AQA

Please write clearly in block capitals.

Centre number | | | | | | Candidate number | | | | |

Surname _____

Forename(s) _____

Candidate signature _____

I declare this is my own work.

GCSE MATHEMATICS

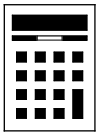
F

Foundation Tier Paper 3 Calculator

Monday 11 November 2024 Morning Time allowed: 1 hour 30 minutes

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.
- 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.
- 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.

For Examiner's Use	
Pages	Mark
2–3	
4–5	
6–7	
8–9	
10–11	
12–13	
14–15	
16–17	
18–19	
20–21	
22–23	
24	
TOTAL	

N 0 V 2 4 8 3 0 0 3 F 0 1

IB/M/Nov24/G4008/E10

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

Do not write outside the box

1 (a) Work out $\frac{1}{4}$ of 780

[1 mark]

Answer _____

1 (b) Work out the value of 19^2

[1 mark]

Answer _____

2 Simplify fully $y + y + y$

[1 mark]

Answer _____

Do not write outside the box

3 (a) 3 apples cost 96p

Work out the cost, in pounds (£), of 12 of these apples.

[2 marks]

Answer £ _____

3 (b) In total, the cost of 40 cartons of apple juice and 20 cartons of orange juice is £21.50

Work out the cost of

4 cartons of apple juice and 2 cartons of orange juice.

[2 marks]

Answer £ _____

Turn over for the next question

7

Do not write outside the box

4 (a) Write these numbers in order of size.
Start with the **smallest** number.

2 1.8 −1 0

[2 marks]

Answer _____ , _____ , _____ , _____

4 (b) Write these numbers in order of size.
Start with the **smallest** number.

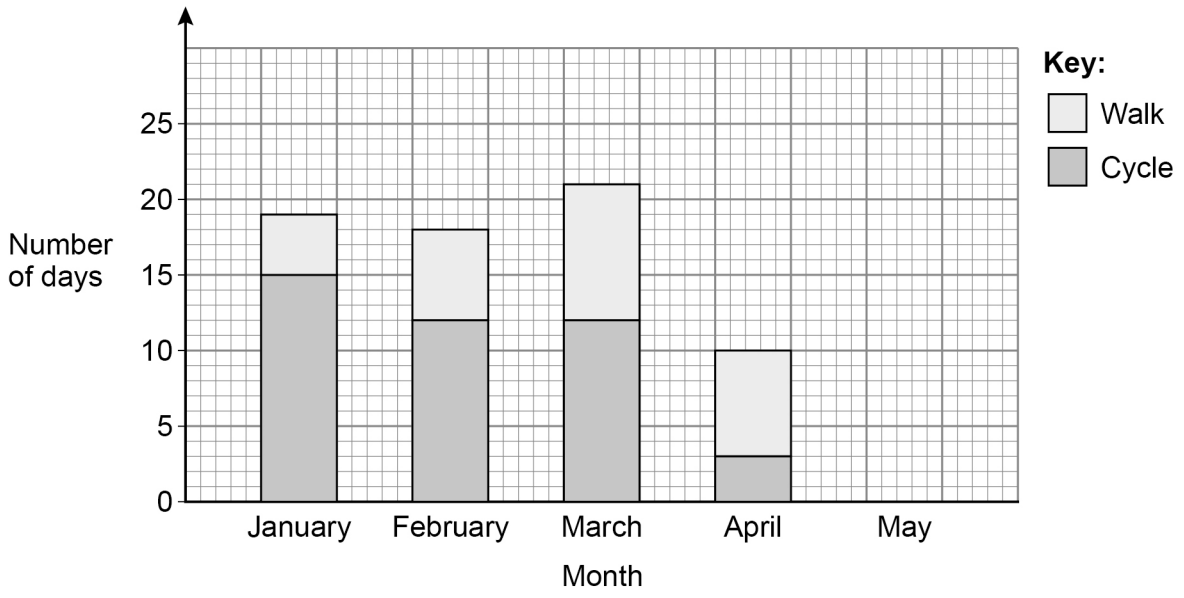
$\frac{1}{2}$ $3\frac{1}{10}$ $\frac{1}{4}$ $\frac{7}{8}$

[2 marks]

Answer _____ , _____ , _____ , _____

Do not write outside the box

5 The composite bar chart shows some information about how Calum travelled to school.



5 (a) In January, how many days did he walk to school?

