AQA

GCSE
MATHEMATICS

F

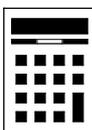Foundation Tier   Paper 2 Calculator

Shadow paper based on November 2022 question paper

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	
24–25	
26	
TOTAL	

8300/2F

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

1 Circle the number that is a multiple of 15

[1 mark]

25   35   45   55

2 Circle the value of the digit 3 in the number 10.32

[1 mark]

3 $\dfrac{3}{10}$ $\dfrac{3}{100}$ $\dfrac{3}{1000}$

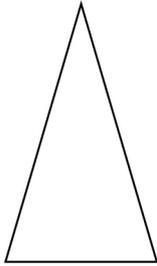**3** Circle the highest of these temperatures.

[1 mark]

$-2.1°C$ $-0.4°C$ $-5°C$ $-1°C$

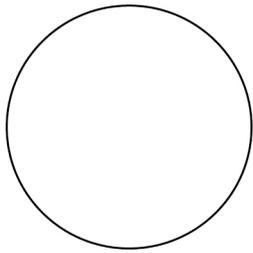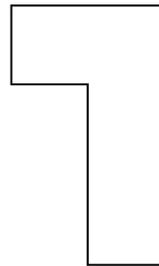**4** Circle the letter of the shape that has **exactly two** lines of symmetry.

[1 mark]

P

Q

R

S

Turn over for the next question

4

Turn over ►

Shadow paper based on November 2022 question paper
8300/2F

5 (a) Simplify fully $c \times c \times c$

[1 mark]

Answer _____

5 (b) Simplify fully $4n \div 2n$

[1 mark]

Answer _____

5 (c) Simplify fully $\dfrac{1}{4} \times 12t$

[1 mark]

Answer _____

6 (a) Write a number in the box to make the calculation correct.

$$18 \div \boxed{} = 0.18$$

6 (b) Write a number in the box to make the calculation correct.

$$16.4 + 4.7 + \boxed{} = 29$$

6 (c) Write a fraction in the box to make the calculation correct.

$$\frac{1}{2} - \boxed{} = \frac{1}{8}$$

6 (d) Write the **same** number in both boxes to make the calculation correct.

$$\boxed{} \times \boxed{} = 576$$

7

Turn over ▶

7 People in three hospitals, A, B and C, have had blood tests.

7 (a) Here is information about the number of blood tests taken by the people in hospital A.

Hospital A

Key: ◯ represents 4 people

One test	◯ ◯ ◯
Two tests	◯ ◯ ◯ ◯
Three tests	◯ ◖

Here is information about the number of blood tests by the people in hospital B.

One test   Twice the number in hospital A who have had one test.
Two tests   6 fewer than the number in hospital A who have had two tests.
Three tests   8 more than the number in hospital A who have had three tests.

Complete this pictogram for the people in hospital B.

[3 marks]

Hospital B

Key: ◯ represents 4 people

One test	
Two tests	
Three tests	

7 (b) In hospital C there are 35 people.

21 of these people have received a positive test result.

One person is picked at random from hospital C.

Work out the probability that the person has **not** received a positive test result.

[2 marks]

Answer _____

8 Work out the value of $\quad 4r + 3t\quad$ when $\quad r = 11\quad$ and $\quad t = -4$

[2 marks]

Answer _____

Turn over for the next question

Turn over ▶

9   Valerie has saved 195 coins.

Each one is a 50p coin.

She gives an equal number of 50p coins to each of her 6 grandchildren.

She gives them as many coins as possible.

How much, in £, does he have left?

[4 marks]

Answer £ _____

10 Here are two sets of numbers.

Set A   12   23   32   37

Set B   2   25   27   40

One number from Set A is swapped with one number from Set B.

The total of the numbers in each set is now the same.

Which two numbers are swapped?

[2 marks]

_____

_____

_____

_____

_____

Answer _____ and _____

11 Rearrange $m = p + 7$ to make p the subject.

Circle your answer.

