

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

Total Marks
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Mathematics  
PAPER 3 (Calculator)  
Foundation Tier

Monday 13 November 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					

**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  $\pi$  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.**

**You may be provided with models for Question 10(b) and Question 27  
They are NOT accurate.**

**You may be provided with a model for Question 19  
It is accurate.**

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

**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.**

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**Answer ALL questions.**

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

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

**1. Write 35% as a decimal.**

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

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**2. Write 8061 correct to the nearest hundred.**

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

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**3. Write down a number that is less than  
–5**

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

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- 4. Look at the diagram for Question 4 in the Diagram Booklet.**

**It shows a grid of squares.**

**What fraction of the grid is shaded?**

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

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- 5. Write down the value of the 9 in the number 27·963**

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

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

**It is an incomplete pictogram showing information about the number of chocolate cakes, vanilla cakes and lemon cakes sold by Year 7 at a school fair.**

**24 banana cakes were sold by Year 7**

**(a) Use this information to complete the pictogram in the Diagram Booklet.**

**(1 mark)**

**(continued on the next page)**

**6. continued.**

**At the fair, Year 8 sold a total of  
150 cakes.**

**(b) Which Year sold most cakes at  
the fair, Year 7 or Year 8?**

**You must show how you get your  
answer.**

**(3 marks)**

**Answer space continues on the  
next page.**

**6. (b) continued.**

**(Total for Question 6 is 4 marks)**

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**Turn over**

**7. Miklos is swimming lengths of a swimming pool.**

**Each length of the pool is 25 metres.**

**Miklos has swum 178 lengths of the pool.**

**He wants to swim a total distance of 8050 metres.**

**Calculate how many more lengths Miklos needs to swim.**

**(3 marks)**

**Answer space continues on the next page.**

**7. continued.**

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

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**Turn over**



8. Here are the first four terms of a number sequence.

97

91

85

79

- (a) Explain how to work out the next number of the sequence.

(1 mark)

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(continued on the next page)

**8. continued.**

**(b) Work out the difference between the 5th term and the 7th term of the sequence.**

**(2 marks)**

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**(continued on the next page)**

**Turn over**

**8. continued.**

**(c) Explain why 52 is NOT a number  
in this sequence.**

**(1 mark)**

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**(Total for Question 8 is 4 marks)**

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9. Mandy buys a 12 kilogram bag of dog food.

Mandy's dog has 3 meals a day.

She gives her dog 105 grams of dog food for each of these meals.

How many complete weeks will the bag of dog food last?

You must show all your working.

(5 marks)

Answer space continues on the next two pages.

9. continued.

**9. continued.**

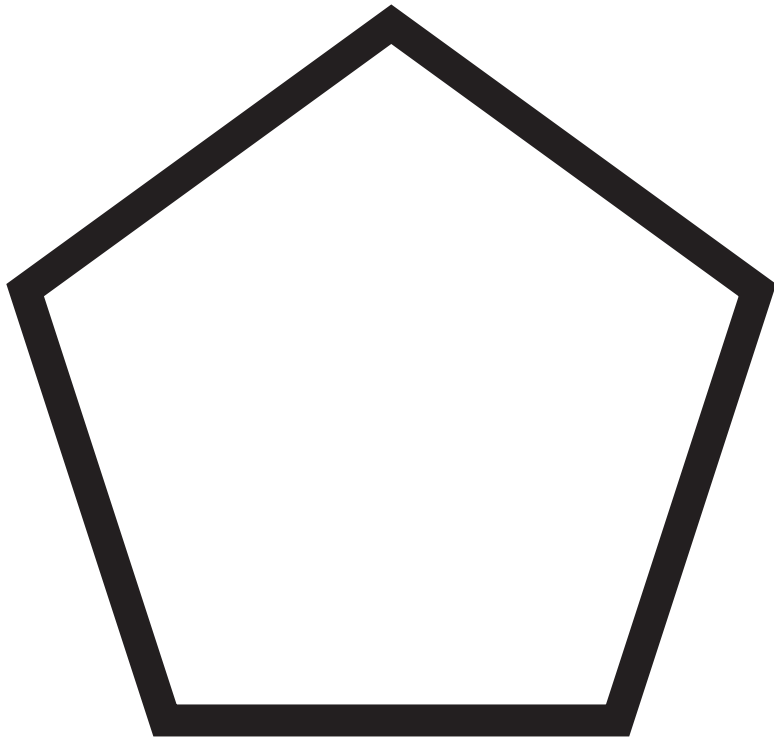
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**(Total for Question 9 is 5 marks)**

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**Turn over**

**10. Here is a polygon.**



- (a) Write down the mathematical name of this polygon.**  
**(1 mark)**

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**(continued on the next page)**

**10. continued.**

**Look at the diagram for  
Question 10(b) in the  
Diagram Booklet.**

**You may be provided with a model.  
They show a prism.**

**Each edge of the prism has a length  
of  $7.5\text{ cm}$**

**(continued on the next page)**



**10. continued.**

**(b) Work out the total length of the  
edges of the prism.**

**(2 marks)**

\_\_\_\_\_ **cm**

**(Total for Question 10 is 3 marks)**

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- 11. There are only red counters, blue counters and green counters in a bag.**

**number of red counters : number  
of blue counters : number of green  
counters = 2 : 16 : 7**

**(continued on the next page)**

**11. continued.**

**What fraction of the counters in the bag are green counters?**

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**(Total for Question 11 is 2 marks)**

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12. A chess match lasted  $3\frac{1}{4}$  hours.

