**Pearson Edexcel Level 1/Level 2 GCSE (9–1)**

**Wednesday 14 June 2023**

Morning (Time: 1 hour 30 minutes)

**Paper reference** **1MA1/3F**

# Mathematics

**PAPER 3 (Calculator)**
**Foundation Tier**

**You must have:** Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator, Formulae Sheet (enclosed). Tracing paper may be used.

Total Marks

## Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided
  – there may be more space than you need.
- You must **show all your working.**
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- **Calculators may be used.**
- If your calculator does not have a $\pi$ button, take the value of $\pi$ to be 3.142 unless the question instructs otherwise.

## Information

- The total mark for this paper is 80
- The marks for **each** question are shown in brackets
  – use this as a guide as to how much time to spend on each question.

## Advice

- Read each question carefully before you start to answer it.
- Try to answer every question.
- Check your answers if you have time at the end.

*Turn over* ▶

**Answer ALL questions.**

**Write your answers in the spaces provided.**

**You must write down all the stages in your working.**

**1** Write the number three thousand one hundred and seven in figures.

.......................................................

**(Total for Question 1 is 1 mark)**

**2** Write $\dfrac{3}{10}$ as a percentage.

.......................................................%

**(Total for Question 2 is 1 mark)**

**3** Simplify $m + m + m + m$

.......................................................

**(Total for Question 3 is 1 mark)**

**4** Change 4000 grams into kilograms.

......................... kilograms

**(Total for Question 4 is 1 mark)**

**5**             7        –5        3        9        –2

Write these numbers in order of size.
Start with the smallest number.

.......................................................

**(Total for Question 5 is 1 mark)**

**6** The diagram shows a shape on a centimetre grid.
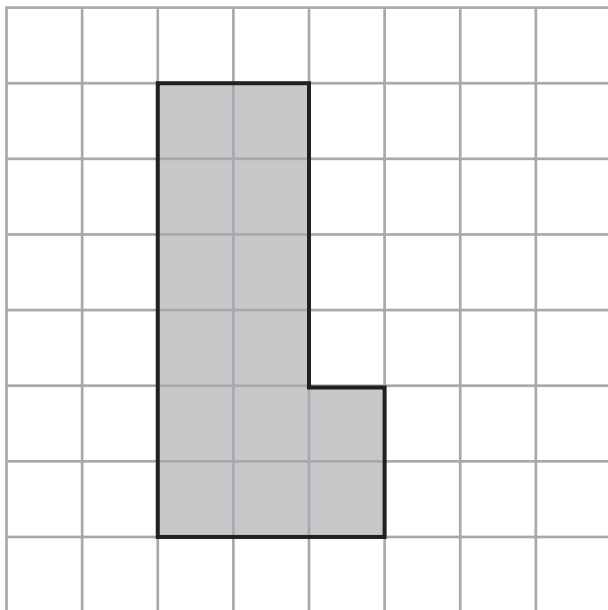
(a) Find the area of the shape.

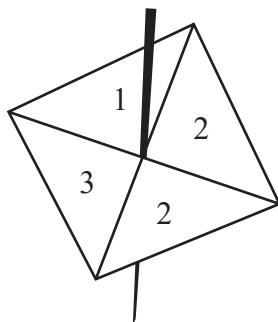..................................................... $cm^2$

**(1)**

(b) Find the perimeter of the shape.

..................................................... cm

**(1)**

**(Total for Question 6 is 2 marks)**

**7** Here is a 4-sided spinner.



Samina spins the spinner once.

(a) Choose the word that best describes the probability that the spinner lands on 2

| impossible | unlikely | evens | likely | certain |

.......................................................

(1)

(b) Choose the word that best describes the probability that the spinner lands on a number less than 4

| impossible | unlikely | evens | likely | certain |

.......................................................

(1)

Ralph rolls a biased dice once.
The probability that he gets the number 5 is 0.4

(c) Work out the probability that Ralph does **not** get the number 5

.......................................................

