

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

For this paper you must have:

- a calculator
- mathematical instruments.



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

[Turn over]



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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]**

 $\frac{1}{40}$ $\frac{2}{5}$ $\frac{3}{12}$ $\frac{4}{100}$ 

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]

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]



Tick a box.

Sensible

Not sensible

[Turn over]



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



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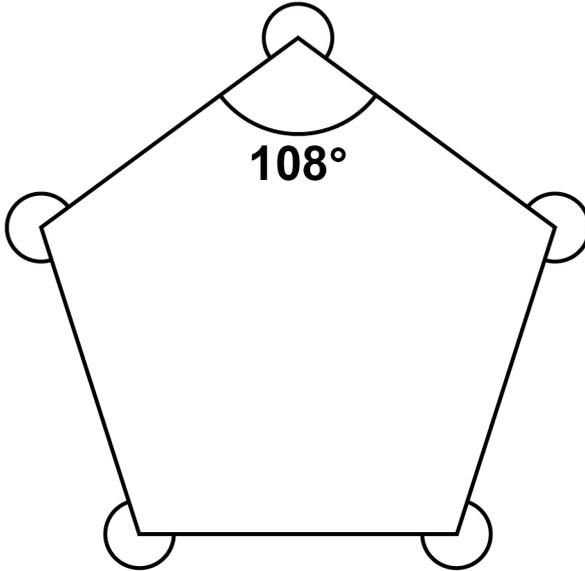
[Turn over]



8 (a) The interior angle of a regular pentagon is 108°

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

The diagram is NOT drawn accurately.





Answer _____ degrees

[Turn over]



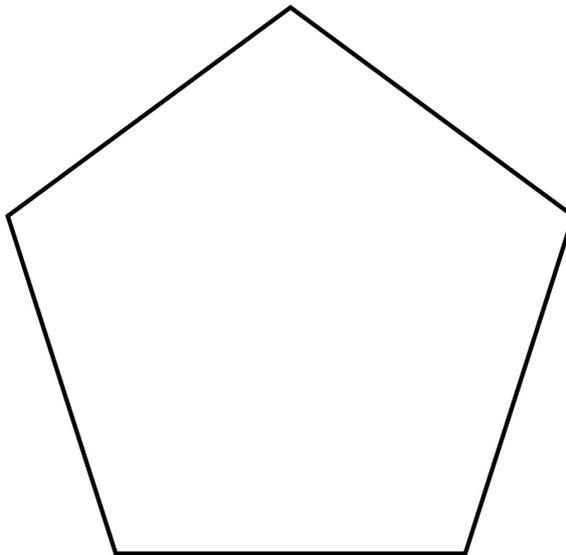
Omar asks Harry,

“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

[Turn over]

5



9 56 customers pay for satellite television.

