

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

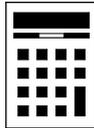
Foundation Tier Paper 2 Calculator
Shadow paper based on the November 2024 paper

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	
TOTAL	

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

1 (a) A linear sequence starts

5 9 13 17

Write down the next number in this sequence.

[1 mark]

Answer _____

1 (b) A different linear sequence starts

6 2 -2 -6

Write down the next number in this sequence.

[1 mark]

Answer _____

1 (c) Here is another sequence.

2 6 18 54

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

[1 mark]

Answer _____

2 Here is a price list.

Toothpaste	£1.90
Hand cream	£2.80
Body spray	£4.15
Sunscreen	£6.60

2 (a) Work out the cost of three body sprays.

[1 mark]

Answer £ _____

2 (b) Kamal has £8.50

He wants to buy one toothpaste and one hand cream.

Does he have enough money to also buy one body spray?

Tick a box.

Yes

No

Show working to support your answer.

[2 marks]

3 (a) Solve $4x = 28$

[1 mark]

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

3 (b) Solve $-3 + y = 11$

[1 mark]

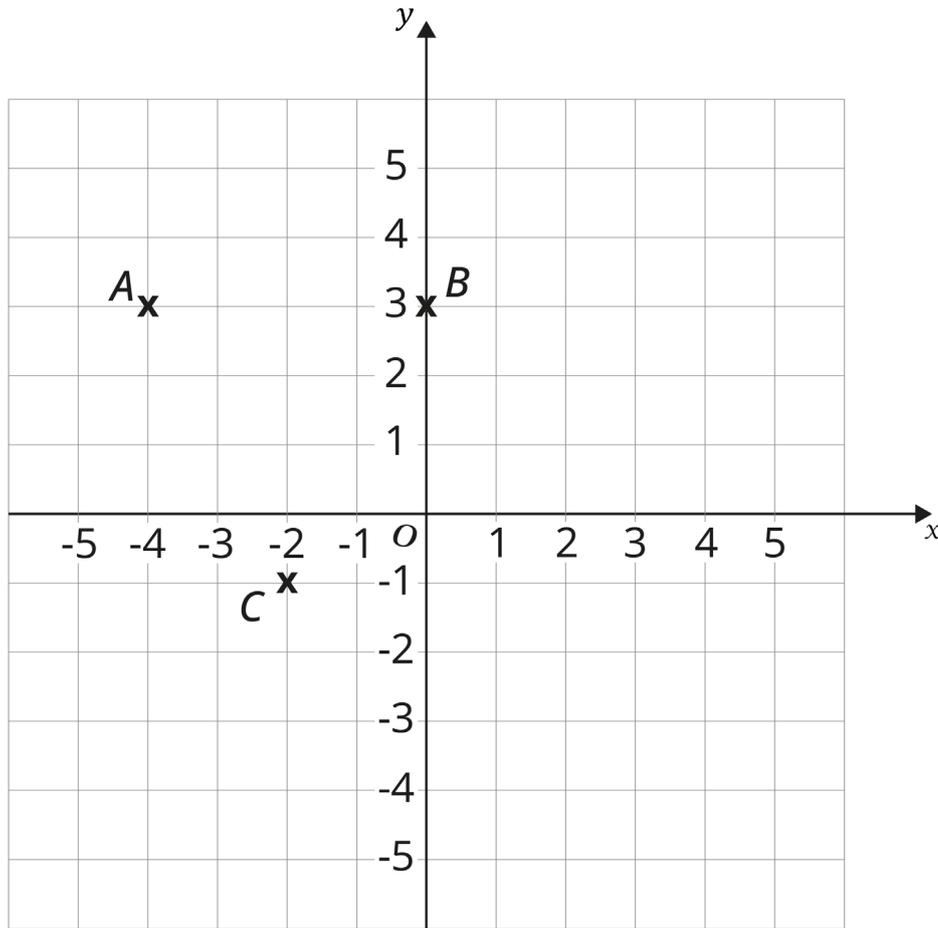
$$y = \underline{\hspace{10em}}$$

3 (c) Simplify fully $\frac{18w}{6w}$

[2 marks]

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

- 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 parallelogram.