[1 mark]

Answer _____

5 (b) In which month did he cycle on twice as many days as he walked?

[1 mark]

Answer _____

5 (c) In May, Calum went to school on 20 days.

He cycled on $\frac{1}{4}$ of the days.

He walked on the other days.

Show this information on the bar chart.

[2 marks]

_____

_____

_____

8

Do not write outside the box

6 Paul leaves home at 7.15 am

He travels to work in 20 minutes.

Does Paul arrive at work by 7.30 am?

Tick a box

Yes ☐ No ☐

Give a reason for your answer.

[1 mark]

7 Tyler has £20

A notepad costs £1.30

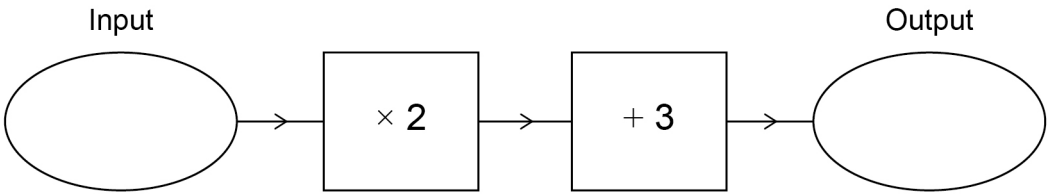
Work out the greatest number of notepads he can buy.

[2 marks]

Answer _____

Do not write outside the box

8 Here is a number machine.



8 (a) Work out the **output** when the input is 10

[1 mark]

Answer _____

8 (b) Work out the **input** when the output is 17

[1 mark]

Answer _____

Turn over for the next question

5

Do not write outside the box

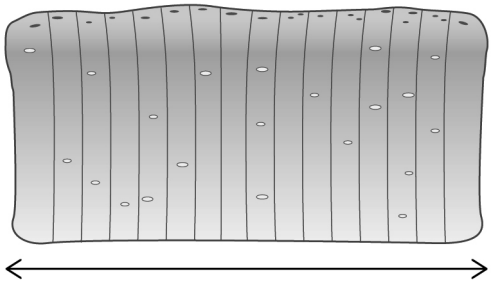
9 A loaf of bread has

14 slices each 12 mm thick

and

2 crusts each 15 mm thick.

Not drawn accurately



Work out the total length of the loaf of bread.

Give your answer in **centimetres**.

[3 marks]

Answer _____ cm

Do not write outside the box

10 (a) Solve $\frac{c}{3} = 15$

[1 mark]

$c =$ _____

10 (b) Solve $4(2d - 5) = 28$

[3 marks]

