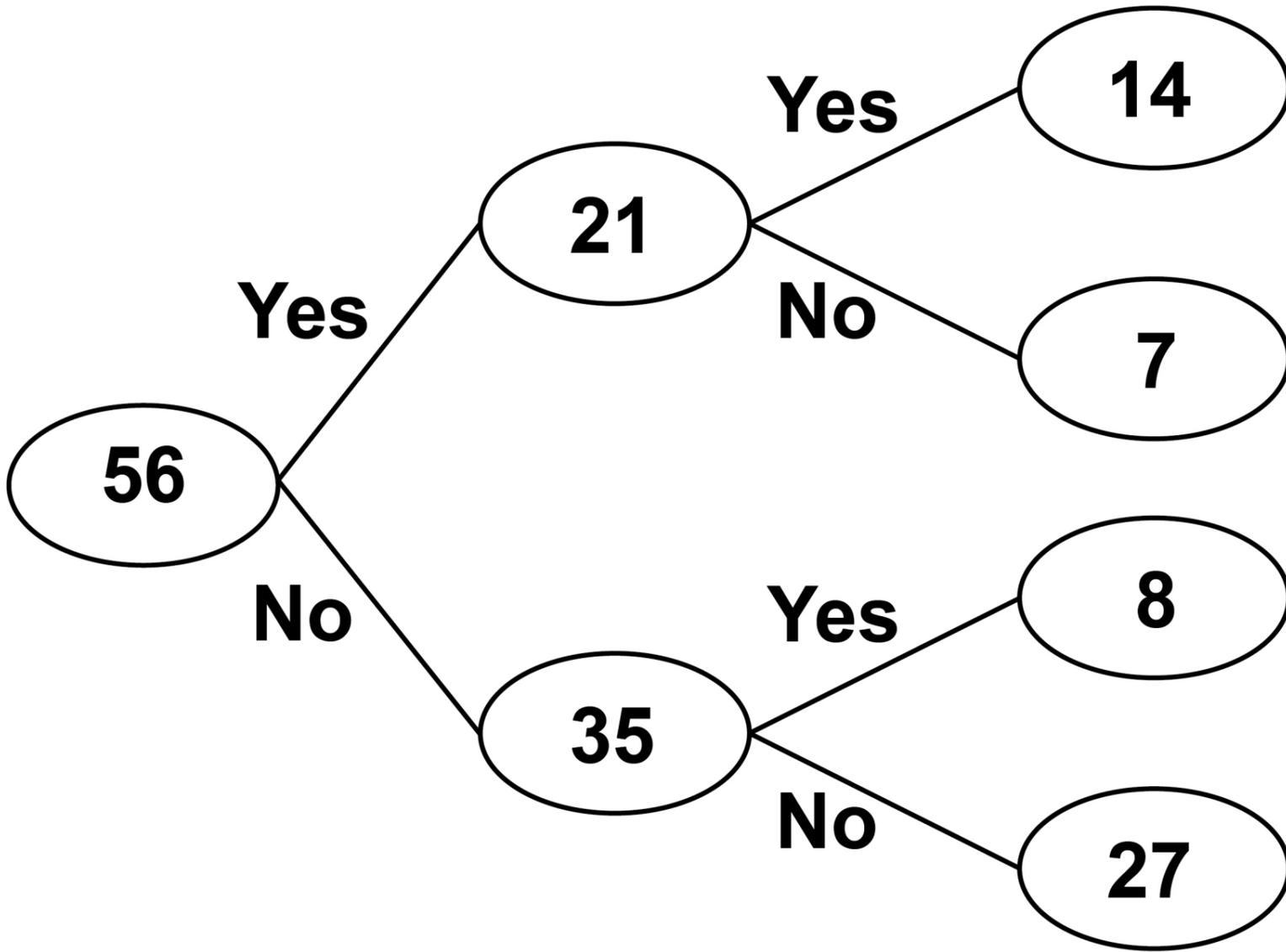
**The frequency tree, on the opposite page, shows the number of customers with each package.**



