



Please write clearly in block capitals.

Centre number

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Candidate number

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Surname

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Forename(s)

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Candidate signature

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I declare this is my own work.

# GCSE MATHEMATICS

# F

Foundation Tier

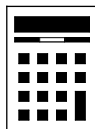
Paper 2 Calculator

Friday 8 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	
<b>TOTAL</b>	



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

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

Do not write  
outside the  
box

**1 (a)** A linear sequence starts

4      7      10      13

Write down the next number in this sequence.

**[1 mark]**

Answer \_\_\_\_\_

**1 (b)** A different linear sequence starts

19      14      9      4

Write down the next number in this sequence.

**[1 mark]**

Answer \_\_\_\_\_

**1 (c)** Here is another sequence.

3      6      12      24

Write down the term-to-term rule for this sequence.

**[1 mark]**

Answer \_\_\_\_\_



2 Here is a price list.

Do not write  
outside the  
box

Soap	£2.00
Candle	£4.55
Lip scrub	£1.75
Body cream	£3.80

2 (a) Work out the cost of three candles.

[1 mark]

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Answer £ \_\_\_\_\_

2 (b) Sal has £7.50  
He wants to buy one soap and one body cream.

Does he have enough money to also buy one lip scrub?

Tick a box.

Yes

No

Show working to support your answer.

[2 marks]

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**3 (a)** Solve  $5x = 30$

**[1 mark]**

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$$x = \underline{\hspace{10em}}$$

**3 (b)** Solve  $-2 + y = 10$

**[1 mark]**

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$$y = \underline{\hspace{10em}}$$

**3 (c)** Simplify fully  $\frac{20w}{4w}$

**[2 marks]**

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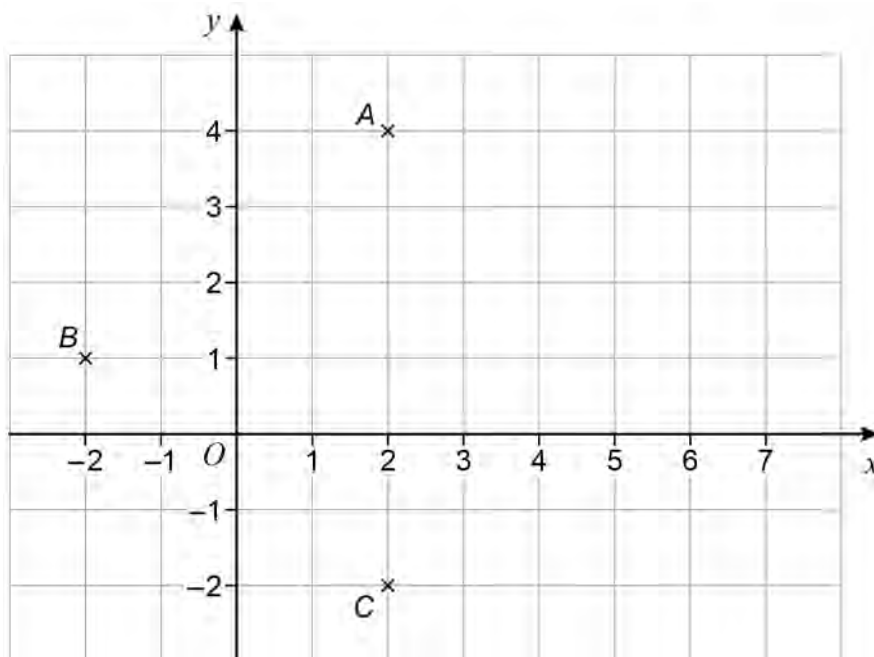
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Answer  $\underline{\hspace{10em}}$



- 4 Points  $A$ ,  $B$  and  $C$  are plotted on a grid.

Do not write  
outside the  
box



- 4 (a) Write down the coordinates of  $C$ .

[1 mark]

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

- 4 (b) Write down the coordinates of the midpoint of  $AC$ .

[1 mark]

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

- 4 (c) Plot point  $D$  on the grid so that  $ABCD$  is a rhombus.

[1 mark]

Turn over ►



**5** Here are five numbers.

14.2

15.1

16.5

16.7

18.0

**5 (a)** Work out the range.

**[1 mark]**

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Answer \_\_\_\_\_

**5 (b)** Work out the mean.

**[2 marks]**

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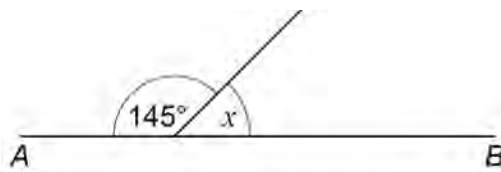
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Answer \_\_\_\_\_



6 (a)  $AB$  is a straight line.