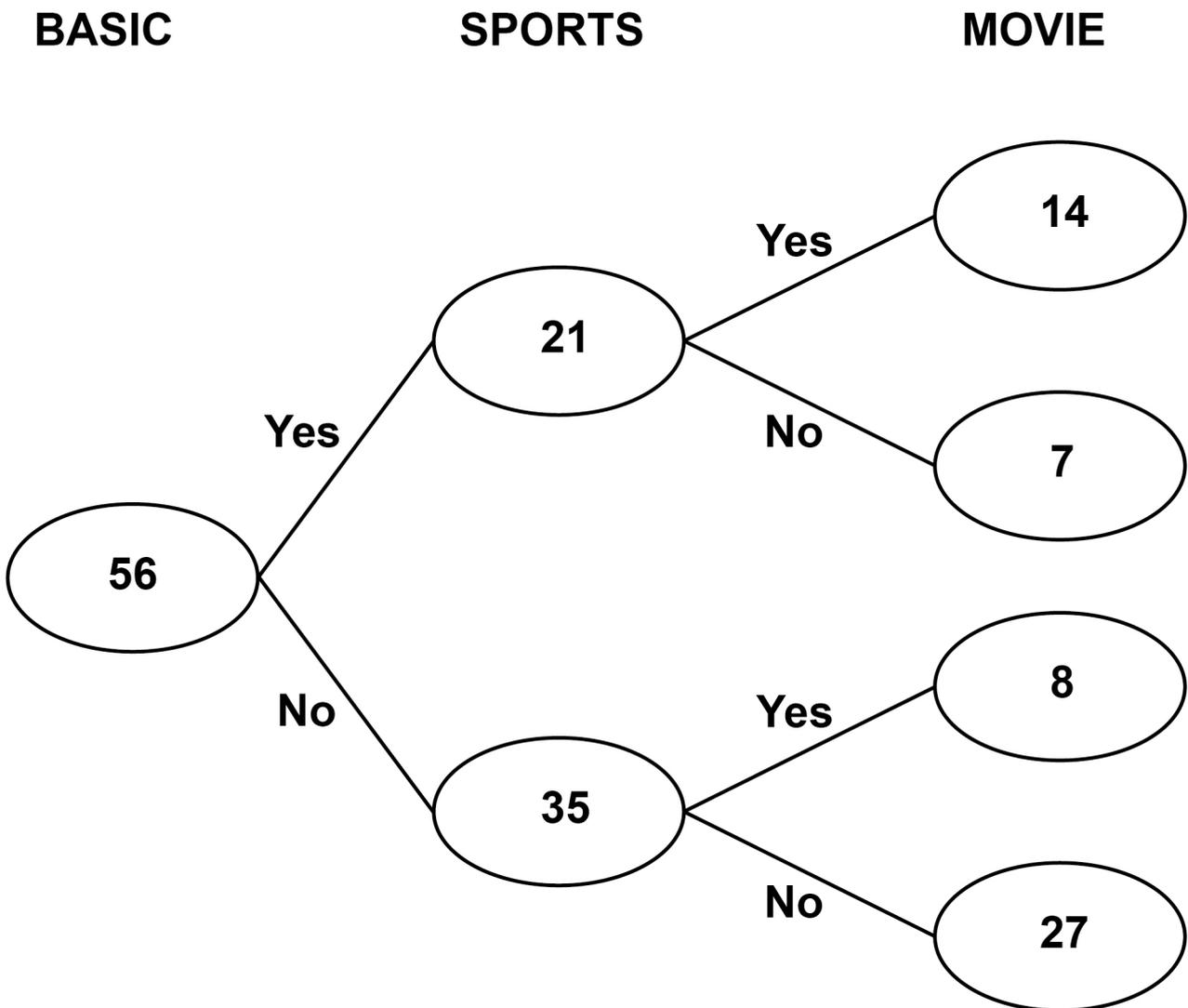
They ALL have the Basic package for £24.50 per month.

Some also have

the Sports package for £27.50 extra per month

the Movie package for £18 extra per month.

The frequency tree shows the number of customers with each package.



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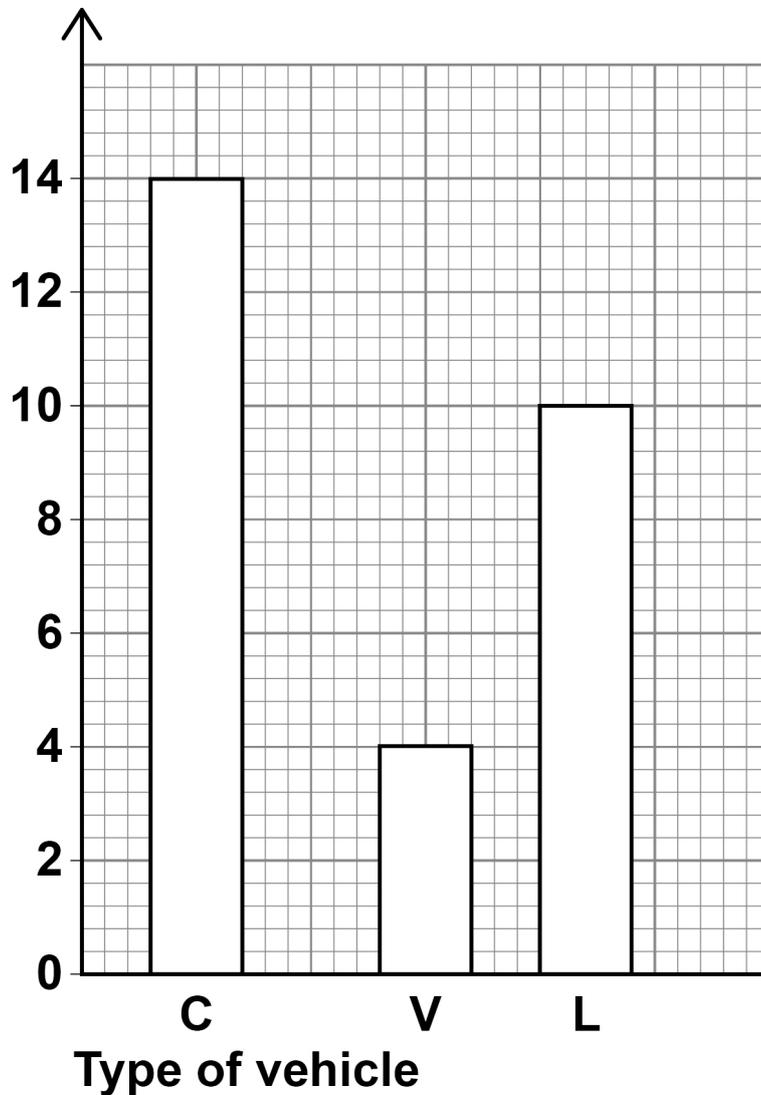
[Turn over]