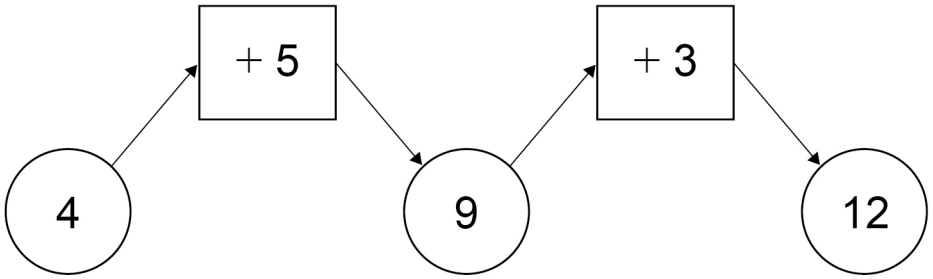
$d =$ _____

Turn over for the next question

7

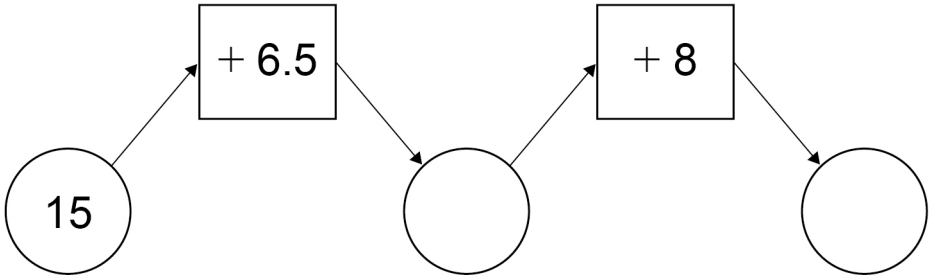
Do not write outside the box

11 Here is a diagram.



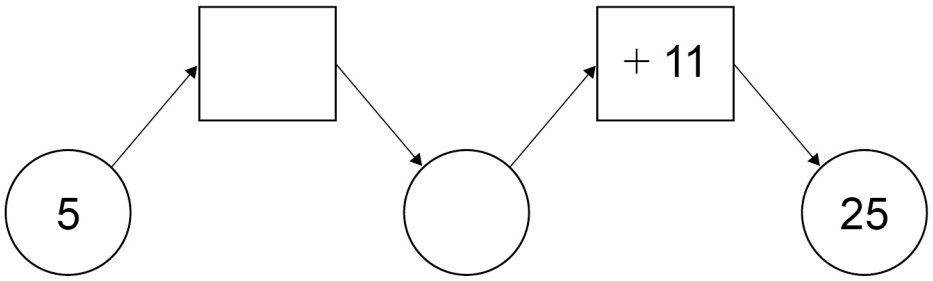
11 (a) Complete this diagram.

[1 mark]



11 (b) Complete this diagram.

[2 marks]



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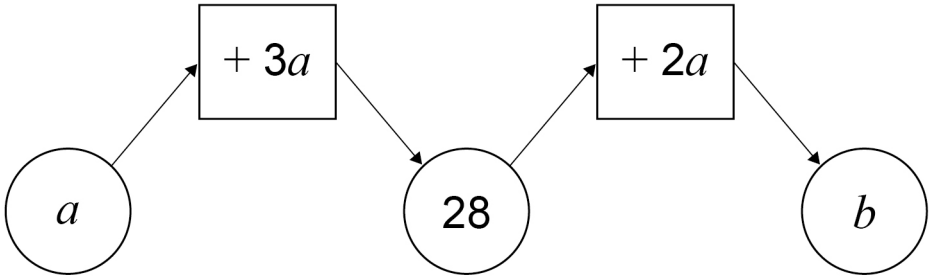
11 (c)



Work out the value of b.

[3 marks]

$b =$ _____

12 Here are some numbers.

12 8 6 11 2 7 7 18 10

Work out the median.

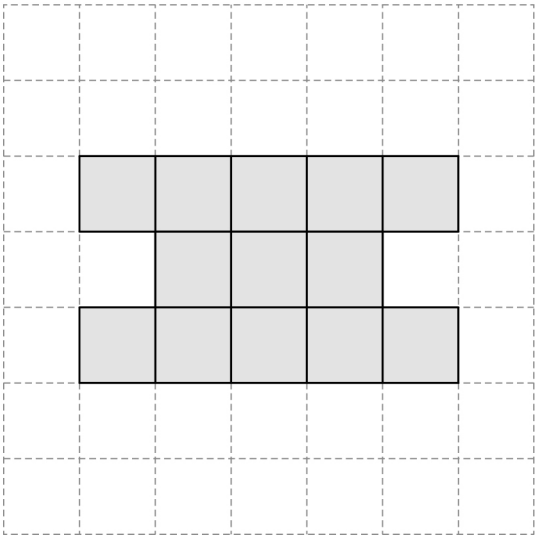
[2 marks]

Answer _____

8

Do not write outside the box

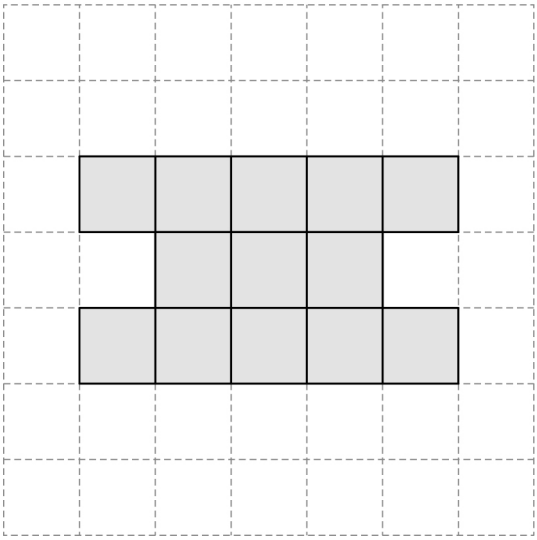
13 (a) Here is a pattern of squares on a grid.