(1)

**(Total for Question 7 is 3 marks)**

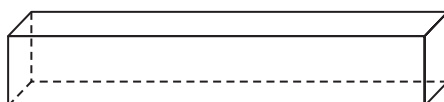**8** A quadrilateral has 4 right angles and 4 sides of equal length.

(a) Write down the mathematical name of this quadrilateral.

.......................................................

**(1)**

The diagram shows a solid shape.



(b) Write down the mathematical name of this shape.

.......................................................

**(1)**

**(Total for Question 8 is 2 marks)**

**9** The table shows the number of books read by four people in one month.

| Person | Number of books |
|--------|-----------------|
| Ximena | 7 |
| Martha | 9 |
| Kezia | 1 |
| Tabby | 5 |

(a) Work out the median number of books.

.......................................................

(2)

(b) Find the range.

.......................................................

(1)

(c) On the grid, draw a bar chart to show the information in the table.

(3)
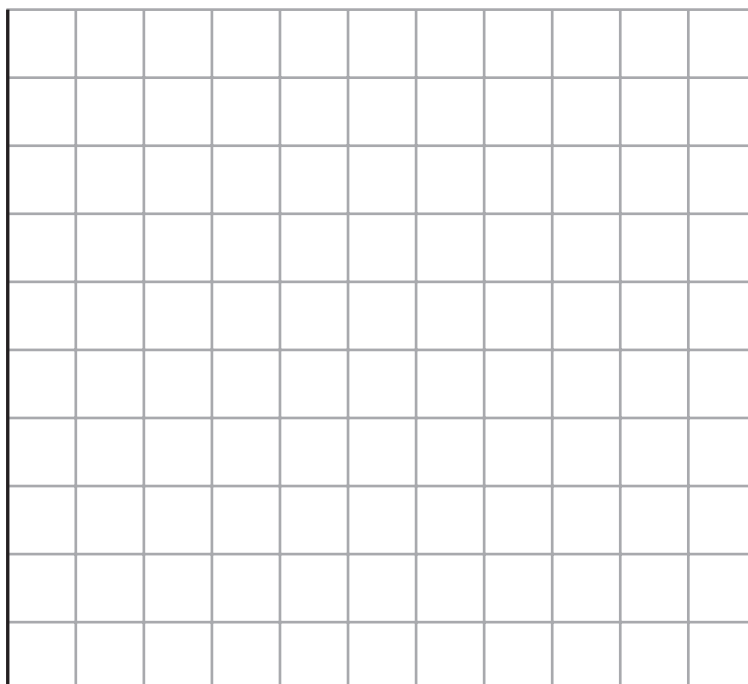
**(Total for Question 9 is 6 marks)**

**10** Wayne begins walking at 8 30 am.
He walks for 1 hour and 45 minutes.

Wayne then rests for 15 minutes.
He then walks for 85 minutes to a cafe.

Does Wayne get to the cafe before 12 noon?
You must show how you get your answer.

**(Total for Question 10 is 4 marks)**

*Turn over* ▶

P 7 5 1 5 1 A 0 7 2 4

**11** Gabriel thinks of a number.

He multiplies his number by 5 and then adds 7
His answer is 72

What number did Gabriel think of?

.......................................................

**(Total for Question 11 is 3 marks)**

**12** Some students took a guitar exam.

The pie chart shows information about the grades the students got.
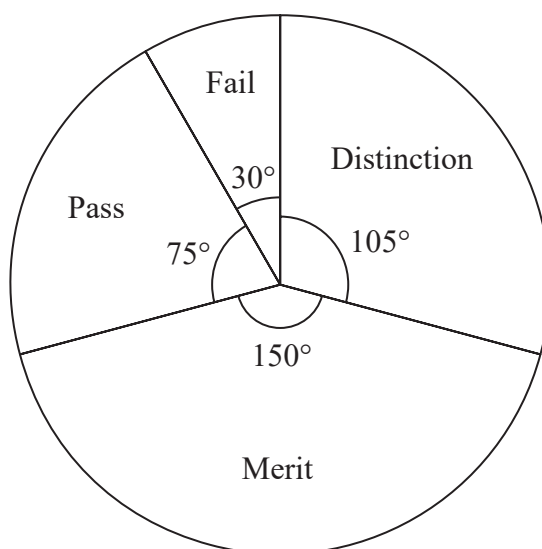


(a) Write down the modal grade.