- 11 On a journey, Laura sees 30 vehicles.
Each vehicle is a car, a van or a lorry.
She draws this bar chart.

Vehicles seen

Number of vehicles



Make TWO criticisms of her bar chart. [2 marks]

Criticism 1 _____

Criticism 2 _____

[Turn over]

5



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 cm²

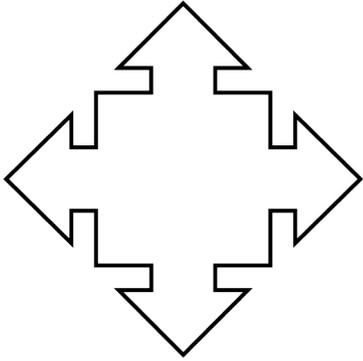
Which has the bigger actual area, the kitchen or the bedroom?

You MUST show your working. [4 marks]

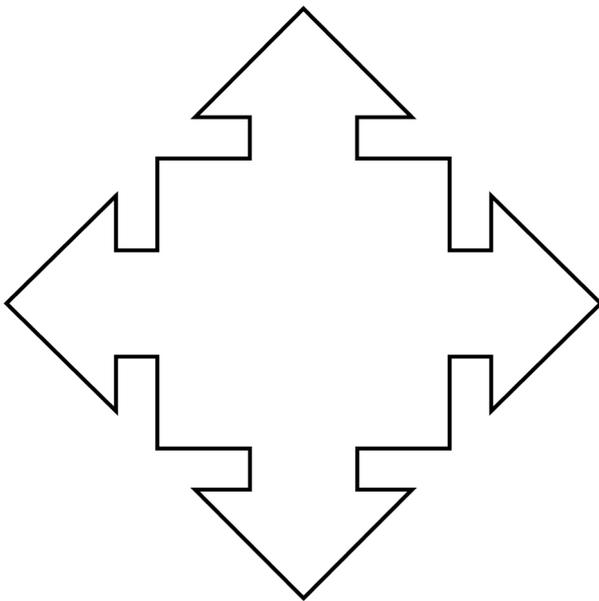


- 13 Here are two similar shapes, A and B.
The shapes are NOT drawn accurately.

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]

Answer _____ mm

[Turn over]