The match finished at 14 10

At what time did the chess match start?

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**(Total for Question 12 is 2 marks)**

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**Turn over**

13. (a) Simplify

$$8m^3 + 14m^3 - 2m^3$$

(1 mark)

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(continued on the next page)

**13. continued.**

**(b) Simplify**

$$(9y + 12y) \div 3$$

**(1 mark)**

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**(Total for Question 13 is 2 marks)**

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**14. Write the following five numbers in order of size.**

**Start with the smallest number.**

$$\frac{7}{12}$$

$$0.56$$

$$57\%$$

$$\frac{6}{11}$$

$$0.558$$

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**(Total for Question 14 is 2 marks)**

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**15. Look at the diagram for Question 15 in the Diagram Booklet.**

**It shows an incomplete frequency tree.**

**A travel agent sold 100 holidays in April.**

**Each of these holidays was in the UK or was abroad.**

**64 of the 100 holidays were sold to families.**

**The rest of the holidays were sold to couples.**

**(continued on the next page)**



**15. continued.**

**11 of the 18 holidays abroad were sold to couples.**

**(a) Use this information to complete the frequency tree in the Diagram Booklet.**

**There are six spaces to fill.**

**(3 marks)**

**(continued on the next page)**

**15. continued.**

**One of the holidays sold to a family is chosen at random.**

**(b) Find the probability that this holiday was NOT abroad.**

**(2 marks)**

**Answer space continues on the next page.**

**15. (b) continued.**

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**(Total for Question 15 is 5 marks)**

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16. Solve

$$\frac{x}{7} + 9 = 4$$

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

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

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**17. Blake works 32 hours a week in the UK.**

**She is paid £473·28 per week.**

**Blake applies for a job in Australia.**

**The rate of pay is 26·40 Australian dollars per hour.**

**£1 = 1·796 Australian dollars**

**Blake thinks the rate of pay in**

**Australia is greater than the rate of pay in the UK.**

**(continued on the next page)**

**17. continued.**

**Is Blake correct?**

**You must show how you get your  
answer.**

**(3 marks)**

**Answer space continues on the next  
page.**

**17. continued.**

**(Total for Question 17 is 3 marks)**

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**Turn over**

**18. Look at the diagram for Question 18 in the Diagram Booklet.**

**It shows shape  $ABCDEFG$  made from a rectangle and a triangle.**

**The shape has exactly one line of symmetry.**

**The area of the rectangle is  $3 \cdot 5$  times the area of the triangle.**

**The width,  $FE$ , of the rectangle is  $w$  cm**

**(continued on the next page)**



**18. continued.**

$$\mathbf{FG = 3.8 \text{ cm}}$$

$$\mathbf{ED = 14 \text{ cm}}$$

$$\mathbf{AH = 6 \text{ cm}}$$

**Angle AHB is a right angle.**

**Work out the value of  $w$**

**You must show all your working.**

**(5 marks)**

**Answer space continues on the next two pages.**

**18. continued.**

**Turn over**

**18. continued.**

**W = \_\_\_\_\_**

**(Total for Question 18 is 5 marks)**

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**Turn over**

**19. Look at the diagrams for Question 19 in the Diagram Booklet.**

**You may be provided with a model.**

**It is accurate.**

**The model shows a cuboid with the front elevation marked.**

**The volume of the cuboid is  
 $224 \text{ cm}^3$**

**(continued on the next page)**

**19. continued.**

**Which of the four diagrams,  
Diagram 1, Diagram 2, Diagram 3 or  
Diagram 4, represents the plan view  
of the cuboid?**

**1 square length on the grid in the  
Diagram Booklet represents 1 cm**

**You MUST show your working.**

**(3 marks)**

**Answer space continues on the next  
page.**

**19. continued.**

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

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**Turn over**

**20. (a) Write**

**468 000 in standard form.**

**(1 mark)**

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**(continued on the next page)**

**20. continued.**

**(b) Write**

**$5.037 \times 10^{-4}$  as an ordinary  
number.**

**(1 mark)**

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**(Total for Question 20 is 2 marks)**

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**21. Look at the diagram for Question 21 in the Diagram Booklet.**

**It shows a biased spinner.**

**The table below shows the probabilities that when the spinner is spun it will land on **A**, on **B**, on **C** and on **D****