[1 mark]

— 7

Turn over ►

5 Here are five numbers.

12.1

13.6

14.4

15.2

17.2

5 (a) Work out the range.

[1 mark]

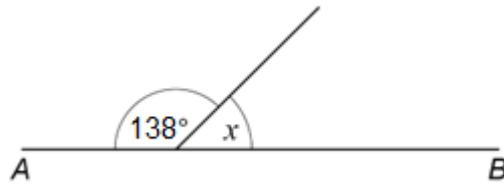
Answer _____

5 (b) Work out the mean.

[2 marks]

Answer _____

- 6 (a) AB is a straight line.



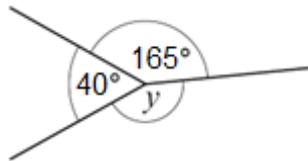
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Work out the size of angle x .

[1 mark]

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

- 6 (b)



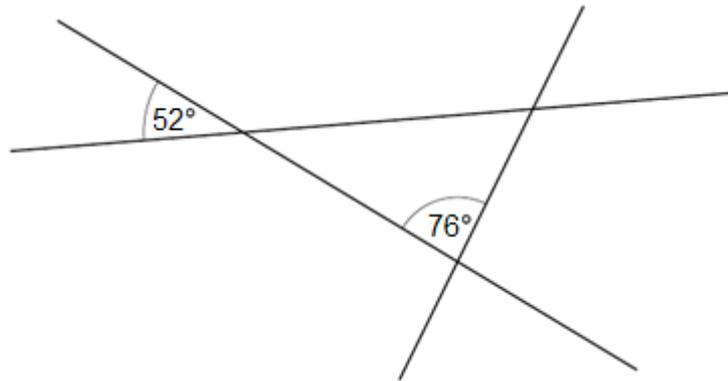
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Work out the size of angle y .

[2 marks]

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

6 (c) Three straight lines intersect as shown.



Not drawn
accurately

What type of triangle is made?

You **must** show your working.

[3 marks]

Answer _____

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

Number of packs	Number of cartons in a pack
4	6
18	5

The family drinks 6 cartons of juice each day.

In total, how many days will their packs last?

[3 marks]

Answer _____ days

Turn over for the next question

- 8 81 people voted in an election for Sam, Riya or Tariq.
The pictogram shows the results for Sam and Riya.

Key: ○ represents 6 people

Sam	○ ○ ○ ○ ○ ○
Riya	○ ○ ○ ○ ◐
Tariq	

Complete the pictogram.

[3 marks]

9

Yasmin is choosing ice-cream.

She can choose three **different** flavours from

- vanilla (V)
- strawberry (S)
- chocolate (C)
- mint (M).

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

The first one has been done for you.

[2 marks]

V S C

Turn over for the next question

5

Turn over ►

10 (a) Write $\frac{5}{8}$ as a percentage.

[1 mark]

Answer _____ %

10 (b) Work out $\frac{37}{64}$ 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 < 2 the number is negative	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If a number is ≥ 10 the smallest possible value is 10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If a number is ≤ -4 the number is 5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12 (a) Work out the value of $x^2 + 9x$ when $x = -5$

[2 marks]

Answer _____

12 (b) Rearrange $p = q + 3$ to make q the subject.

[1 mark]

$q =$ _____

12 (c) Simplify fully $3(b + 5) + b$

[2 marks]

Answer _____

13

The time Amina takes to complete a hike is 2 minutes 46 seconds **less** than 3 hours.

Work out her time in hours, minutes and seconds.

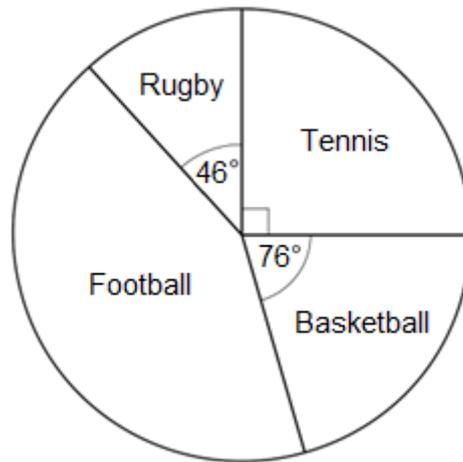
[2 marks]

Answer _____ hours _____ minutes _____ seconds

14

Some students were asked to choose their favourite sport.
The pie chart shows information about the results.