6

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,

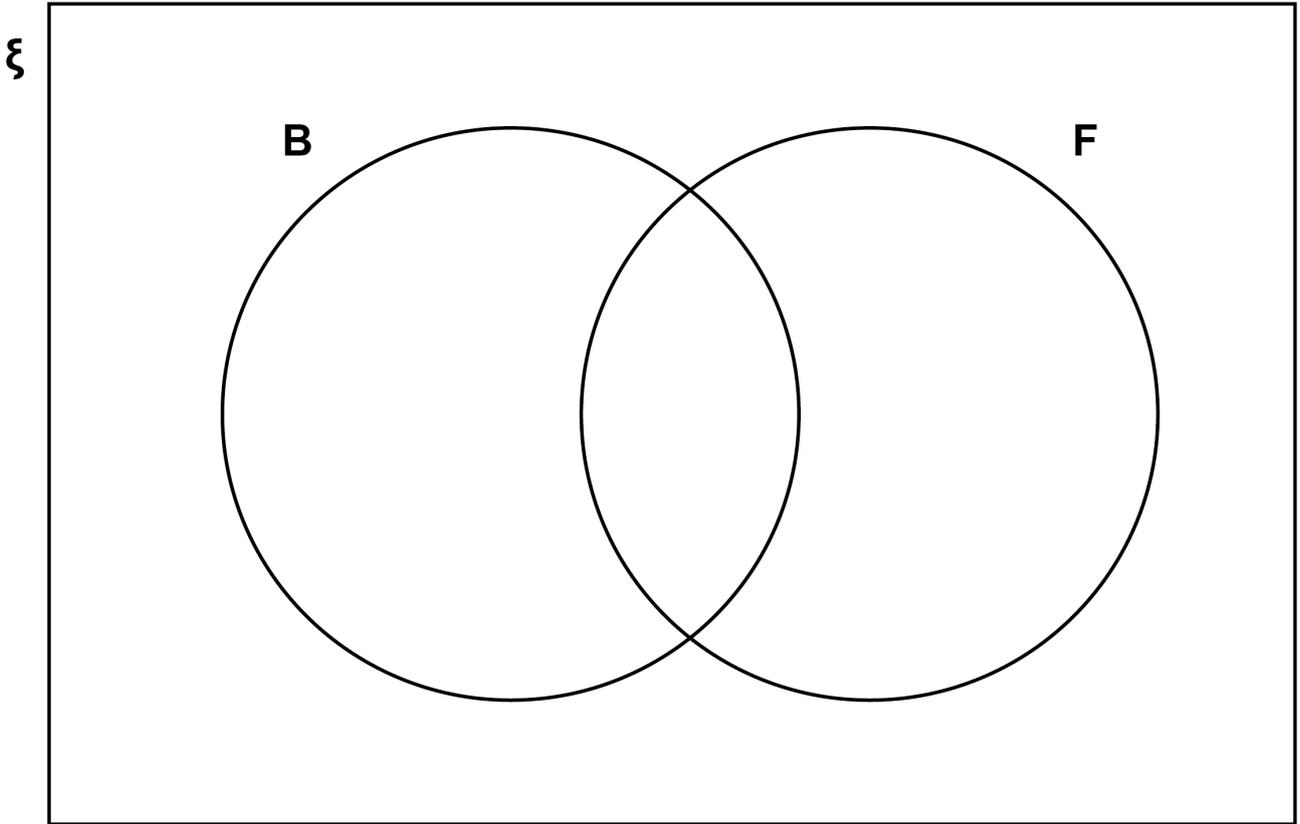
ξ = passengers on the plane

B = passengers in **Business Class**

F = passengers flying for the first time.

Complete the Venn diagram, on the opposite page. [4 marks]





[Turn over]



14 (b) One of the passengers is chosen at random.

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

Answer

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

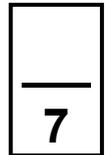
15 (a) Write down the coordinates of the point where the line intersects the y -axis. [1 mark]

Answer (_____ , _____)