**BASIC**

**SPORTS**

**MOVIE**



**[Turn over]**



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**BLANK PAGE**

**[Turn over]**



11

**On a journey, Laura sees 30 vehicles.**

**Each vehicle is a car, a van or a lorry.**

**She draws the bar chart on the opposite page.**

**Make TWO criticisms of her bar chart.**

**[2 marks]**

**Criticism 1** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Criticism 2** \_\_\_\_\_

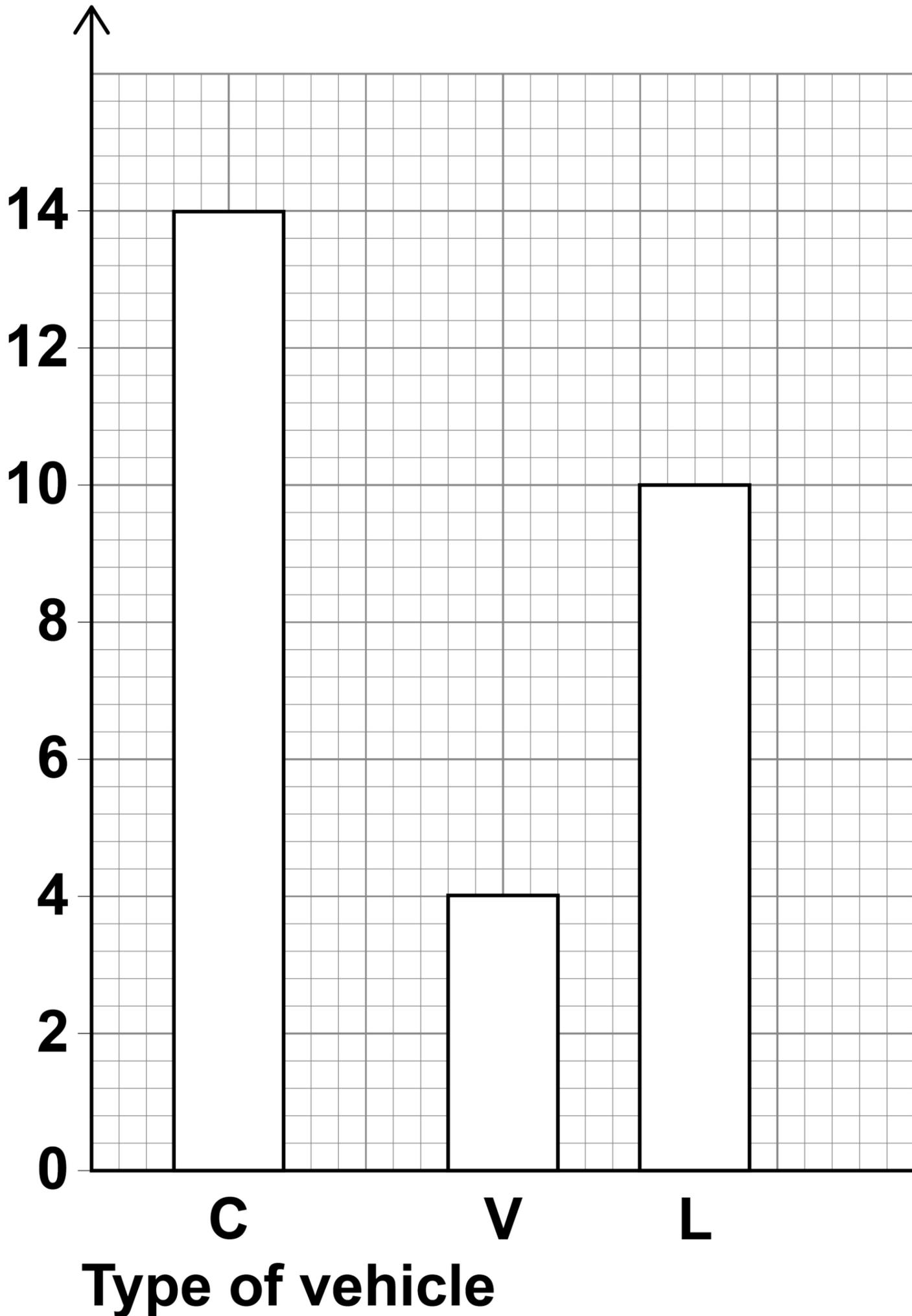
\_\_\_\_\_

\_\_\_\_\_



# Vehicles seen

Number of vehicles



5



[Turn over]