.......................................................

**(1)**

7 students got distinction.

(b) Work out the total number of students who took the guitar exam.

.......................................................

**(3)**

**(Total for Question 12 is 4 marks)**

**13** Rowena drove from her home to a beach.

Here is a travel graph for her journey.
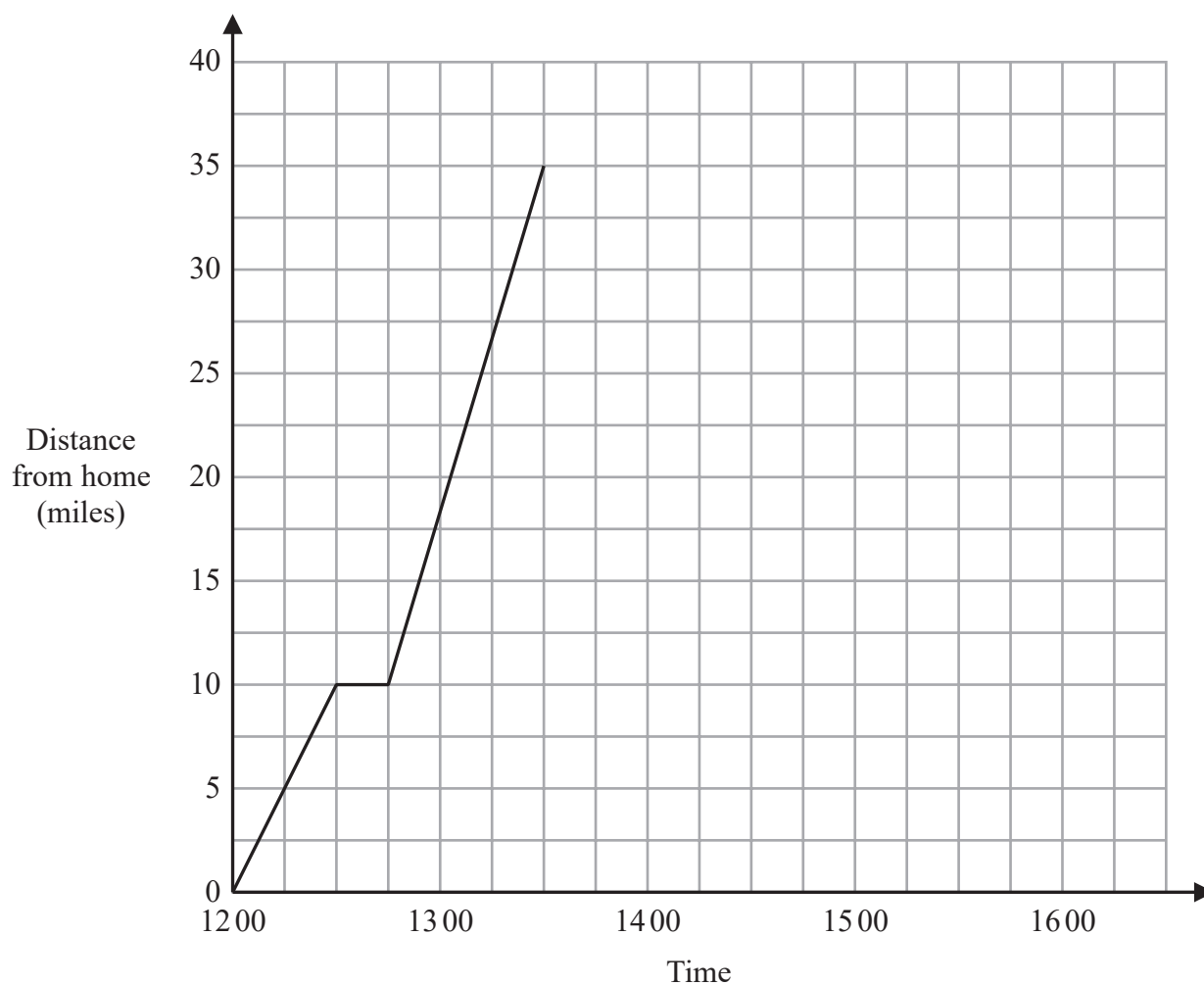


Rowena stopped at a cafe on her way to the beach.

(a) (i) How many minutes did Rowena take to drive to the cafe?

.................................................... minutes
**(1)**

(ii) Write down the distance from Rowena's home to the cafe.

.................................................... miles
**(1)**

Rowena stayed at the beach for $1\frac{1}{2}$ hours.

She then drove home without stopping.
Rowena arrived home at 16 00

(b) On the grid, complete the travel graph.

**(2)**

(c) Work out the average speed for the journey from the beach to Rowena's home.

.......................... miles per hour

**(1)**

**(Total for Question 13 is 5 marks)**

**14** 120 boxes cost £6
270 bags cost £10

A bag is cheaper than a box.

How much cheaper?
Give your answer in pence correct to 1 decimal place.

....................................................p

**(Total for Question 14 is 4 marks)**

**15** There are only red beads and green beads in a bag.

number of red beads : number of green beads = 1 : 4

There are 35 red beads in the bag.

Work out the total number of beads in the bag.

.......................................................