Not drawn
accurately



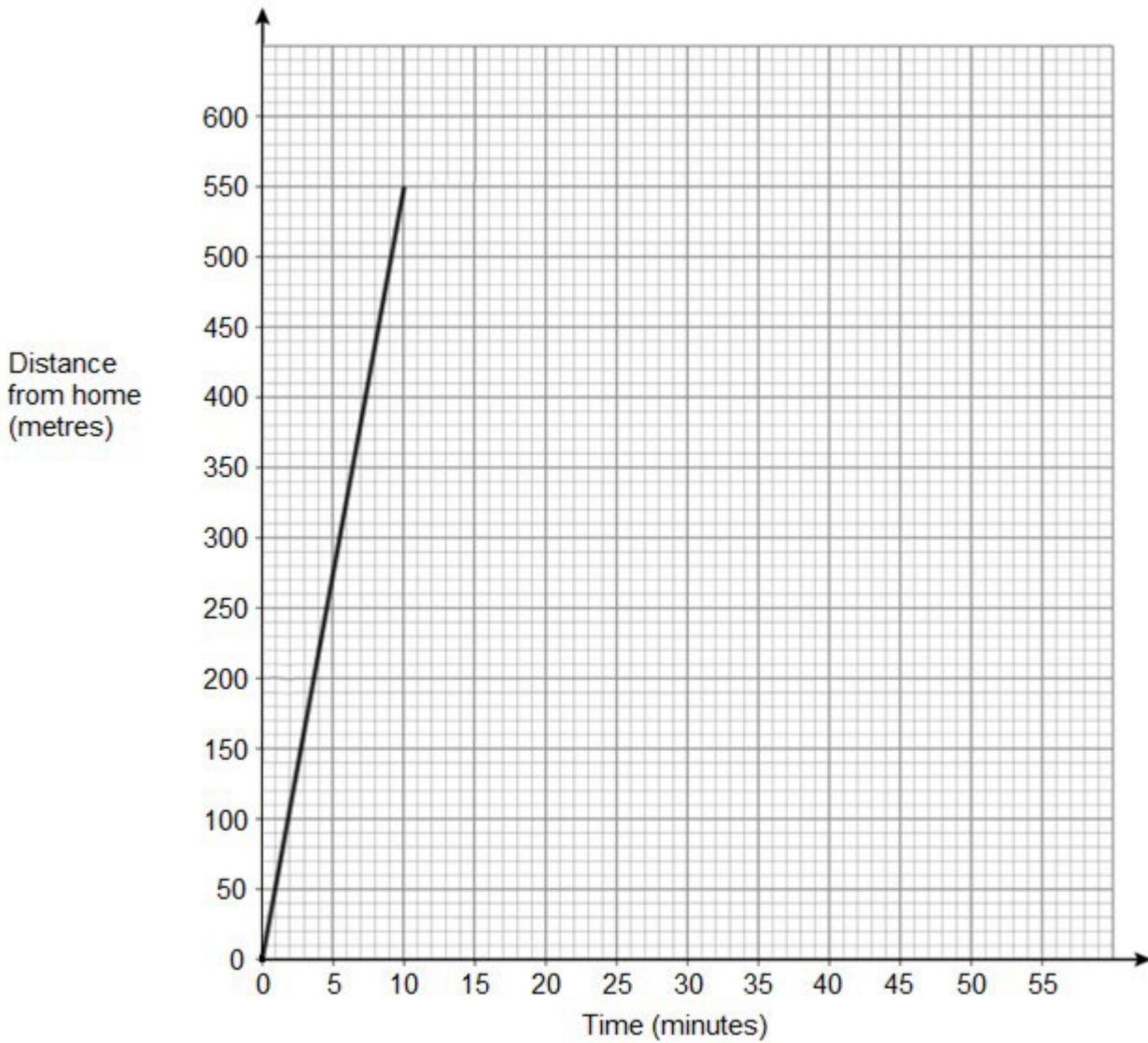
225 people chose Tennis.