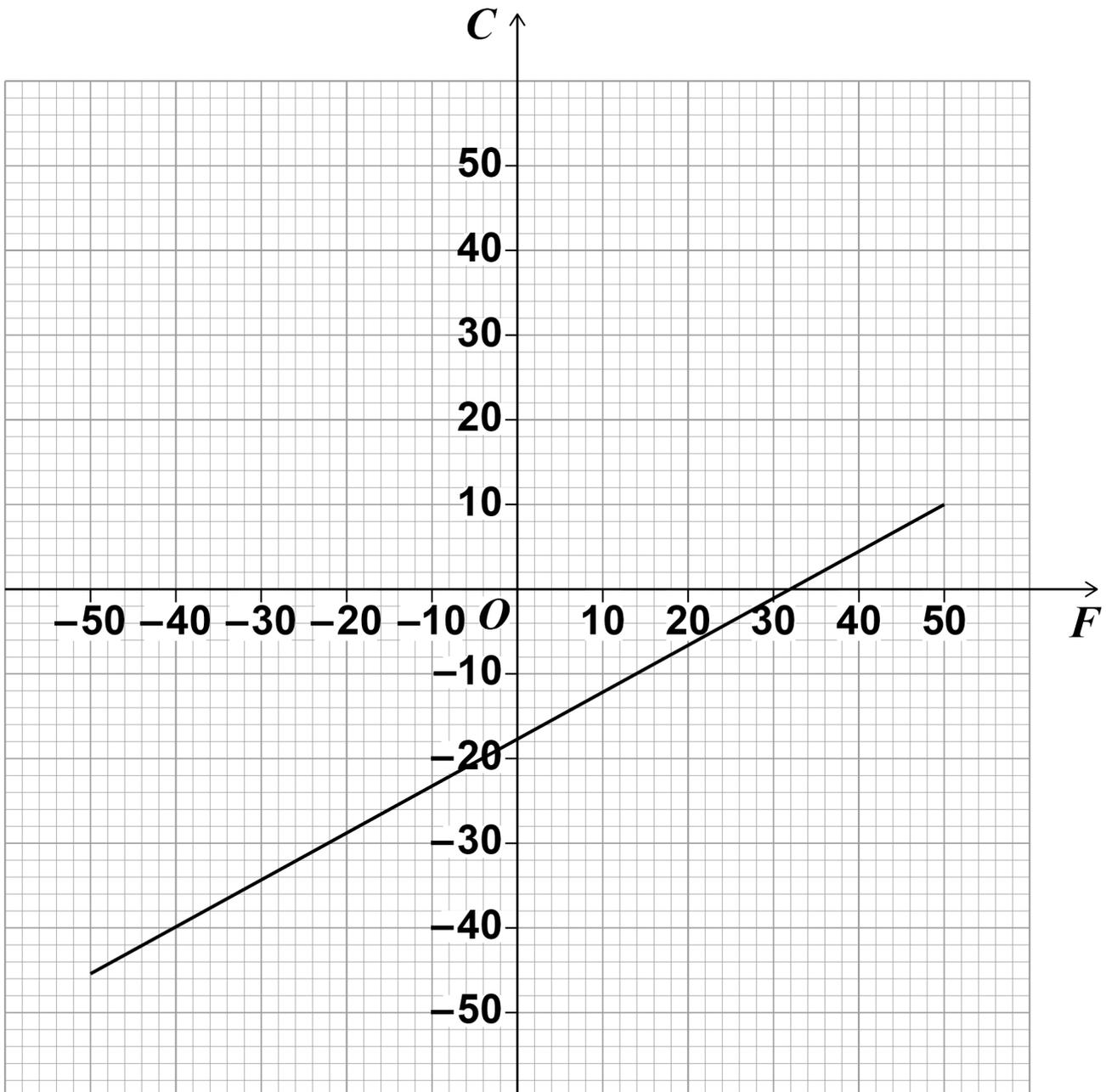
15 (b) Write down the coordinates of the point where the line intersects the x -axis. [1 mark]

Answer (_____ , _____)

[Turn over]



- 16 The graph below 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

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 opposite, 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	

17 (b) Altogether, there are 60 coins.

Work out the total VALUE of the 20p coins.
[4 marks]



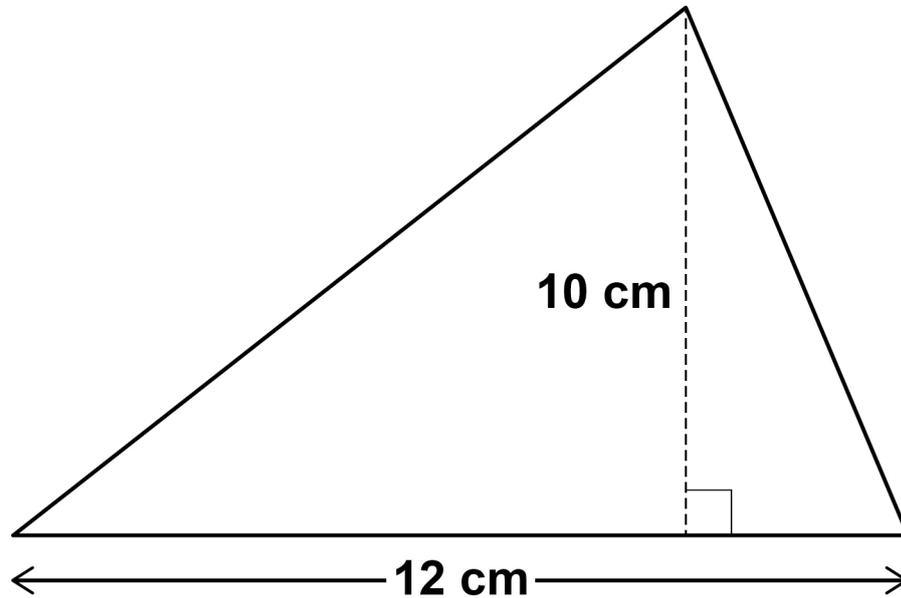
Answer £ _____

[Turn over]