12

**A drawing has a scale of 1 : 40**

**On the drawing, a bedroom is a rectangle measuring 10 cm by 18 cm**

**A kitchen has an actual area of 300 000 cm<sup>2</sup>**

**Which has the bigger actual area, the kitchen or the bedroom?**

**You MUST show your working. [4 marks]**

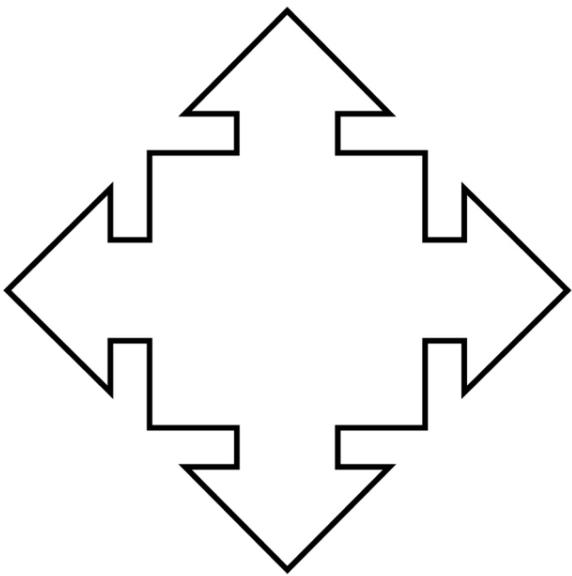
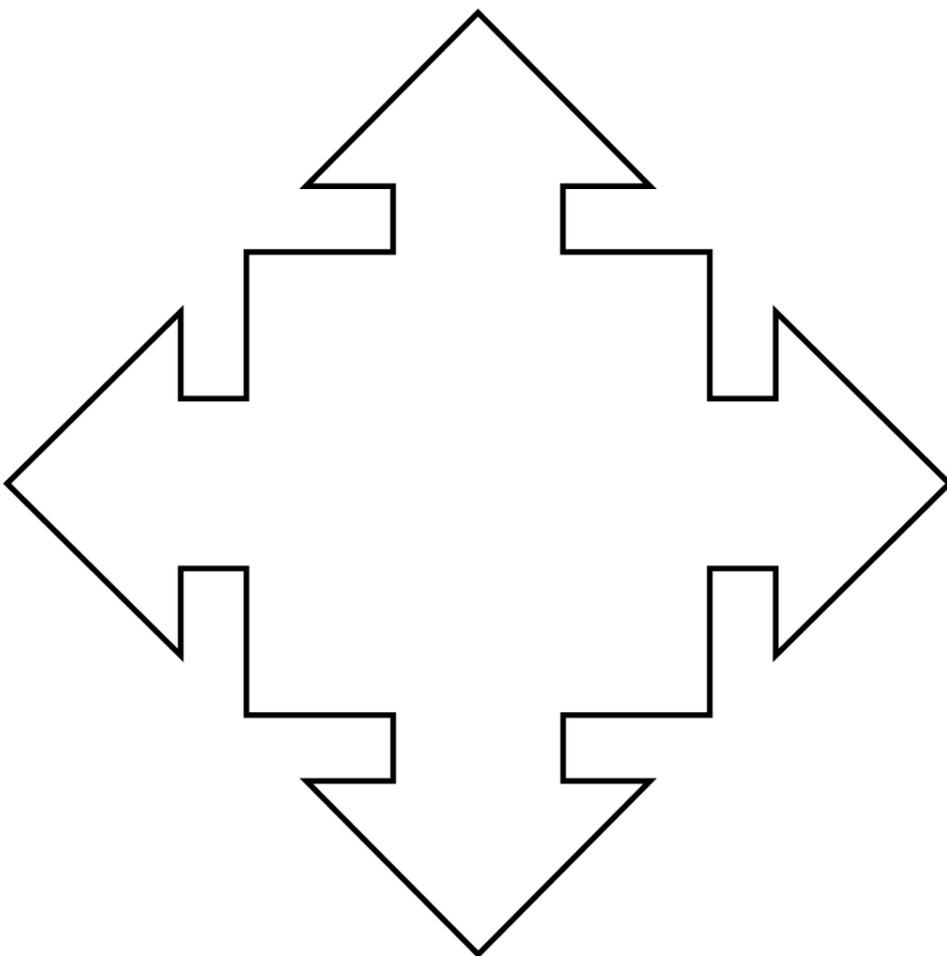




13

Here are two similar shapes, A and B.

The shapes are NOT drawn accurately.

**A****B**

length of edges in A : length of edges in B  
= 2 : 5

The perimeter of A is 210 mm

Work out the perimeter of B. [2 marks]

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Answer \_\_\_\_\_ mm

6

[Turn over]

14

**There are 135 passengers on a plane.**

**3 of the passengers in Business Class are flying for the first time.**

**In total, there are 15 passengers in Business Class.**

**$\frac{1}{4}$  of the passengers NOT in Business Class are flying for the first time.**

14 (a)