Draw the **two** lines of symmetry on the pattern.

[2 marks]

13 (b) Here is the pattern again.



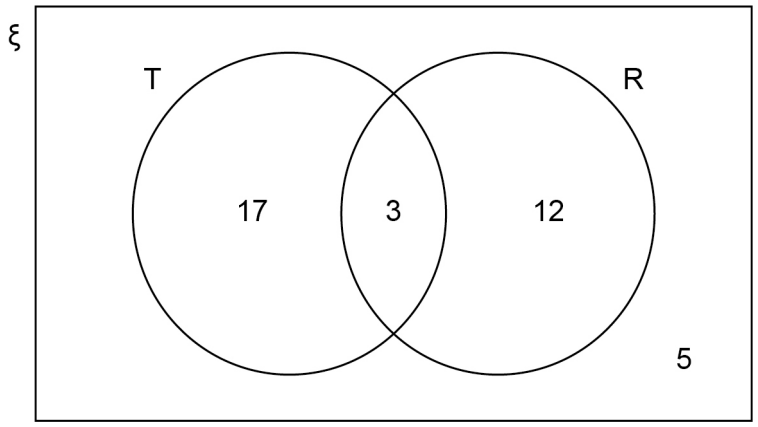
Shade **four** more squares so that the pattern has **rotational** symmetry of order 4

[1 mark]

Do not write outside the box

14 The Venn diagram shows information about people who work in a gym.

T = people who can work as a trainer.
R = people who can work in reception.



14 (a) How many people can work as a trainer **and** in reception?

[1 mark]

Answer _____

14 (b) How many people can work in reception but **not** as a trainer?

[1 mark]

Answer _____

14 (c) What fraction of **all** the people can work as a trainer?

[2 marks]

_____

_____

Answer _____

7

Do not write outside the box

15 To get to college, 120 students either walk, cycle or travel by car.

$\frac{3}{8}$ of the students walk.

students who cycle : students who travel by car = 1 : 2

How many students travel by car?

[3 marks]

Answer _____

16 The original value of a car is £8600

The value of the car decreases by

15% in the first year

then

10% in the second year.

Work out the value of the car after these two years.

[3 marks]

Answer £ _____

Do not write outside the box

17 Match the algebra to the correct description.

One has been done for you.

[3 marks]

Algebra	Description
$5x + 10 = 2x + 4$	Identity
$3(b + 2c) \equiv 3b + 6c$	Equation
$A = 4r + 6t$	Inequality
$3L + 8M$	Formula
$20 < 7y + 13$	Expression

Turn over for the next question

9

Do not write outside the box

18 Sunil has £25 to spend on game downloads.

He downloads 5 games, each costing £3.40

What percentage of the £25 does he spend?