**(Total for Question 15 is 2 marks)**

**16**
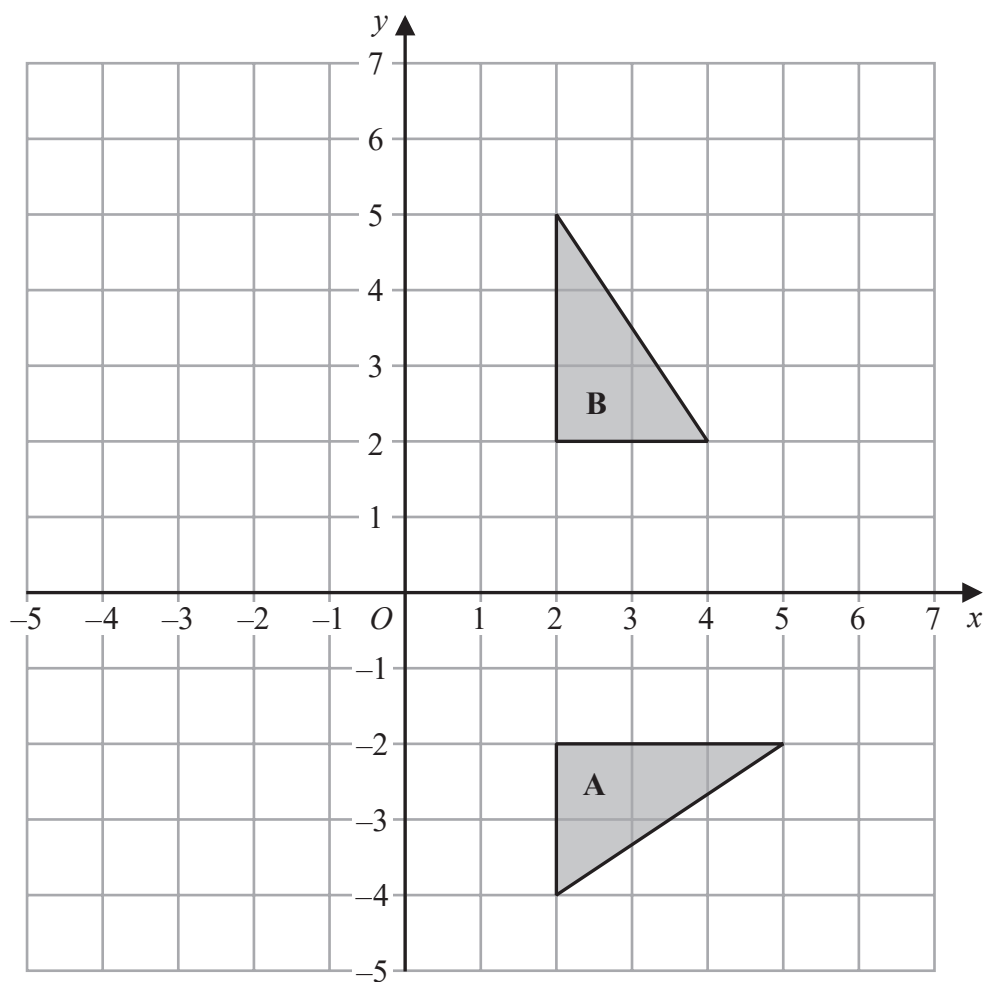


Describe fully the single transformation that maps shape **A** onto shape **B**.

...........................................................................................................................................................................

...........................................................................................................................................................................

...........................................................................................................................................................................

**(Total for Question 16 is 2 marks)**

**17** The diagram shows the position of town *T*.

N

×
*T*

Town *R* is 55 km from town *T* on a bearing of 065°

Mark the position of town *R* with a cross (×).
Use a scale of 1 cm to 10 km.

**(Total for Question 17 is 2 marks)**

**18** Solve $4(2x - 3) = 20$

$x = $ ......................................................

**(Total for Question 18 is 3 marks)**

**19** Jenny invests £3000 for 6 years at $y$% simple interest per year.

At the end of the 6 years, Jenny has received a total of £450 in interest.

Work out the value of $y$.

$y = $ ......................................................

**(Total for Question 19 is 3 marks)**

*Turn over*

**20** (a) Simplify $(m^2)^3$

.............................................

(b) Simplify $x^5 \times x^8$

.............................................

(c) Expand $4p(p^2 + 3p)$

.............................................

**(2)**

**(Total for Question 20 is 4 marks)**

**21** Jonny wants to know how much coffee he will need for 800 people at a meeting.

Each person who drinks coffee will drink 2 cups of coffee.
10.6 g of coffee is needed for each cup of coffee.

Jonny assumes 68% of the people will drink coffee.

(a) Using this assumption, work out the amount of coffee Jonny needs.
Give your answer correct to the nearest gram.

.................................................... g

**(4)**

Jonny's assumption is wrong.
72% of the people will drink coffee.

(b) How does this affect your answer to part (a)?

.............................................................................................................................................................................

.............................................................................................................................................................................

.............................................................................................................................................................................