**In the Venn diagram, on the opposite page,**

**$\xi$  = passengers on the plane**

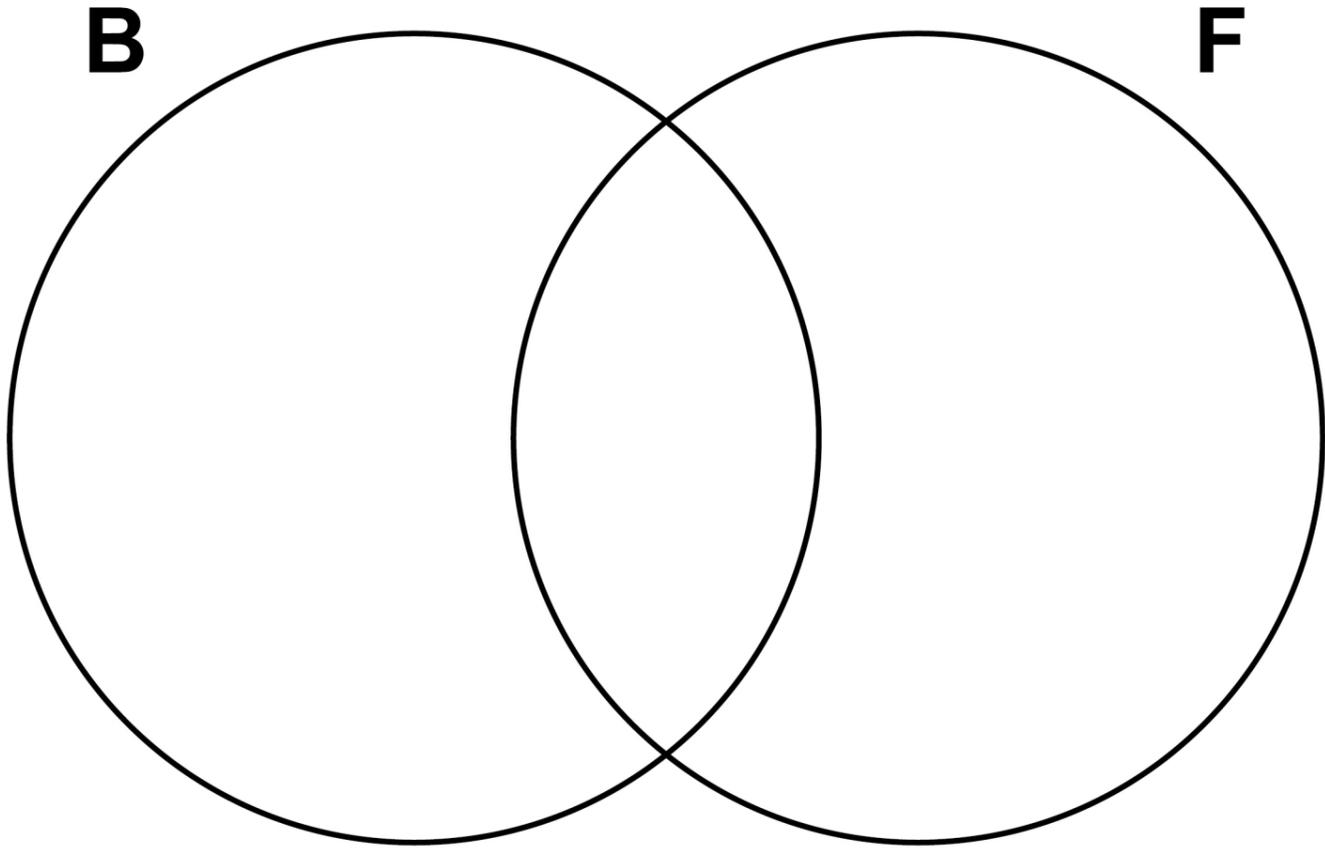
**B = passengers in Business Class**

**F = passengers flying for the first time.**

**Complete the Venn diagram. [4 marks]**



ξ



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**[Turn over]**



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14 (b)

One of the passengers is chosen at random.

Write down the probability that the passenger is in Business Class. [1 mark]

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Answer \_\_\_\_\_

[Turn over]

15

A line has the equation  $y = x + 3$

15 (a)

Write down the coordinates of the point where the line intersects the  $y$ -axis.

[1 mark]

Answer ( \_\_\_\_\_ , \_\_\_\_\_ )

15 (b)

Write down the coordinates of the point where the line intersects the  $x$ -axis.

[1 mark]

Answer ( \_\_\_\_\_ , \_\_\_\_\_ )

[Turn over]

7



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**[Turn over]**



16

The graph, on the opposite page, is used to convert between

temperature in degrees Fahrenheit ( $F$ )

and

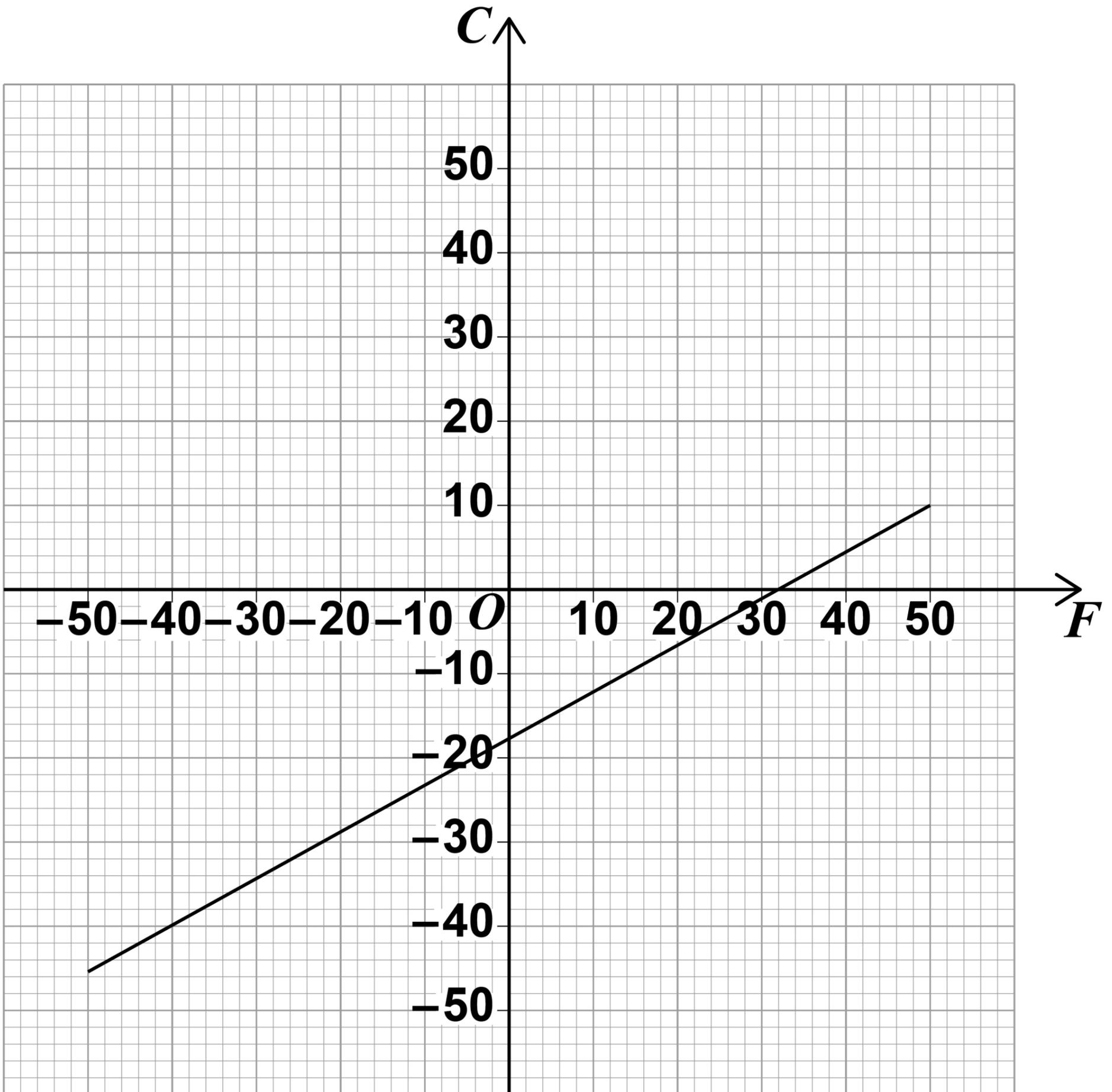
temperature in degrees Celsius ( $C$ ).