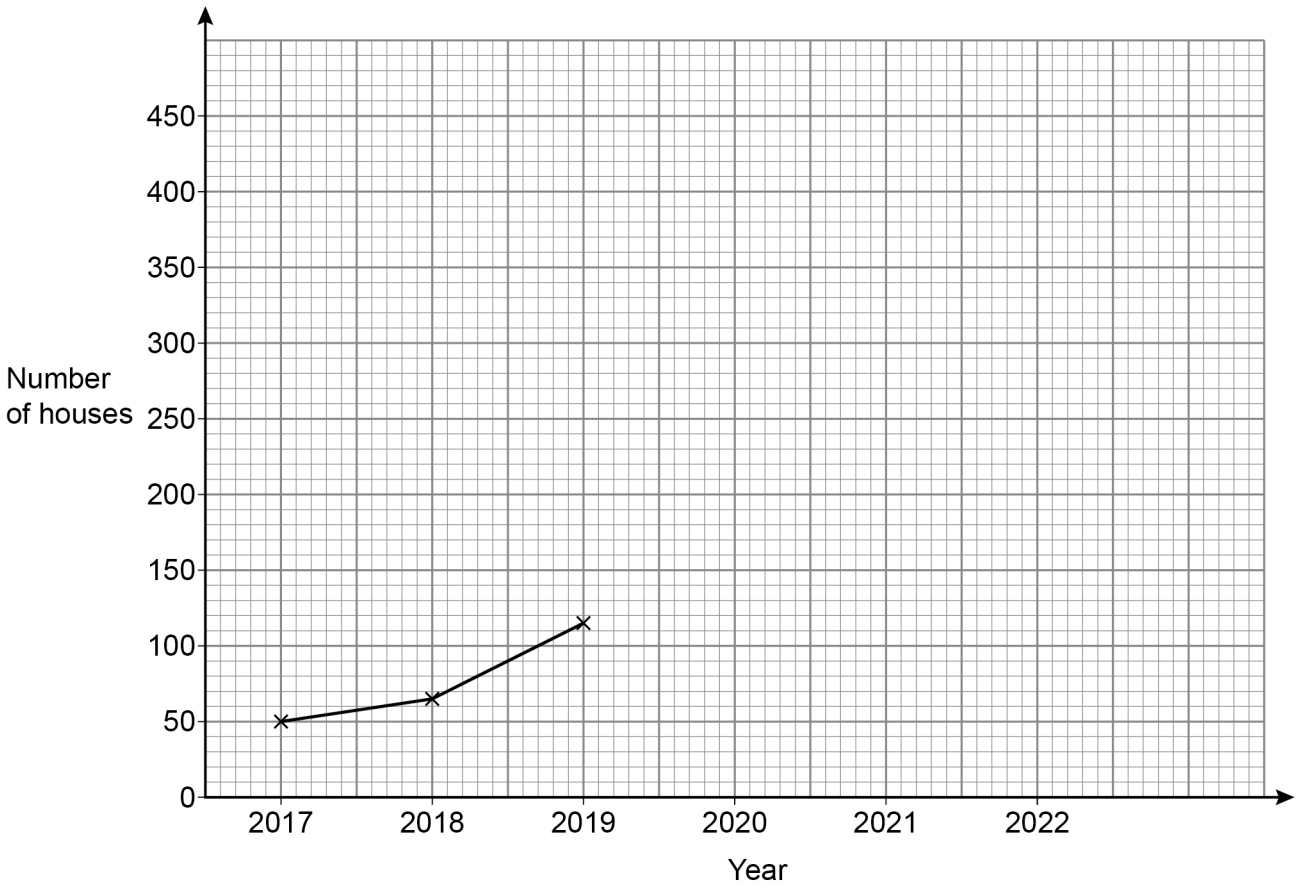
[3 marks]

Answer _____ %

Do not write outside the box

19 The table shows information about the number of houses with solar panels in a town.

Year	2017	2018	2019	2020	2021	2022
Number of houses	50	65	115	210	275	350



19 (a) Complete the graph.

[2 marks]

19 (b) Use the graph to estimate the number of houses with solar panels in 2023

[1 mark]