<b>Letter</b>	<b>Probability</b>
<b>A</b>	<b>0·4</b>
<b>B</b>	<b>0·21</b>
<b>C</b>	<b>0·32</b>
<b>D</b>	<b>0·07</b>

**(continued on the next page)**

**Turn over**

**21. continued.**

**Luka will spin the spinner 200 times.**

**Work out an estimate for the number  
of times the spinner will land on A**

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**(Total for Question 21 is 2 marks)**

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**Turn over**

**22. Look at the table for Question 22 in the Diagram Booklet.**

**Seija works at a weather station.**

**The table in the Diagram Booklet gives information about the temperature,  $T^{\circ}\text{C}$ , at midday for each of 50 cities in the UK on Tuesday.**

**(a) Calculate an estimate for the mean temperature.**

**(3 marks)**

**Answer space continues on the next page.**

**22. (a) continued.**

\_\_\_\_\_°C

**(continued on the next page)**

**Turn over**

**22. continued.**

**Seija says,**

**“The median temperature is  $22.5^{\circ}\text{C}$  because  $22.5$  is the middle number in the middle group.”**

**(continued on the next page)**

**22. continued.**

**(b) Is Seija correct?**

**Give a reason for your answer.**

**(1 mark)**

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**(Total for Question 22 is 4 marks)**

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**23. Look at the diagram for Question 23 in the Diagram Booklet.**

**It shows a number line.**

**Jenna is asked to show the inequality  $-3 < x \leq 4$  on the number line.**

**Her answer is shown in the Diagram Booklet.**

**(continued on the next page)**

**23. continued.**

**(a) Write down two mistakes Jenna  
has made.**

**(2 marks)**

**1** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**2** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**(continued on the next page)**

**Turn over**



**23. continued.**

**(b) Work out the greatest integer that satisfies the inequality**

$$5y - 7 < 16$$

**(2 marks)**

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**(Total for Question 23 is 4 marks)**

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**Turn over**

**24. Ali buys packs of balloons and boxes of pencils.**

**There are 30 balloons in each pack.**

**There are 24 pencils in each box.**

**Ali buys exactly the same number of balloons and pencils.**

**Work out how many packs of balloons and how many boxes of pencils she could have bought.**

**You must show all your working.**

**(3 marks)**

**Answer space is on the next two pages.**

**24. continued.**

**Turn over**

**24. continued.**

\_\_\_\_\_ packs of balloons

\_\_\_\_\_ boxes of pencils

**(Total for Question 24 is 3 marks)**

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**25. A company orders a large number of plates from a factory.**

**It would take 30 hours to make all the plates using 4 machines.**

**How many machines are needed to make all the plates in 6 hours?**

**(2 marks)**

**Answer space continues on the next page.**

**25. continued.**

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**(Total for Question 25 is 2 marks)**

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**Turn over**

**26. Riley travelled by car and by aeroplane.**

**He travelled 143 miles by car at an average speed of 55 miles per hour. Riley then travelled for 5 hours and 20 minutes by aeroplane.**

**Work out, in hours and minutes, Riley's total travelling time.**

**(3 marks)**

**Answer space continues on the next page.**

**26. continued.**

\_\_\_\_\_ hours \_\_\_\_\_ minutes

**(Total for Question 26 is 3 marks)**

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**Turn over**



**27. Look at the diagram for Question 27 in the Diagram Booklet.**

**You may be provided with a model.**

**They show a solid cube placed on a horizontal table.**

$$\text{pressure} = \frac{\text{force}}{\text{area}}$$

**The pressure on the table due to the cube is  $3.5 \text{ newtons/cm}^2$**

**The force exerted by the cube on the table is  $504 \text{ newtons}$ .**

**(continued on the next page)**

**27. continued.**

**Show that the total surface area of the cube is less than  $900 \text{ cm}^2$**

**(3 marks)**

**Answer space continues on the next two pages.**

**27. continued.**

**Turn over**

**27. continued.**

**(Total for Question 27 is 3 marks)**

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**28. Look at the diagram for Question 28 in the Diagram Booklet.**

**It shows the line  $L$  on a grid.**

**Find an equation for  $L$**

**(3 marks)**

**Answer space continues on the next page.**

**28. continued.**

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**(Total for Question 28 is 3 marks)**

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**Turn over**

**29. Look at the diagram for Question 29 in the Diagram Booklet.**

**It shows the points A, B, C and D on a circle such that ABCD is a square.**

**The square ABCD has sides of length 3.5 cm**

**Calculate the circumference of the circle.**

**Give your answer correct to 1 decimal place.**

**You must show all your working.**

**(4 marks)**

**Answer space is on the next two pages.**

**29. continued.**

**Turn over**



**29. continued.**

\_\_\_\_\_ **cm**

**(Total for Question 29 is 4 marks)**

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**TOTAL FOR PAPER IS 80 MARKS**

**END OF PAPER**

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