Paper Reference 1MA1/3F
Pearson Edexcel
Level 1/Level 2 GCSE (9−1)

Total Marks

Mathematics

PAPER 3 (Calculator)
Foundation Tier

Wednesday 14 June 2023 – Morning

Time: 1 hour 30 minutes

In the boxes below, write your name, centre number and candidate number.

Surname					
Other names					
Centre Number					
Candidate Number					

X75151A

Pearson

YOU MUST HAVE

Ruler, protractor, compasses, writing and drawing equipment, calculator, Formulae Sheet (enclosed). Tracing paper may be used.

YOU WILL BE GIVEN

Diagram Booklet

INSTRUCTIONS

Answer ALL questions.

Answer the questions in the spaces provided in this Question Paper or on the separate diagrams – 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 π button, take the value of π to be $3{\cdot}142$ 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.

There may be spare copies of some diagrams in case you need them.

You may be provided with a model for Question 8(b)
It is NOT accurate.

You may be provided with a shape for Question 16
It is accurate.

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.

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

$\frac{3}{10}$ **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)

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6. Look at the diagram for Question 6 in the Diagram Booklet.

It shows a shape on a square grid.

Each square on the grid represents a 1 cm square.

(a) Find the area of the shape.

(1 mark)

_____ cm^2

(b) Find the perimeter of the shape.

(1 mark)

_____ cm

(Total for Question 6 is 2 marks)

7. Look at the diagram for Question 7 in the Diagram Booklet.

It shows a 4–sided spinner.

Samina spins the spinner once.

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

impossible unlikely evens likely certain

(1 mark)

(continued on the next page)

7. continued.

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

impossible unlikely evens likely certain

(1 mark)

(continued on the next page)

7. continued.

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 mark)

(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 mark)

(continued on the next page)

8. continued.

Look at the diagram for Question 8(b) in the Diagram Booklet.

You may be provided with a model.

They show a solid shape.

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

(1 mark)

(Total for Question 8 is 2 marks)

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

Person	Number of books
Ximena (X)	7
Martha (M)	9
Kezia (K)	1
Tabby (T)	5

(a) Work out the median number of books.

(2 marks)

(continued on the next page)

9. continued.

(b) Find the range.

(1 mark)

(c) Look at the diagram for Question 9(c) in the Diagram Booklet.

It shows a blank grid.

On the grid, draw a bar chart to show the information in the table on the previous page.

(3 marks)

(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.

(4 marks)

Answer space continues on the next page.

10. continued.

(Total for Question 10 is 4 marks)

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. Look at the diagram for Question 12 in the Diagram Booklet.

It shows a pie chart.

Some students took a guitar exam.

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

(a) Write down the modal grade.

(1 mark)

(continued on the next page)

12. continued.

7 students got distinction.

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

(3 marks)

(Total for Question 12 is 4 marks)

13. Look at the diagram for Question 13 in the Diagram Booklet.

It shows a graph.

Rowena drove from her home to a beach.

A travel graph for her journey is shown in the Diagram Booklet.

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

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

(1 mark)

_____ minutes

(continued on the next page)

13. (a) continued.

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

(1 mark)

_____ miles

(continued on the next page)

13. continued.

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

She then drove home without stopping.

Rowena arrived home at 1600

(b) On the grid in the Diagram Booklet, complete the travel graph.

(2 marks)

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

(1 mark)

_____ miles per hour

(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.

    (4 marks)

    Answer space continues on the next page.

14. continued.

_____ **pence**

(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. Look at the diagram for Question 16 in the Diagram Booklet.

It shows shape A and shape B on a grid.

A cut out shape may be available if you wish to use it.

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

(Total for Question 16 is 2 marks)

17. Look at the diagram for Question 17 in the Diagram Booklet.

It shows the position of town T

Town R is 75 km from town T on a bearing of 065°

Mark the position of town R on the diagram.

Use a scale of 1 cm to 10 km

(Total for Question 17 is 2 marks)

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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

(3 marks)

Answer space continues on the next page.

19. continued.

$y =$ _____

(Total for Question 19 is 3 marks)

20. (a) Simplify

$(m^2)^3$

(1 mark)

(b) Simplify

$y^5 \times y^8$

(1 mark)

(continued on the next page)

20. continued.

(c) Expand

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

(2 marks)

(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 grams 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.

(4 marks)

Answer space continues on the next page.

21. (a) continued.

_____ grams

(continued on the next page)

21. continued.

Jonny's assumption is wrong.

72% of the people will drink coffee.

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

(1 mark)

(Total for Question 21 is 5 marks)

22. Look at the diagram for Question 22 in the Diagram Booklet.

It shows triangle AGF and two straight lines ACF and ADG

BCD and EFG are parallel lines.

Angle CDG = 110°

Angle EFC = 125°

Show that triangle ACD is isosceles.

Give a reason for each stage of your working.

(5 marks)

Answer space continues on the next page.

22. continued.

(Total for Question 22 is 5 marks)

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 mark)

(continued on the next page)

24. continued.

Remember:

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

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

(b) Find the lowest common multiple (LCM) of

A and B

(2 marks)

Answer space continues on the next page.

24. (b) continued.

(Total for Question 24 is 3 marks)

25. Lava flows from a volcano at a constant rate of $11 \cdot 9\ m^3/s$

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.

(3 marks)

Answer space continues on the next page.

25. continued.

_____ **days**

(Total for Question 25 is 3 marks)

26. Look at the diagram for Question 26 in the Diagram Booklet.

It shows 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 mark)

(_____ , _____)

(continued on the next page)

26. continued.

(b) Write down an estimate for one of the roots of

$$x^2 - 2x - 2 = 0$$

(1 mark)

(Total for Question 26 is 2 marks)

27. A solid cuboid is made of metal.

The metal has a density of $9\ g/cm^3$

The volume of the cuboid is $72\ cm^3$

Work out the mass of the cuboid.

_____ **grams**

(Total for Question 27 is 2 marks)

28. (a) Write

$(9 \times 10^4) : (4 \cdot 5 \times 10^6)$ in the form

$1 : n$ where n is an integer.

(2 marks)

(continued on the next page)

28. continued.

(b) Write the following numbers in order of size.

Start with the smallest number.

(2 marks)

$5 \cdot 625 \times 10^{4}$

5625

$56\,250 \times 10^{-3}$

$0 \cdot 005\,625 \times 10^{5}$

Answer space continues on the next page.

28. (b) continued.

(Total for Question 28 is 4 marks)

TOTAL FOR PAPER IS 80 MARKS

END OF PAPER