[1 mark]

$$p = \frac{m}{7} \qquad\qquad p = m + 7 \qquad\qquad p = 7m \qquad\qquad p = m - 7$$

7

Turn over ▶

12 Here is the distance-time graph for a delivery van between 9 am and 11 am
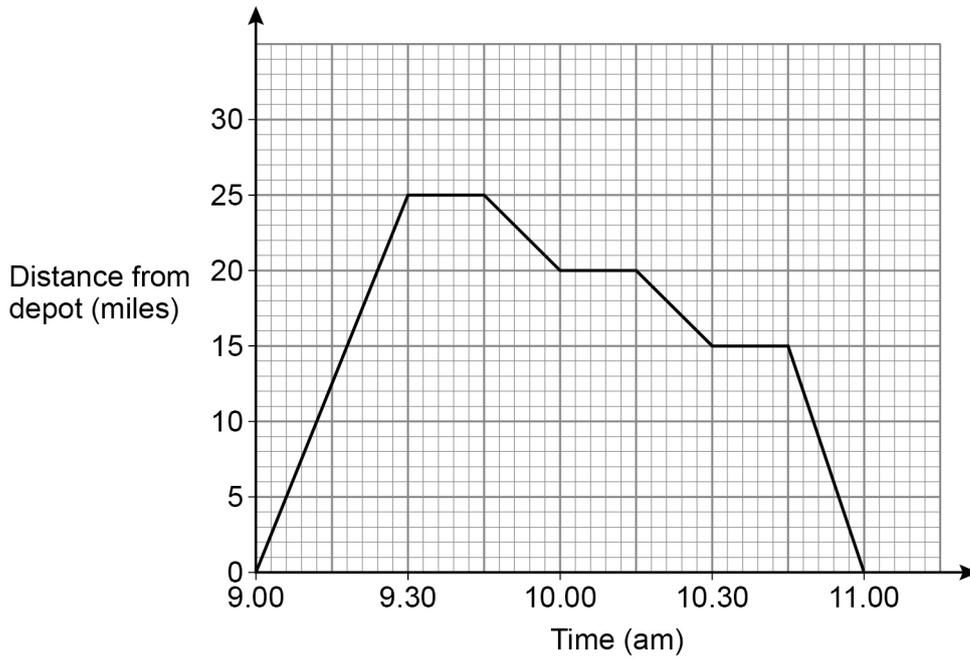
12 (a) Work out the **total** time that the van is **not** moving between 9 am and 11 am

State the units of your answer.

[2 marks]

Answer _____

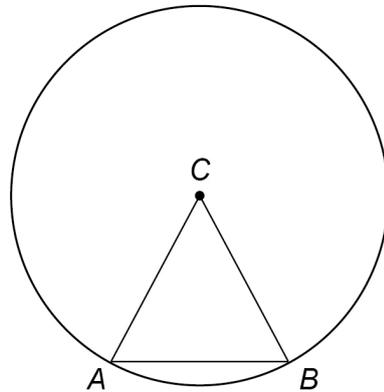**12 (b)** Work out the **total** distance the van travels between 9 am and 11 am

[2 marks]

Answer _____ miles

13   *A* and *B* are points on a circle.

C is the centre of the circle.

Not drawn
accurately

Tick **one** box for each statement.

[3 marks]

	Definitely true	Might be true	Cannot be true
Line *AC* is a radius of the circle			
BC is an arc of the circle			
Triangle *ABC* is isosceles			

Turn over for the next question

7

Turn over ▶

14 On a holiday, a group of people will rent a house.

This formula has all costs in £

$$\text{Cost per person} = \frac{270 + \text{cost of the house}}{\text{number of people in the group}}$$

14 (a) With 9 people in the group, the cost of the house will be £531

Work out the cost per person.

[2 marks]

Answer £ _____

14 (b) When 3 more people join the group, they decide to rent a different house.

The cost per person will be £55

Work out the cost to rent this house.