16 (a)

Use the graph, on the opposite page, to convert 40 degrees Fahrenheit into degrees Celsius. [1 mark]

Answer \_\_\_\_\_ degrees Celsius

35



[Turn over]



**At one temperature,  $T$ , the number of degrees Celsius is **DOUBLE** the number of degrees Fahrenheit.**

**The graph of  $C = 2F$  can be drawn to help find this temperature.**



16 (b)

On the grid on page 35, draw the graph of  $C = 2F$  for values of  $F$  from  $-25$  to  $25$

You may use the table to help you.

[2 marks]

$F$	$-25$		
$C$	$-50$		

16 (c)

Use your graph to estimate the value of  $T$ .

Give your answer in degrees Celsius.

[2 marks]

Answer \_\_\_\_\_ degrees Celsius

[Turn over]



17

In a bag there are 10p coins, 20p coins and 50p coins.

There are two FEWER 20p coins than 10p coins.

There are five MORE 50p coins than 10p coins.

17 (a)

Complete the table. [1 mark]

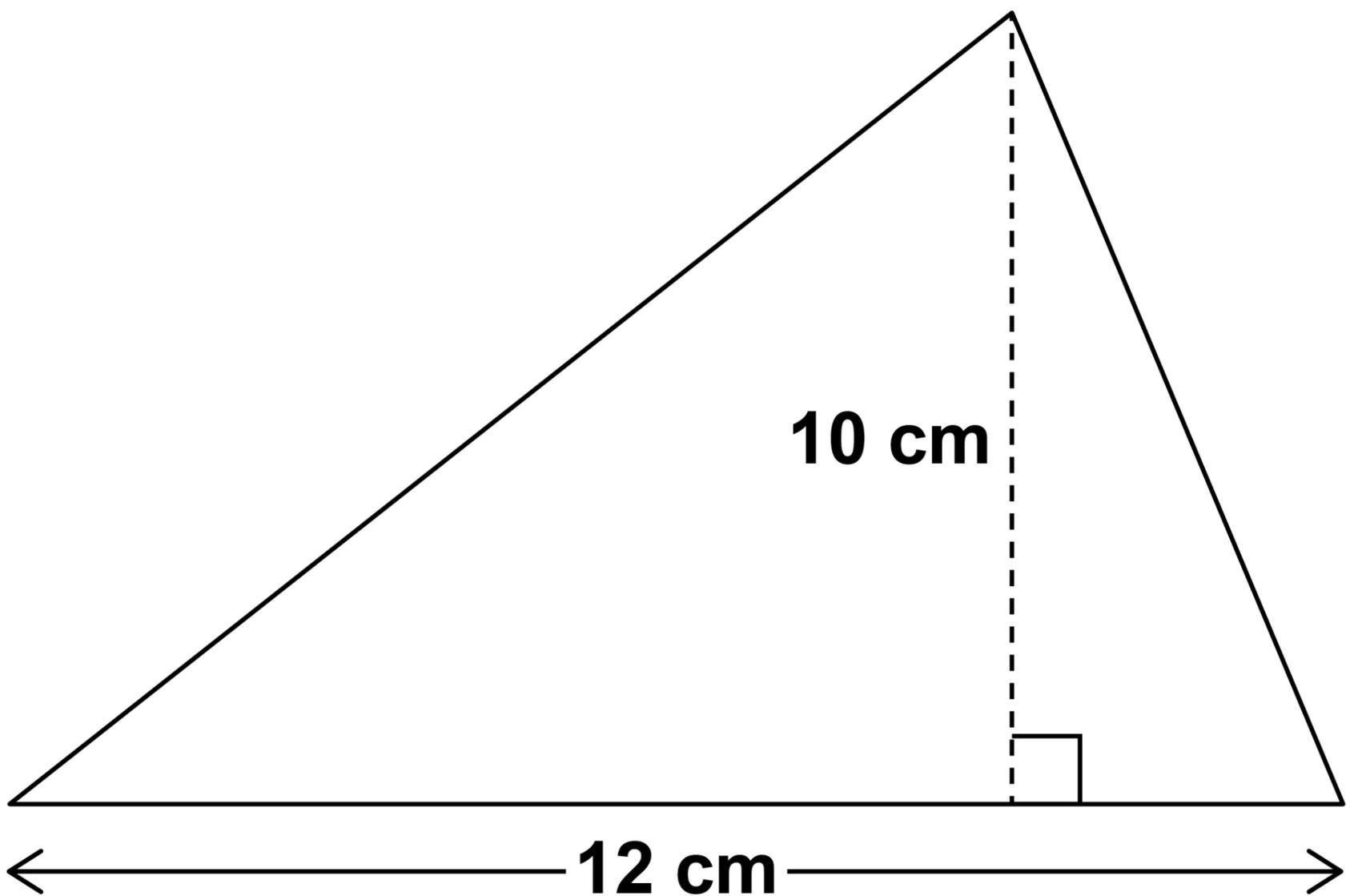
Coin	Number of coins
10p	$n$
20p	$n - 2$
50p	