- 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]

Answer _____ N/cm²

[Turn over]

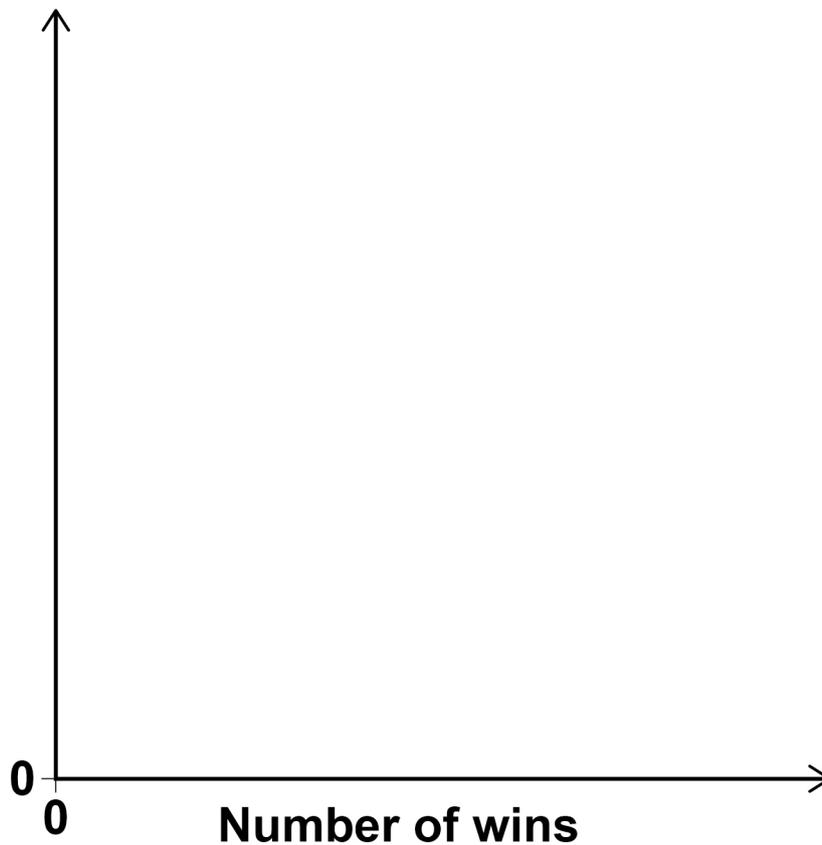
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- 19 In a sport, the number of points is directly proportional to the number of wins.