Not drawn accurately

Work out the size of angle  $x$ .

[1 mark]

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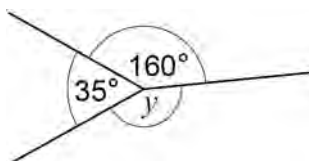
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$$x = \underline{\hspace{2cm}}^{\circ}$$

6 (b)



Not drawn accurately

Work out the size of angle  $y$ .

[2 marks]

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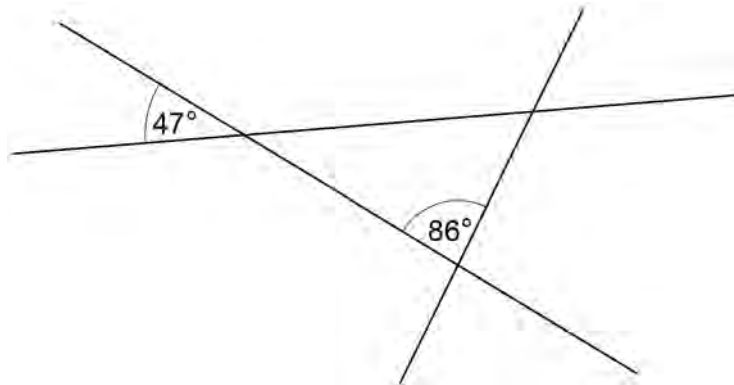
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$$y = \underline{\hspace{2cm}}^{\circ}$$



6 (c) Three straight lines intersect as shown.

Do not write  
outside the  
box



Not drawn  
accurately

What type of triangle is made?

You **must** show your working.

[3 marks]

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Answer \_\_\_\_\_



7

The table shows information about the packs of juice a family has.

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Number of packs	Number of cartons in a pack
5	8
16	3

The family drinks 4 cartons of juice each day.

In total, how many days will their packs last?

[3 marks]

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Answer \_\_\_\_\_ days

Turn over for the next question

6

Turn over ►



- 8 100 people voted in an election for Jo, Kim or Liam.  
The pictogram shows the results for Jo and Kim.

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box

Key: ○ represents 8 people

Jo	○ ○ ○ ○ ○ ○
Kim	○ ○ ○ ○ ◐
Liam	

Complete the pictogram.

[3 marks]

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9

Callum is making pizza.

He can choose three **different** toppings from

- ham (H)
- sweetcorn (S)
- onion (O)
- mushrooms (M).

List **all** the possible options for the three toppings.

The first one has been done for you.

**[2 marks]**

H S O

**Turn over for the next question**

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5

**Turn over ►**

10 (a) Write  $\frac{3}{8}$  as a percentage.

[1 mark]

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

10 (b) Work out  $\frac{15}{32}$  as a decimal.

Give your answer to 2 decimal places.

[2 marks]

Answer \_\_\_\_\_

11 Tick **one** box for each statement.

[3 marks]

	True	May be true	Not true
If a number is $> 0$ the number is positive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If a number is $\leq 3$ the number is 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If a number is $\geq 5$ the <b>smallest</b> possible value of the number is 5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



**12 (a)** Work out the value of  $x^2 + 7x$  when  $x = -4$

**[2 marks]**

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Answer \_\_\_\_\_

**12 (b)** Rearrange  $y = w - 1$  to make  $w$  the subject.

**[1 mark]**

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$w =$  \_\_\_\_\_

**12 (c)** Simplify fully  $4(a + 2) + a$

**[2 marks]**

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Answer \_\_\_\_\_



13

The time Shaz takes to run a race is 1 minute 28 seconds **less** than 2 hours.

Work out her time in hours, minutes and seconds.

[2 marks]

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Answer \_\_\_\_\_ hour \_\_\_\_\_ minutes \_\_\_\_\_ seconds

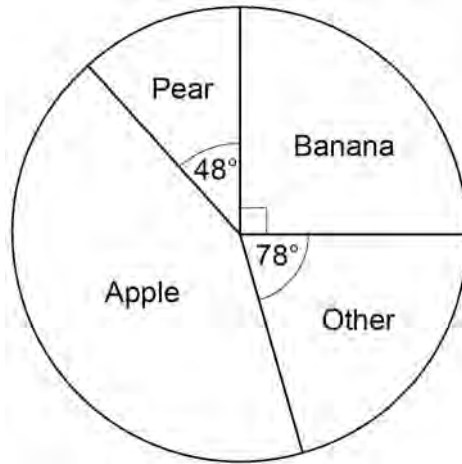
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14 Some people were asked to choose their favourite fruit. The pie chart shows information about the results.