[3 marks]

Answer £ _____

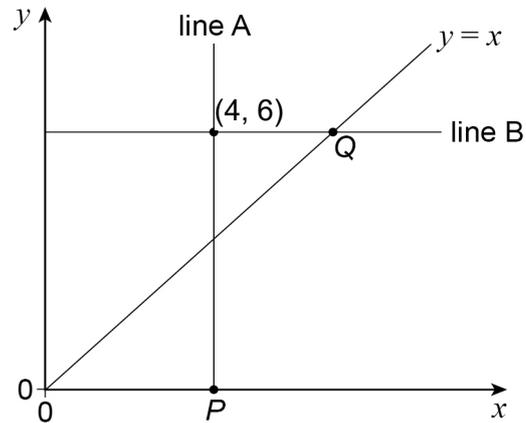**15** The sketch shows

the line $y = x$

line A, which is vertical

line B, which is horizontal.
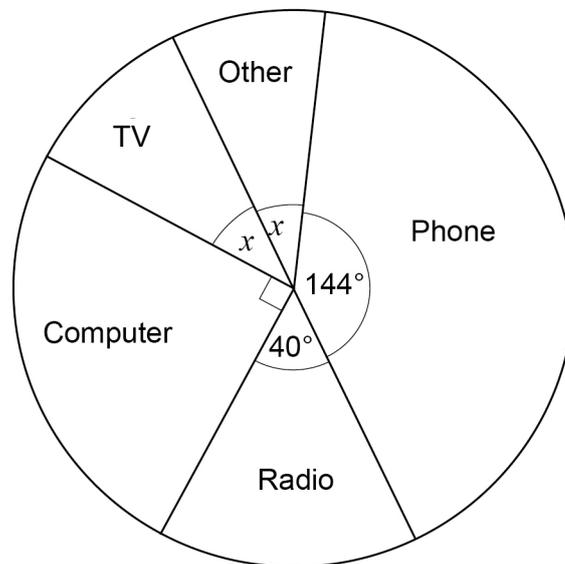
The point (4, 6) is on both line A and line B.

Write down the coordinates of *P* and *Q*.

[2 marks]

P (_____ , _____)   *Q* (_____ , _____)

Turn over for the next question

Turn over ▶

16 Some people were asked for the main way they find their news.

A pie chart is drawn to represent their answers.

Not drawn accurately

16 (a) Work out the size of angle x.

[2 marks]

_____

_____

_____

Answer _____ degrees

16 (b) 195 people said Computer.

How many people said Phone?

[3 marks]

_____

_____

_____

_____

_____

Answer _____

17 Complete this statement.

[1 mark]

$$10^5 = \text{_____ thousand}$$

Turn over for the next question

6

Turn over ▶

18   A rock band plays at two festivals.

18 (a)   For the first festival, 30 000 tickets are sold.

Assume that each ticket costs £48.50

Work out the total amount of money from ticket sales for this festival.

[2 marks]

_____

_____

_____

_____

Answer £ _____

18 (b)   In fact, for the first festival,

some of the tickets cost less than £48.50

and

some of the tickets cost more than £48.50

What does this mean about the total amount of money from ticket sales for this festival?

Tick **one** box.

[1 mark]

☐   It will be more than the answer to part (a)

☐   It will be the same as the answer to part (a)

☐   It will be less than the answer to part (a)

☐   It is not possible to tell

18 (c) For the second festival, the number of tickets sold increases from 30 000 to 50 000

Is the increase in tickets sold **more** than 65% ?

You **must** show your working.

[3 marks]

_____

_____

_____

_____

_____

_____

19 At a party, there are between 70 and 80 people.

The ratio of adults to children is   4 : 5

Work out the **total** number of people at the party.