How many people chose Football?

[4 marks]

Answer _____

- 15** The graph shows Lucy's journey to the shop and back.
She arrives at the shop after 10 minutes.



- 15 (a)** Work out her walking speed.
State the units of your answer.

[2 marks]

Answer _____

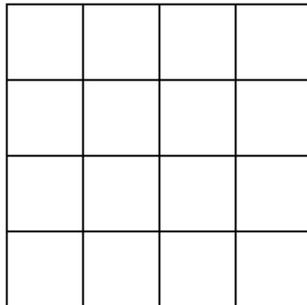
- 15 (b)** Lucy stays at the shop
for 25 minutes
then
walks home in 17 minutes at a constant speed.

Show this information on the graph.

[2 marks]

- 16** In the grid below, shade **one quarter** of the squares
so that the grid has rotational symmetry of order 2 and **no** lines of symmetry.
Shade complete squares only.

[2 marks]



Turn over for the next question

17

A map has a scale of 1 : 6000

On the map, the distance from a supermarket to a train station is 8 cm

Is the **actual** distance from the supermarket to the train station **more** than 500 m?

Tick a box.

Yes

No

Show working to support your answer.

[3 marks]

18

A is inversely proportional to B .

Circle the correct statement.

[1 mark]

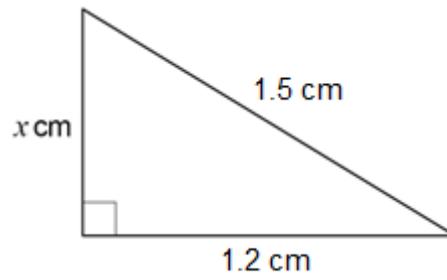
A increases as B increases

A stays the same when B doubles

A doubles when B doubles

A halves when B doubles

19 Here is a right-angled triangle.



Not drawn
accurately

Use Pythagoras' theorem to show that $x = 0.9$

[2 marks]

Turn over for the next question

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

	Maya	Lewis
Number of spins	75	90
Relative frequency of Heads	0.44	0.4

- 20 (a)** How many **more** Heads did Maya spin than Lewis?

[2 marks]

Answer _____

- 20 (b)** Maya says,

“My estimate of the probability of the coin landing on Heads must be the best,
because 0.44 is greater than 0.4”

Is she correct?

Tick a box.

Yes

No

Give a reason for your answer.

[1 mark]

21

Some oil has

a mass of 672 g

a density of $960\,000\text{ g/m}^3$ $1\text{ m}^3 = 1000\text{ litres}$

Work out the volume of the oil.

Give your answer in litres.

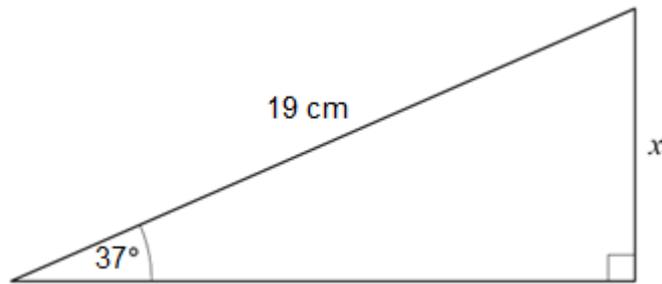
[2 marks]

Answer _____ litres

Turn over for the next question

- 22 Use trigonometry to work out the value of x .

Not drawn
accurately



[3 marks]

Answer _____ cm

- 23 The temperature of a room is 17° to the nearest degree.
Complete the error interval for temperature of the room.

[2 marks]

Answer _____ $^\circ \leq$ temperature $<$ _____ $^\circ$

- 24** 429 000 tickets were sold for a concert this year.
This is 30% **more** than last year.
How many were sold **last year**?

[3 marks]

Answer _____

- 25** Here are three terms.

$2x$

$3x^2$

y^2

Bella multiplies two of these terms.

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

[3 marks]

Answer _____

Answer _____

Answer _____

There are no questions printed on this page

*Do not write
outside the
box*

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ANSWER IN THE SPACES PROVIDED**