Not drawn accurately



120 people chose Banana.

How many people chose Apple?

[4 marks]

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Answer \_\_\_\_\_

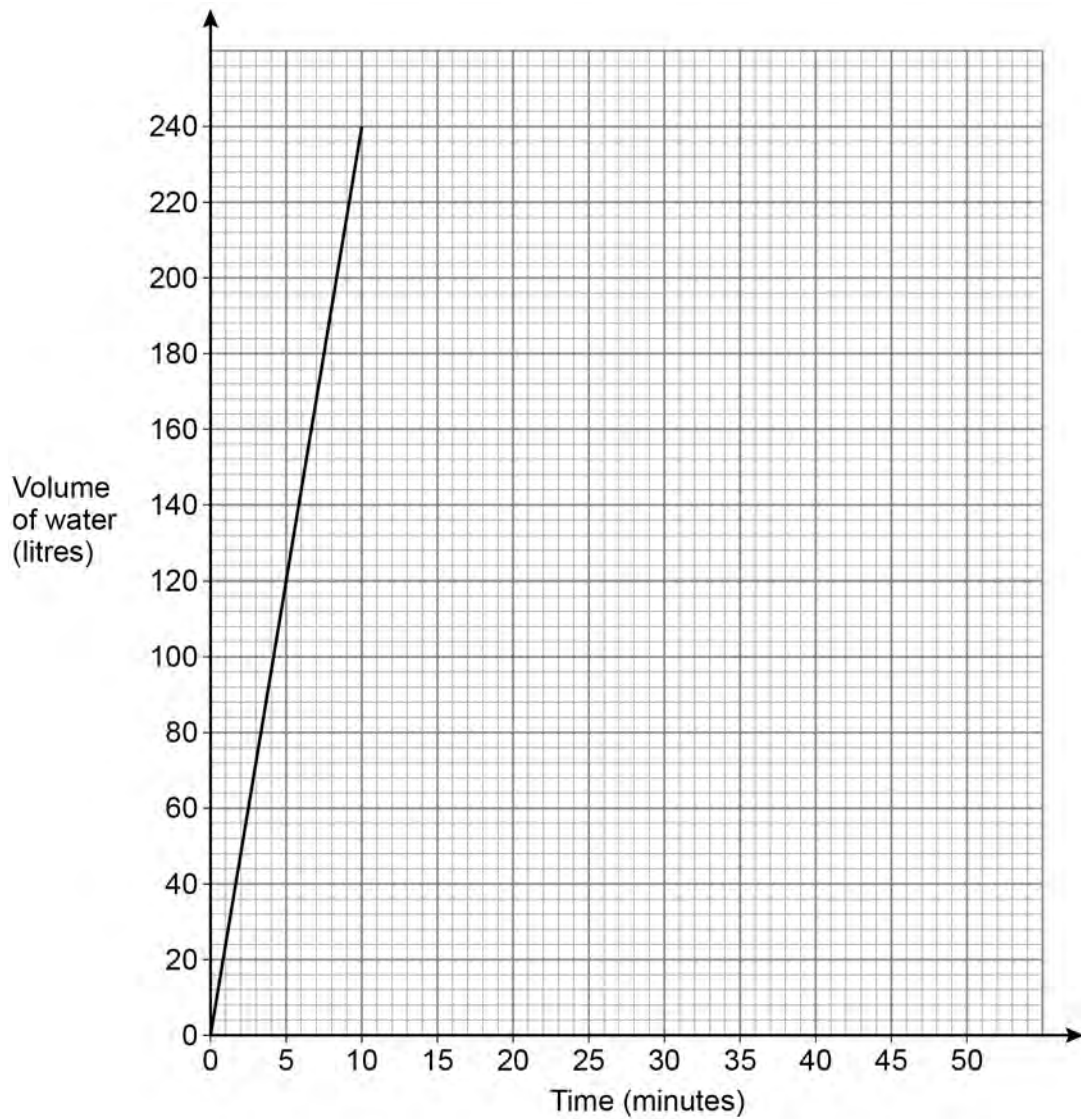
6

Turn over ►



- 15** The graph represents the volume of water in a bath.  
The bath is full after 10 minutes.