[2 marks]

_____

_____

_____

_____

Answer _____

8

Turn over ▶

20 The composite bar chart shows information about the **percentage** of drinks sold by a café in 2007 and 2019

Key: ☐ Coffee ☐ Tea ■ Other

Percentage of drinks sold

Year
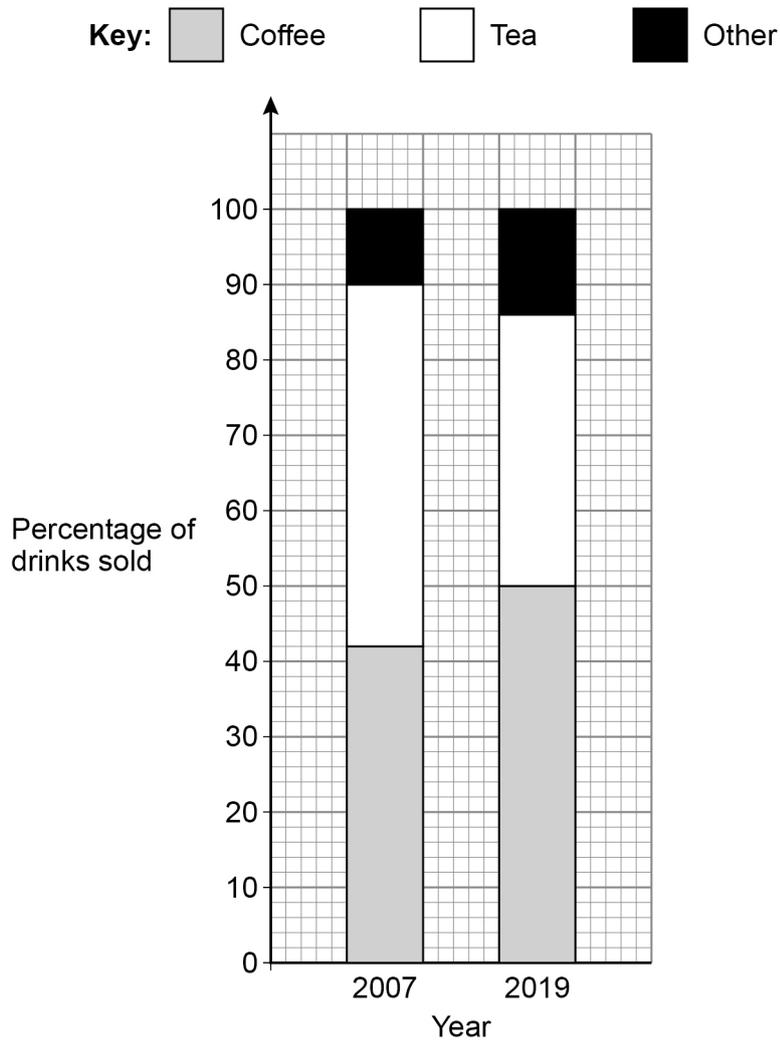
20 (a) In 2019 the café sold a total of 36 000 drinks.

How many **more** coffees than teas were sold?

[2 marks]

Answer _____

20 (b) Were more teas sold at the café in 2019 than in 2007 ?

Tick a box.

☐ Yes   ☐ No   ☐ Cannot tell

Give a reason for your answer.

[1 mark]

_____

_____

_____

21 (a) k is a whole number between 10 and 20

The square root of k is 4, to the nearest whole number.

Work out the **smallest** possible value of k.

[2 marks]

_____

_____

_____

_____

Answer _____

21 (b) Firoz tries to solve $a^2 = 121$

He says,

    "The only possible value of a is 11"

Give a reason why he is **not** correct.

[1 mark]

_____

_____

6

Turn over ▶

22 (a) Here is a cuboid.