18

A force of 180 newtons (N) is applied to the surface of this triangle.

The diagram is NOT drawn accurately.



Work out the pressure.

Use  $\text{pressure} = \frac{\text{force}}{\text{area}}$  [3 marks]



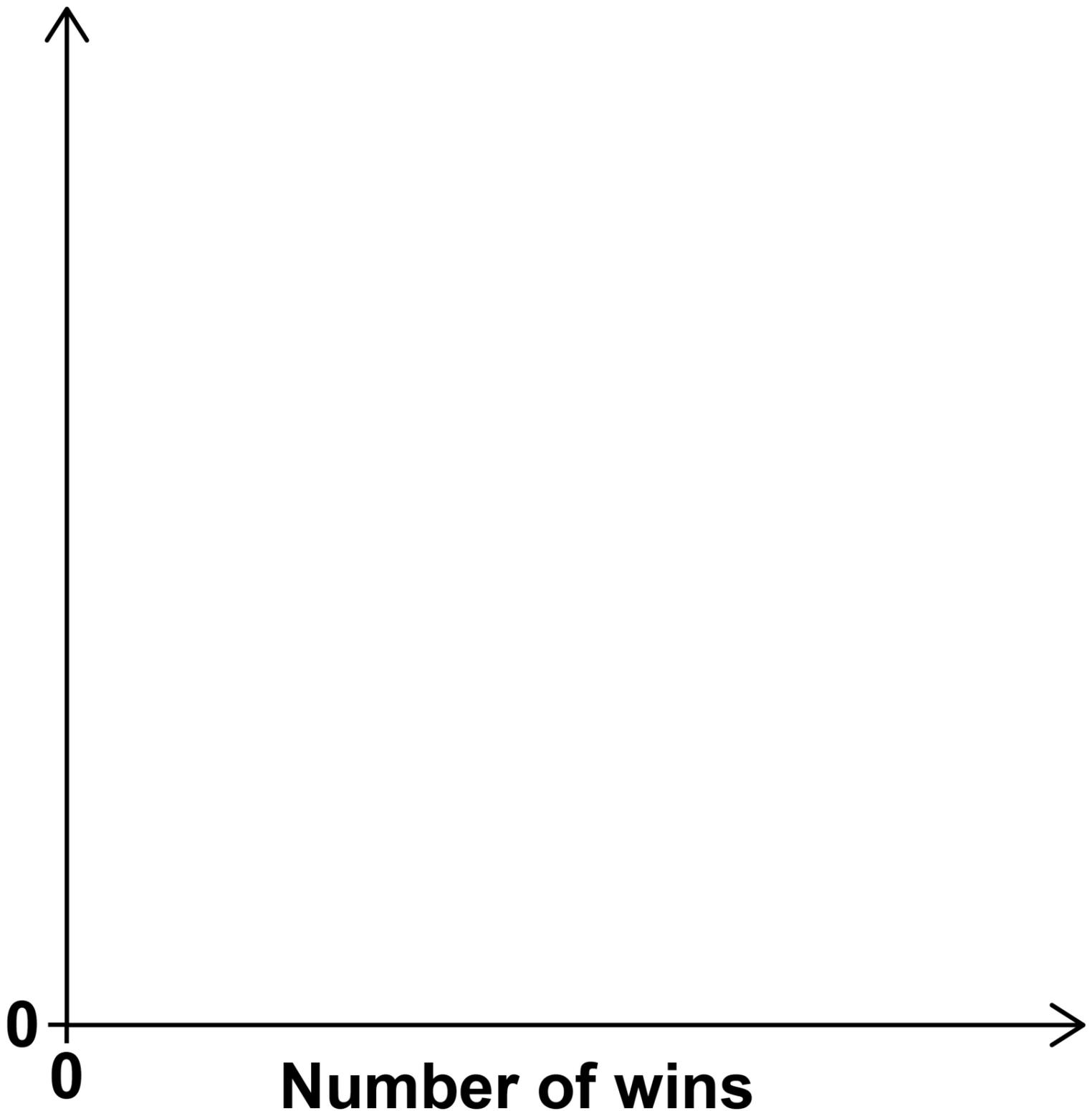


19

In a sport, the number of points is directly proportional to the number of wins.