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outside the  
box



- 15 (a)** Work out the rate at which the bath is filled.  
State the units of your answer.

**[2 marks]**

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Answer \_\_\_\_\_



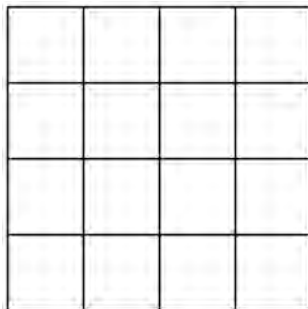
- 15 (b)** After the bath is full,  
the volume of water stays constant for 20 minutes  
then  
all the water empties out at a constant rate in 12 minutes.

Show this information on the graph.

[2 marks]

- 16** In the grid below, shade **one quarter** of the squares  
so that the grid has exactly **two** lines of symmetry.  
Shade complete squares only.

[2 marks]



Turn over for the next question



17

A map has a scale of 1 : 4000

On the map, the distance from a station to a museum is 7 cm

Is the **actual** distance from the station to the museum **more** than 300 m?

Tick a box.

Yes

No

Show working to support your answer.

**[3 marks]**

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18

$X$  is inversely proportional to  $Y$ .

Circle the correct statement.

**[1 mark]**

$X$  is directly proportional to  $Y$

$X$  is directly proportional to  $\frac{1}{Y}$

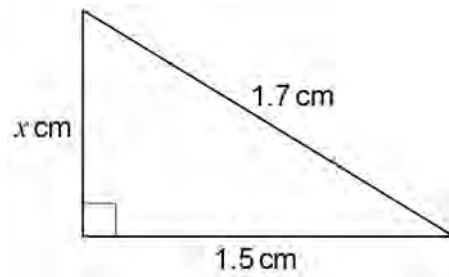
$X$  is directly proportional to  $2Y$

$X$  is directly proportional to  $\sqrt{Y}$



19

Here is a right-angled triangle.

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accuratelyUse Pythagoras' theorem to show that  $x = 0.8$ **[2 marks]**

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**Turn over for the next question****Turn over ►**

- 20** Beth and Lynn each spin the same biased coin a number of times.  
The table shows information about the results.

	Beth	Lynn
Number of spins	125	80
Relative frequency of Heads	0.32	0.35

- 20 (a)** How many **more** Heads did Beth spin than Lynn?

**[2 marks]**

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Answer \_\_\_\_\_

- 20 (b)** Lynn says,

“My estimate of the probability of the coin landing on Heads must be the best,  
because 0.35 is greater than 0.32”

Is she correct?

Tick a box.

Yes

No

Give a reason for your answer.

**[1 mark]**

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21

Some oil has

a mass of 537 g

a density of  $895\,000\text{ g/m}^3$  $1\text{ m}^3 = 1000\text{ litres}$ 

Work out the volume of the oil.

Give your answer in litres.

**[2 marks]**

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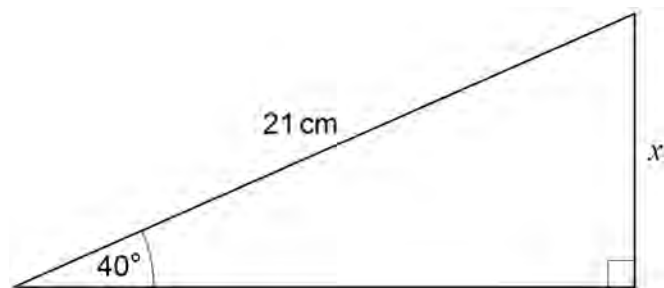
Answer \_\_\_\_\_ litres

**Turn over for the next question**

5

**Turn over ►**

22

Use trigonometry to work out the value of  $x$ .Do not write  
outside the  
boxNot drawn  
accurately**[3 marks]**

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Answer \_\_\_\_\_ cm

23

The length of a wall is 9 metres to the nearest metre.  
Complete the error interval for the length of the wall.**[2 marks]**Answer \_\_\_\_\_ m  $\leq$  length < \_\_\_\_\_ m

- 24** 384 000 electric cars were sold this year.  
This is 20% **more** than last year.  
How many were sold **last year**?

**[3 marks]**

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Answer \_\_\_\_\_

- 25** Here are three terms.

$xy$

$x^2$

$5y^2$

Alec multiplies two of these terms.

Work out the **three** possible fully simplified answers.

**[3 marks]**

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Answer \_\_\_\_\_

Answer \_\_\_\_\_

Answer \_\_\_\_\_





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ANSWER IN THE SPACES PROVIDED**







