



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

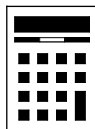
Paper 2 Calculator

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.

**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.

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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$$x = \underline{\hspace{4cm}}$$

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

**[1 mark]**

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$$y = \underline{\hspace{4cm}}$$

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

**[2 marks]**

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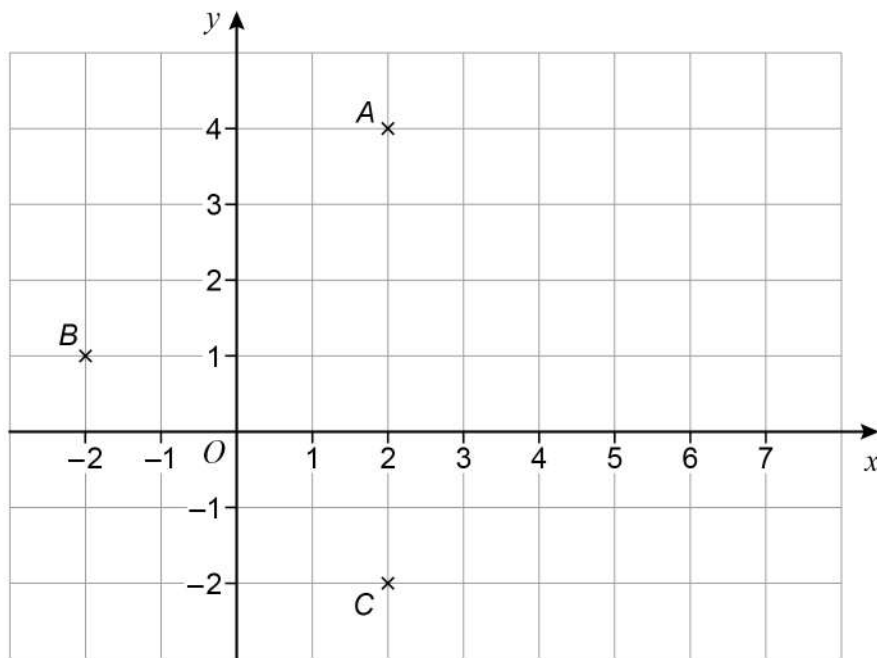
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Answer  $\underline{\hspace{4cm}}$



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



- 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]



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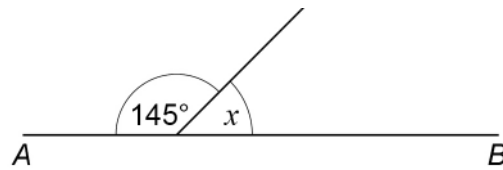
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Answer \_\_\_\_\_



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



Not drawn  
accurately

Work out the size of angle  $x$ .

[1 mark]

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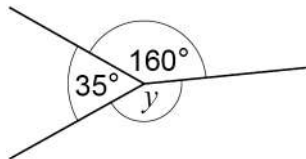
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$$x = \underline{\hspace{2cm}}^{\circ}$$

- 6 (b)



Not drawn  
accurately

Work out the size of angle  $y$ .

[2 marks]

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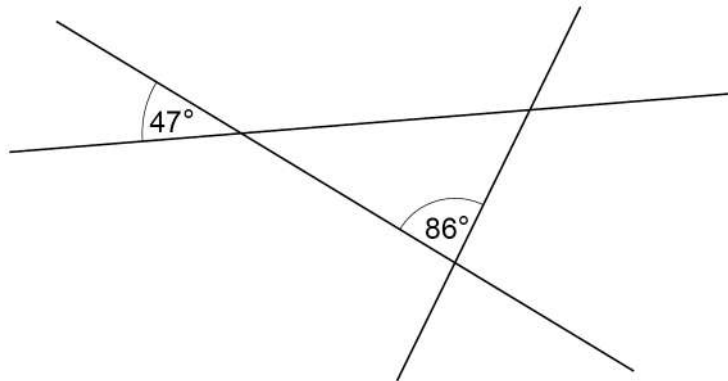


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$$y = \underline{\hspace{2cm}}^{\circ}$$



- 6 (c) Three straight lines intersect as shown.



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.

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**



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

**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

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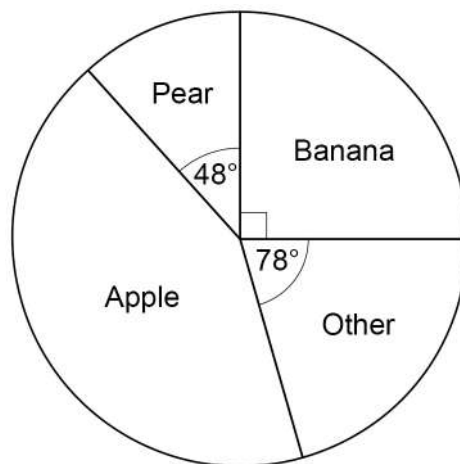
Answer \_\_\_\_\_ hour \_\_\_\_\_ minutes \_\_\_\_\_ seconds