On the axes, sketch a graph to show this relationship. [1 mark]

Number  
of points



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**[Turn over]**



20

**Using ruler and compasses, show the region inside the grid, on the opposite page, that is**

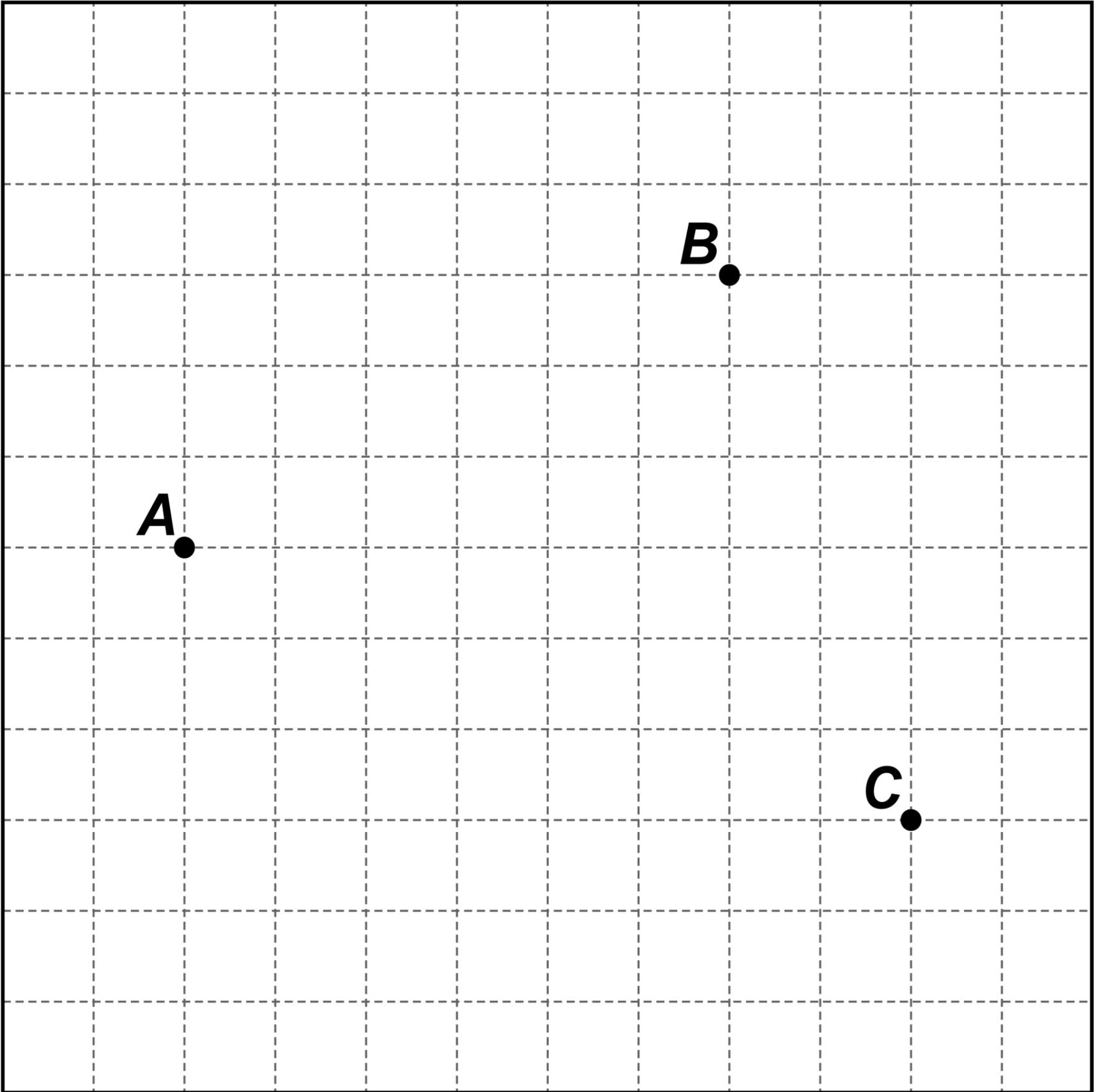
**less than 4 cm from  $A$   
and  
nearer to  $B$  than to  $C$ .**

**Label the region  $R$ .**

**Show all your construction lines.  
[3 marks]**

**Take each square to represent  $1 \text{ cm}^2$**





[Turn over]