**(1)**

**(Total for Question 21 is 5 marks)**

*Turn over* ▶

**22** *ACF* and *ADG* are straight lines.
*BCD* and *EFG* are parallel lines.
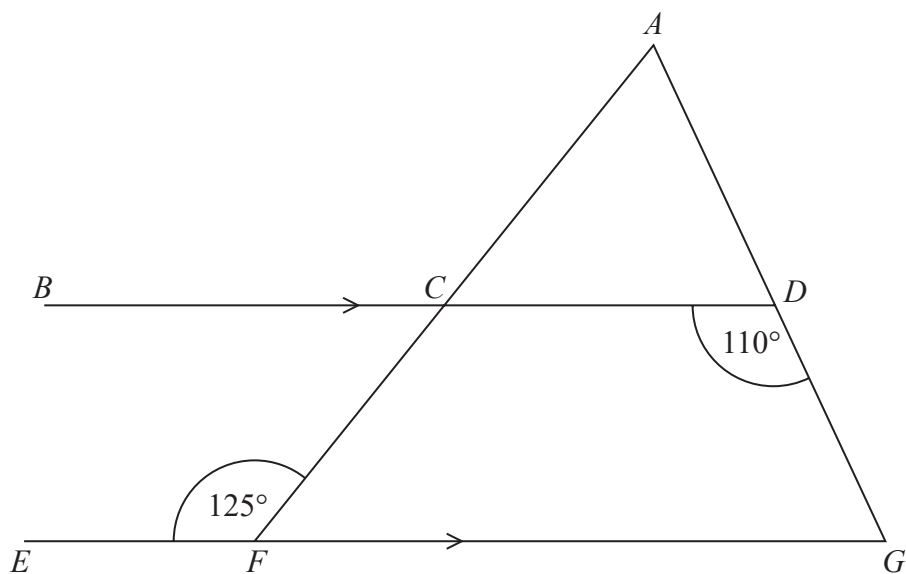


Show that triangle *ACD* is isosceles.
Give a reason for each stage of your working.

**(Total for Question 22 is 5 marks)**

*P75151A01824*

**23** It takes 14 hours for 5 identical pumps to fill a water tank.

How many hours would it take 4 of these pumps to fill another water tank of the same size?

.......................... hours

**(Total for Question 23 is 2 marks)**

**24** $A$ and $B$ are numbers such that

$$A = 2^2 \times 3^4 \times 7$$
$$B = 3^2 \times 7^2$$

(a) Find the highest common factor (HCF) of $A$ and $B$.

.......................................................

(1)

(b) Find the lowest common multiple (LCM) of $A$ and $B$.

.......................................................

(2)

**(Total for Question 24 is 3 marks)**
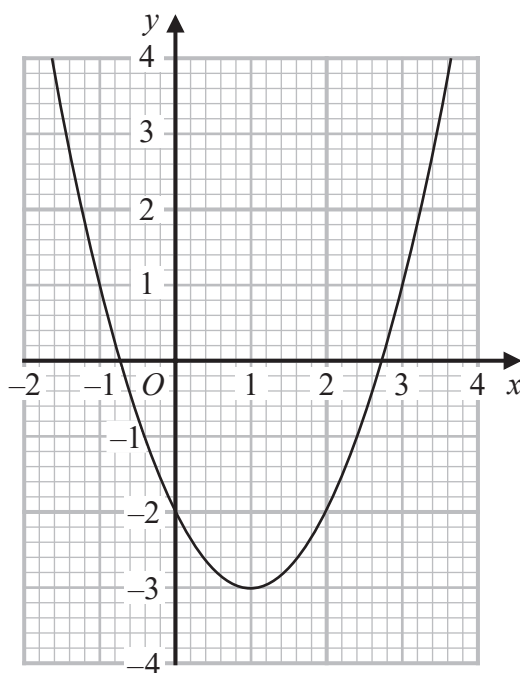
**25** Lava flows from a volcano at a constant rate of $11.9\,m^3/s$

How many days does it take for $67\,205\,600\,m^3$ of lava to flow from the volcano?
Give your answer correct to the nearest day.

.................................................... days

**(Total for Question 25 is 3 marks)**

*Turn over* ▶

**26** Here is the graph of $y = x^2 - 2x - 2$



(a) Write down the coordinates of the turning point on the graph of $y = x^2 - 2x - 2$

(...................... , ......................)

**(1)**

(b) Write down an estimate for one of the roots of $x^2 - 2x - 2 = 0$

............................................................

**(1)**

**(Total for Question 26 is 2 marks)**

**27** A solid cuboid is made of metal.

The metal has a density of $9 \, \text{g/cm}^3$
The volume of the cuboid is $72 \, \text{cm}^3$

Work out the mass of the cuboid.

....................................................... g

**(Total for Question 27 is 2 marks)**

**28** (a) Write $(9 \times 10^4) : (4.5 \times 10^6)$ in the form $1 : n$ where $n$ is an integer.

.......................................................

**(2)**

(b) Write the following numbers in order of size.
Start with the smallest number.

$5.625 \times 10^4$        $5625$        $56\,250 \times 10^{-3}$        $0.005\,625 \times 10^5$

.......................................................................................................................

**(2)**

**(Total for Question 28 is 4 marks)**

**TOTAL FOR PAPER IS 80 MARKS**