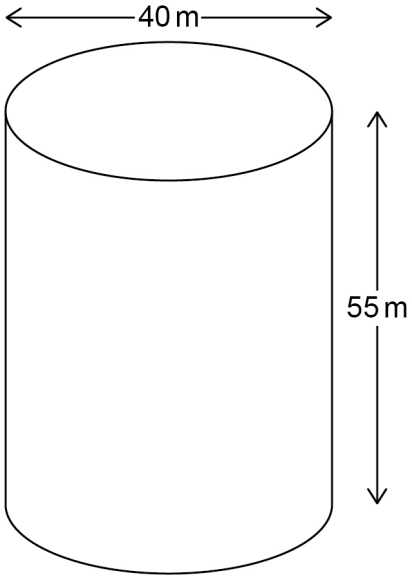
Answer _____

6

Turn over ►

Do not write outside the box

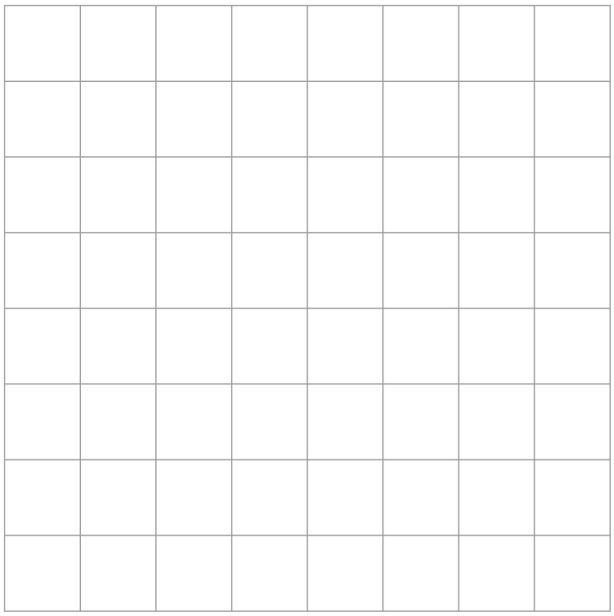
20 A building in the shape of a cylinder has diameter 40 m and height 55 m



20 (a) On the centimetre grid, draw a **plan** of the building.

Use a scale of 1 cm to 10 m

[2 marks]

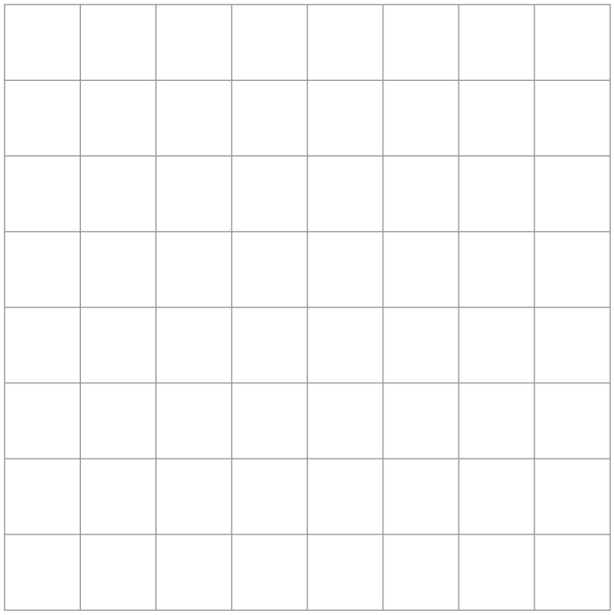


Do not write outside the box

20 (b) On this centimetre grid, draw the **front elevation** of the building.

Use a scale of 1 cm to 10 m

[2 marks]



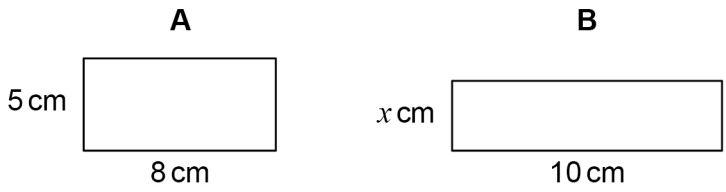
Turn over for the next question

4

Do not write outside the box

21 These two rectangles have the **same area**.

Not drawn accurately



Work out the ratio perimeter A : perimeter B

[4 marks]

Answer _____ : _____

Do not write outside the box

22 To the **nearest pound**, Rosie has £12

She wants to buy 6 drinks.

Each drink costs £1.89

Show that Rosie **definitely** has enough money to buy the 6 drinks.

[3 marks]

23 The total cost of a taxi ride is calculated by adding

a fixed charge of £4

and

a charge of £2 per mile.

Write a formula to work out the total cost, £C, of a journey of m miles.

[2 marks]

$C =$ _____

Turn over for the next question

9

Do not write outside the box

24 (a) At a school

there are 912 students

the ratio of students to teachers is 15.2 : 1

The number of students stays the same.

The number of teachers increases by 2

Work out the new ratio of students to teachers.

Give your answer in the form n : 1

[3 marks]

Answer _____ : 1

24 (b) On a school trip, one teacher is needed for every group of 10 or fewer students.

72 students want to go on the trip.

Lexi tries to work out how many teachers are needed.

72 ÷ 10 = 7.2 7 teachers are needed.

What is wrong with her answer?