w, x and y are **different** whole numbers.
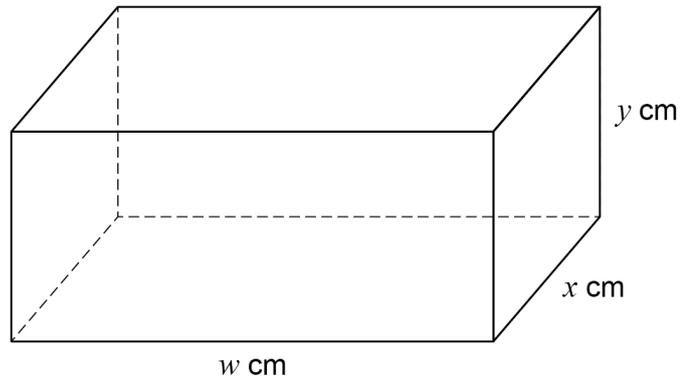
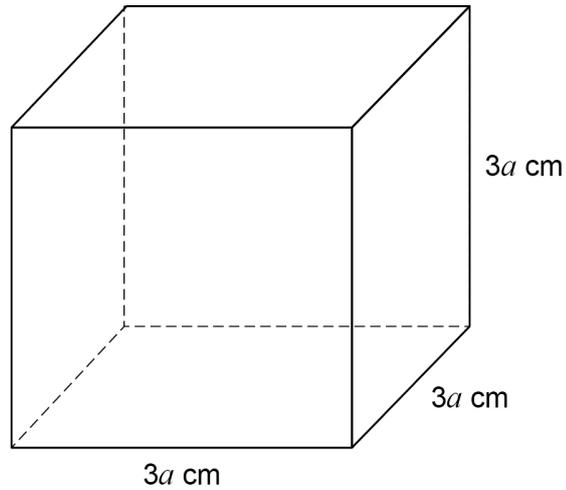The total length of **all** the edges of the cuboid is 60 cm

The volume is **greater** than 110 cm^3

Work out the set of values for w, x and y.

[2 marks]

_____

_____

_____

_____

_____

_____

$w = $ _____ $x = $ _____ $y = $ _____

22 (b) Here is a solid cube.

$3a$ cm

$3a$ cm

$3a$ cm

Circle the expression for the **total** volume in cm^3

[1 mark]

$9a^3$ $\qquad\qquad$ $27a^3$ $\qquad\qquad$ $54a^3$ $\qquad\qquad$ $81a^3$

23 The equation of a line is $\quad y = 4x - 7$

Circle the coordinates of the y-intercept.

[1 mark]

$(4, 0)$ $\qquad\qquad$ $(0, 4)$ $\qquad\qquad$ $(0, -7)$ $\qquad\qquad$ $(-7, 0)$

4

Turn over ▶

24 (a) Work out $\quad 3.7^3 + \sqrt{193.21}$

Give your answer as a decimal.

[2 marks]

Answer _____

24 (b) Work out $\quad \dfrac{8.58 \times 10^{12}}{5.2 \times 10^7}$

Give your answer in standard form.

[2 marks]

Answer _____

25 A tank contains 50 litres of water.

25 (a) Water leaks out of the tank at a rate of 1.4 litres per minute.

The leak is stopped after 15 minutes.

Show that, when the leak is stopped, the tank contains 29 litres of water.

[1 mark]

25 (b) The tank is refilled with water from a tap.