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

Number
of points

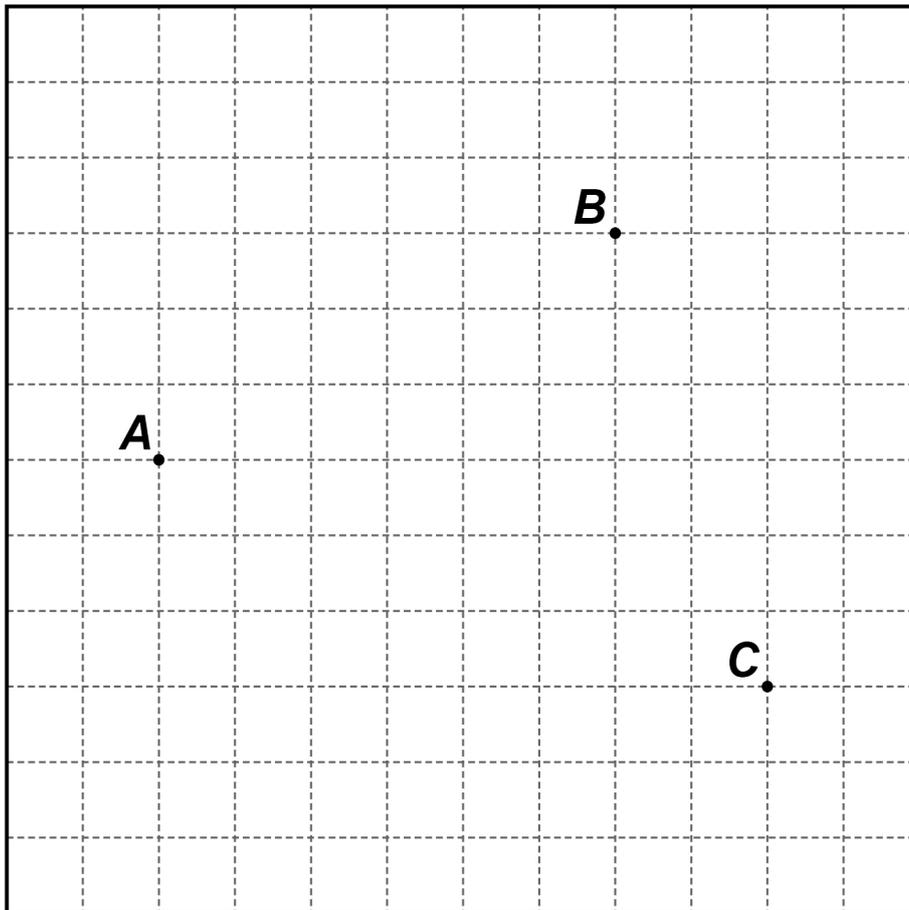


- 20 Using ruler and compasses, show the region inside the grid that is less than 4 cm from *A* and nearer to *B* than to *C*.

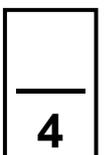
Label the region *R*.

Show all your construction lines. [3 marks]

Take each square to represent 1 cm²



[Turn over]



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[Turn over]

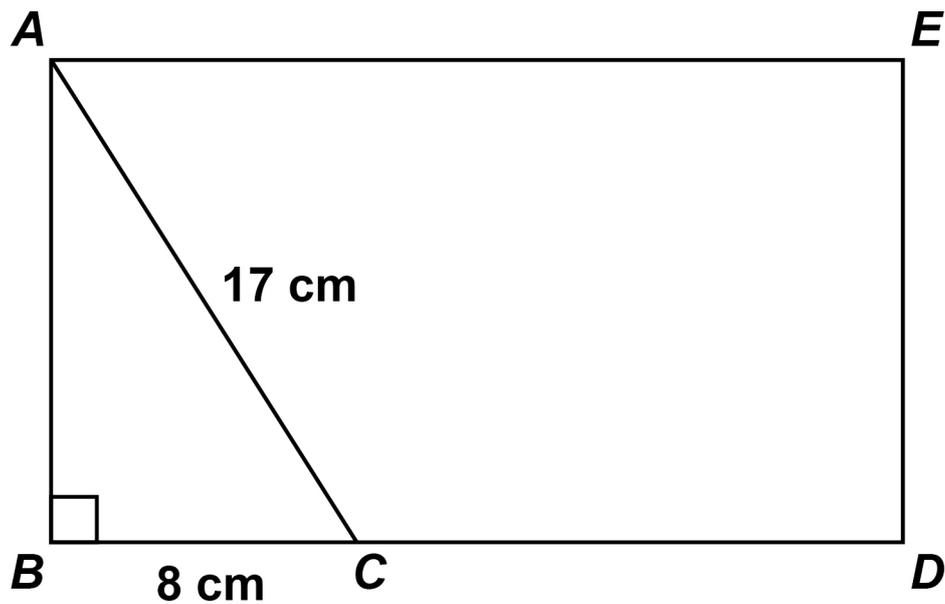


- 22 The diagram shows rectangle $ABDE$ and right-angled triangle ABC .

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

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

The diagram is NOT drawn accurately.



$$BC : CD = 1 : 2$$

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



Answer _____ cm²

[Turn over]

—
7



- 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.
[1 mark]

continuous

discrete

grouped

ungrouped

- 23 (b) Which class interval contains the median?

You MUST show your working. [2 marks]



Answer _____ $< t \leq$ _____

23 (c) What percentage of the matches had MORE THAN 6 minutes of injury time? [2 marks]

Answer _____ %

[Turn over]



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]

$$y = 3x$$

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

$$y = x - 2$$

$$y = x + 2$$



28 A linear sequence starts

11 21 31 41 ...

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

Answer _____

END OF QUESTIONS

6



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For Examiner's Use	
Pages	Mark
4–6	
8–10	
12–15	
16–17	
18–21	
22–25	
26–29	
30–31	
32–35	
36–37	
38–41	
42–44	
45–47	
TOTAL	

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