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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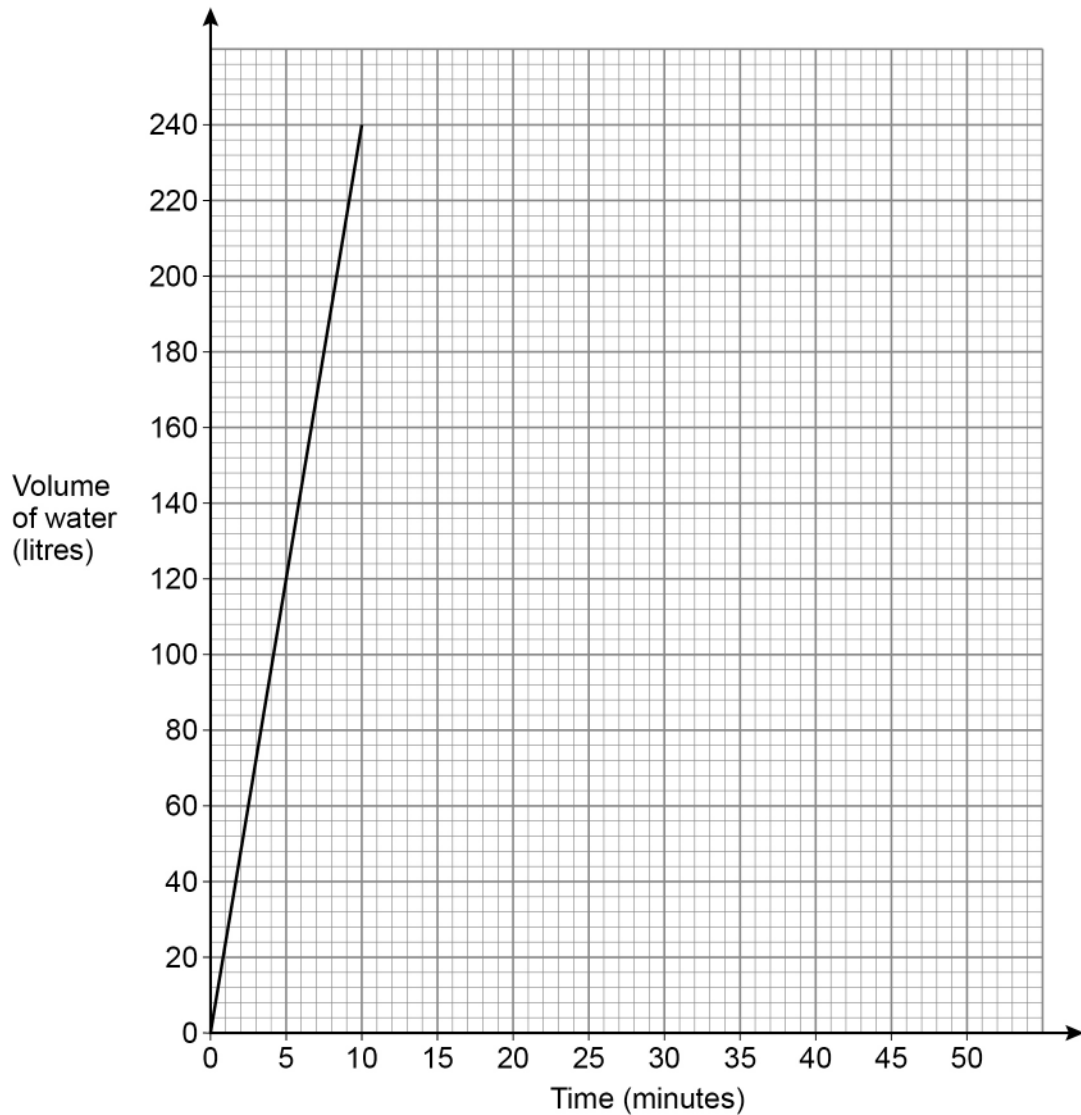
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Answer \_\_\_\_\_



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



- 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 \_\_\_\_\_





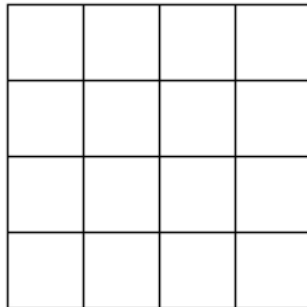
- 15 (b)** After the bath is full,  
the volume of water stays constant for 20 minutes  
then  
all the water empties out at a constant rate in 12 minutes.

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  $\frac{1}{Y}$

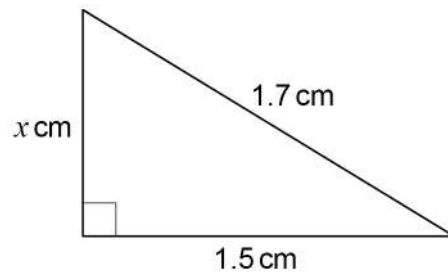
$X$  is directly proportional to  $2Y$

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



19

Here is a right-angled triangle.

Not drawn  
accuratelyUse Pythagoras' theorem to show that  $x = 0.8$ **[2 marks]**

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Turn over for the next question



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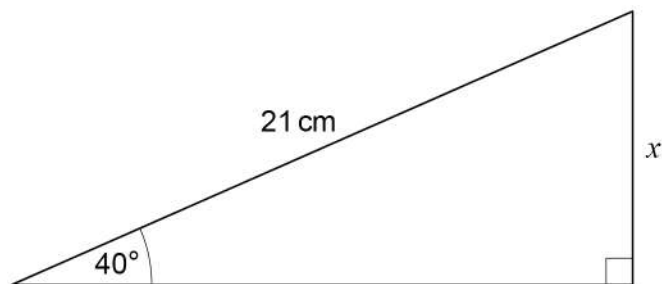
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Answer \_\_\_\_\_ litres

**Turn over for the next question**

22

Use trigonometry to work out the value of  $x$ .Not 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 \_\_\_\_\_



All measurements are in centimetres.

A rectangle with vertices labeled A (top-left), D (top-right), B (bottom-left), and C (bottom-right). The left side AB is labeled  $4x + 1$  and the right side DC is labeled  $2x + 17$ .

Work out the value of the area.

**[5 marks]**

Answer cm<sup>2</sup>

**END OF QUESTIONS**

5