The graph shows the amount of water in the tank **after** the leak is stopped.
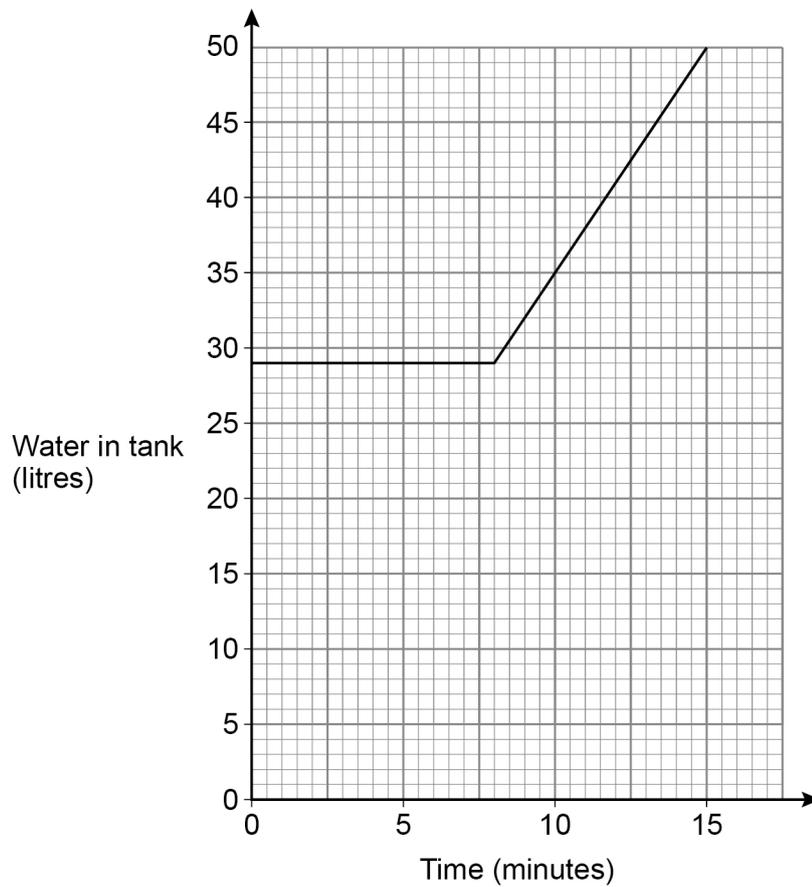
Complete this report by writing a number in each answer space.

[3 marks]

Report

_____ minutes after the leak is stopped, the tap starts to refill the tank.

The rate at which the tank refills is _____ litres per minute.

Turn over ▶

26   Here is a triangle.

Not drawn accurately

3.4 cm

y

3 cm
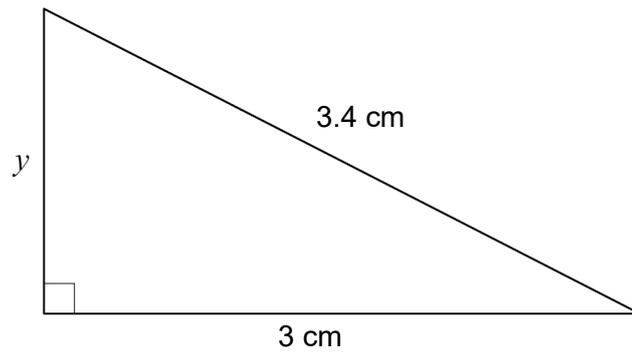
Use Pythagoras' theorem to work out the value of y.

Give your answer as a decimal.

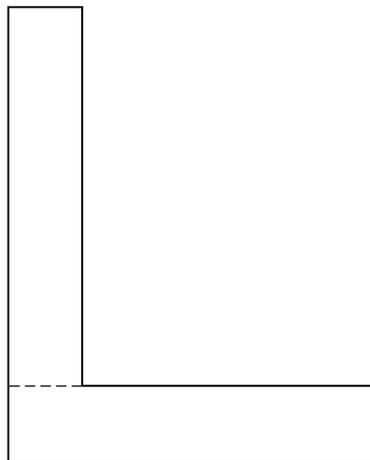**[3 marks]**

$y =$ _____ cm

27 The length of this rectangle is 5 times the width.

5*x*

x ☐ *x*

5*x*
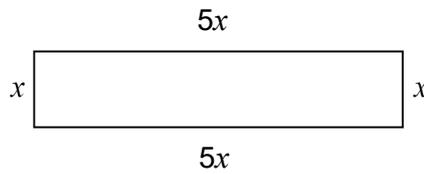
Not drawn accurately

Two of these rectangles are joined, with no overlap, to make this L-shape.

Not drawn accurately

The perimeter of the L-shape is 92.4 cm

Work out the value of the perimeter of **one** of the rectangles.

[4 marks]

Answer _____ cm

Turn over ▶

28 Written as the product of prime factors,

$$10\,584 = 2^3 \times 3^3 \times 7^2$$

and

$$54\,432 = 2^5 \times 3^5 \times 7$$

Work out the highest common factor (HCF) of $10\,584$ and $54\,432$

Give your answer as an integer.

[2 marks]

Answer _____

END OF QUESTIONS

2