[1 mark]

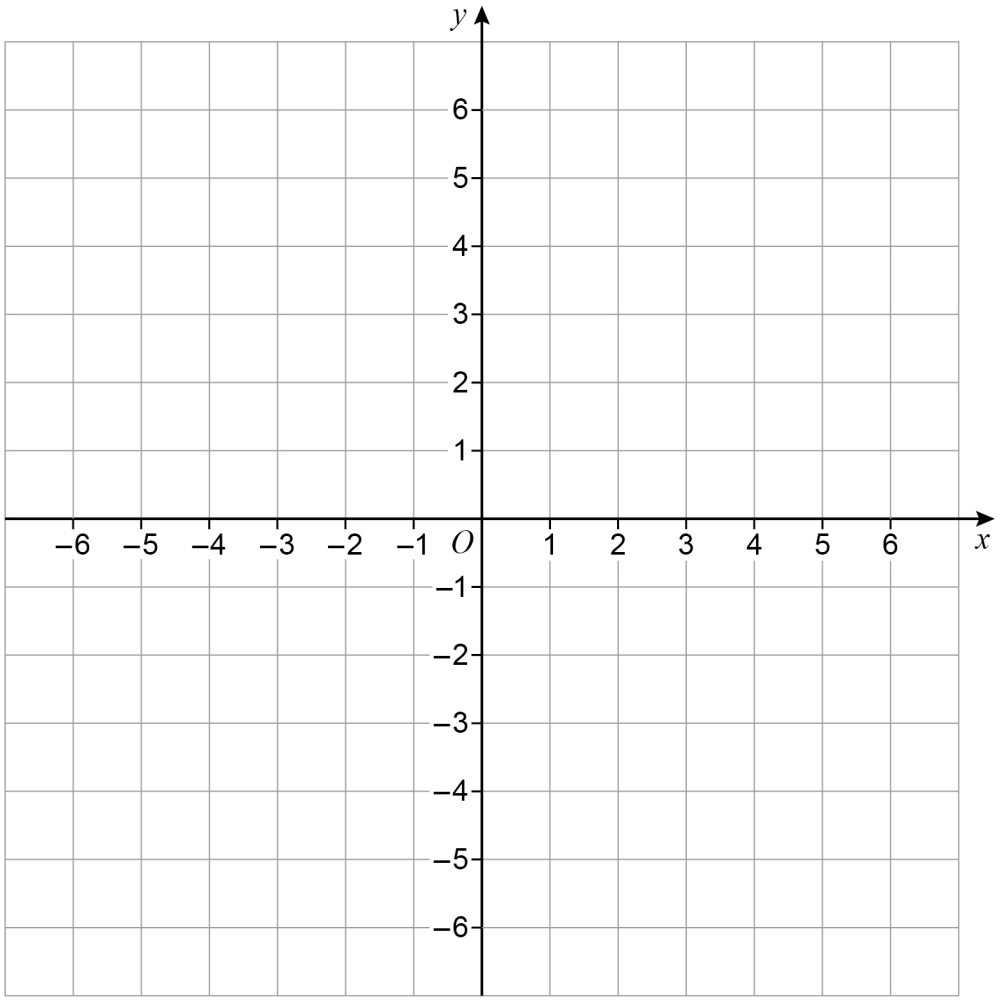
Do not write outside the box

25 A triangle is drawn using the lines

$y = x$

$x = -2$

$y = 4$



Work out the coordinates of the **three** vertices of the triangle.

[4 marks]

Answer (_____ , _____)

(_____ , _____)

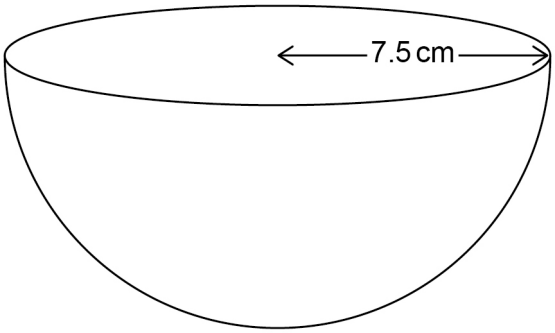
(_____ , _____)

8

Turn over ►

Do not write outside the box

26



Volume of a **sphere** $= \frac{4}{3} \times \pi \times r^3$

where r is the radius

Ria works out the volume of this **hemisphere** in terms of π

Here is her work.

$$\text{Volume of a hemisphere} = \frac{4}{3} \times 7.5 \times 3 \div 2 = 15$$

Write down **two** mistakes she has made.

[2 marks]

Mistake 1 _____

_____

_____

Mistake 2 _____

_____

_____

END OF QUESTIONS

2