$\frac{\quad}{4}$





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**[Turn over]**



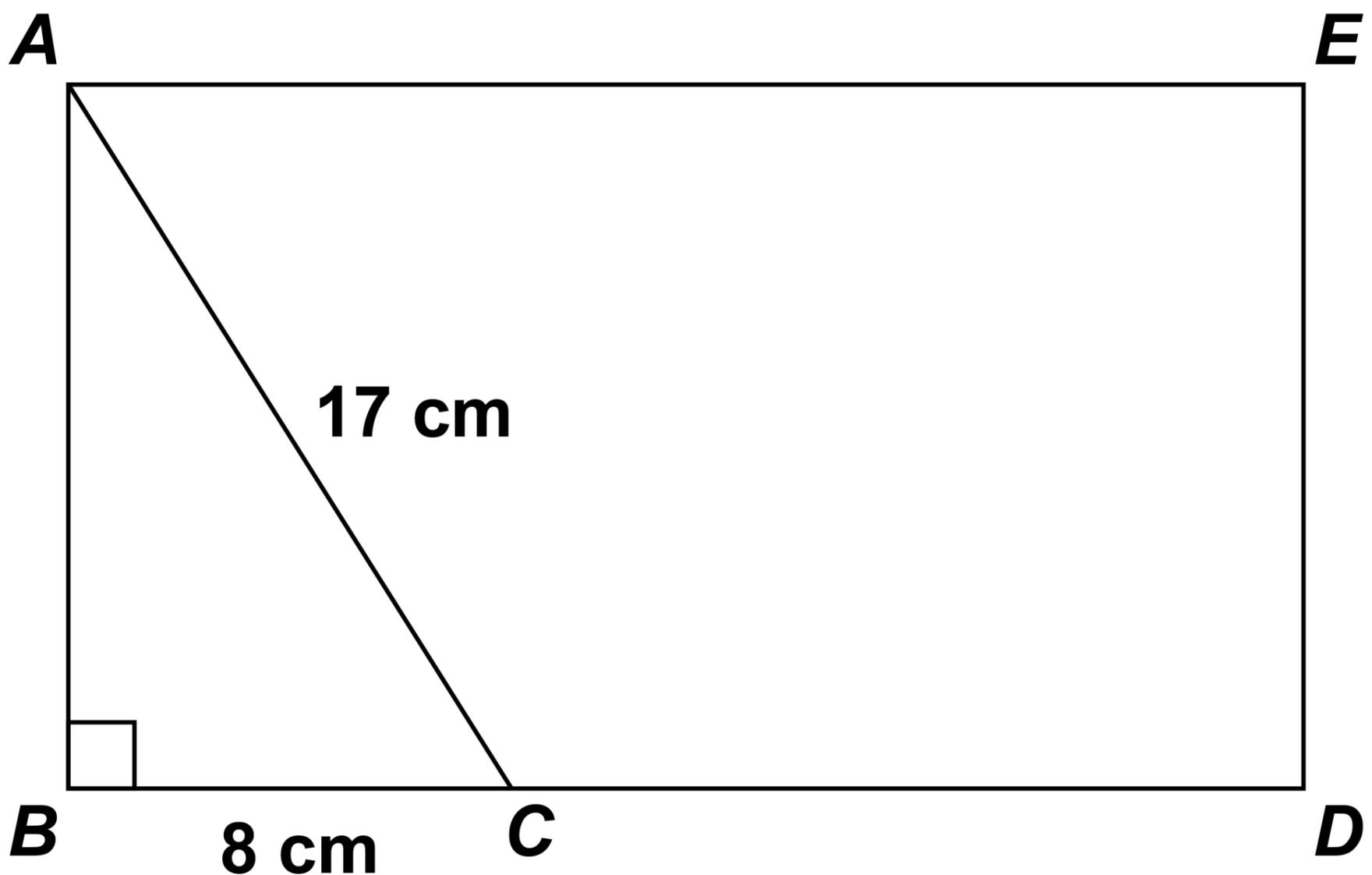
22

The diagram shows rectangle  $ABDE$  and right-angled triangle  $ABC$ .

$$AC = 17 \text{ cm}$$

$$BC = 8 \text{ cm}$$

The diagram is NOT drawn accurately.



$$BC : CD = 1 : 2$$

Work out the area of rectangle  $ABDE$ .  
[4 marks]





23

In a sport, injury time is added time played at the end of a match.

The table shows the injury time,  $t$  (minutes) played in 380 matches.

Injury time, $t$ (minutes)	Frequency
$0 < t \leq 2$	59
$2 < t \leq 4$	158
$4 < t \leq 6$	106
$6 < t \leq 8$	45
$8 < t \leq 10$	12

23 (a)

Circle the TWO words that describe the data on the previous page. [1 mark]

continuous

discrete

grouped

ungrouped

23 (b)

Which class interval contains the median?

You MUST show your working. [2 marks]

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Answer \_\_\_\_\_  $< t \leq$  \_\_\_\_\_

[Turn over]



23 (c)

**What percentage of the matches had MORE THAN 6 minutes of injury time?  
[2 marks]**

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







26

Circle the reciprocal of 4 [1 mark]

-4

2

0.4

0.25

27

$$x : y = 1 : 3$$

Circle the correct equation. [1 mark]

$$y = 3x$$

$$y = \frac{x}{3}$$

$$y = x - 2$$

$$y = x + 2$$

[Turn over]



28

A linear sequence starts

11          21          31          41          ...

Work out an expression for the  $n$ th term of the sequence. [2 marks]

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Answer \_\_\_\_\_

6

**END OF QUESTIONS**



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For Examiner's Use	
Pages	Mark
4–6	
8–10	
12–15	
16–19	
20–23	
24–27	
28–32	
34–37	
38–41	
42–45	
46–49	
50–53	
54–56	
<b>TOTAL</b>	

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5 8



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