

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

<b>Total Marks</b>
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**Mathematics**  
**PAPER 1 (Non-Calculator)**  
**Foundation Tier**

**Wednesday 8 November 2023 – Morning**

**Time: 1 hour 30 minutes**

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

<b>Surname</b>					
<b>Other names</b>					
<b>Centre Number</b>					
<b>Candidate Number</b>					

**YOU MUST HAVE**

**Ruler, protractor, compasses, writing and drawing equipment, 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 NOT BE USED.**

## **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 cutout shapes for Question 11.**

**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.**

**5**

**1. Here is a list of five numbers.**

**2      4      4      7      8**

**Work out the range of these numbers.**

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

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**Turn over**

2. Work out  
 $120 - 89$

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(Total for Question 2 is 1 mark)

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3. Simplify

$$3 \times p \times 4$$

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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 an angle marked **X**

Measure the size of the angle marked **X**



(Total for Question 4 is 1 mark)

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5. Work out  
 $\frac{1}{5}$  of 300

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(Total for Question 5 is 1 mark)

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6. There are **3** litres of oil in a can.  
Jermaine uses **700** millilitres of the oil.

Work out the amount of oil left in the can.

Give your answer in millilitres.

(3 marks)

Answer space continues on the next page.

6. continued.

\_\_\_\_\_ millilitres

(Total for Question 6 is 3 marks)

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7. Matt is drawing a scale diagram.

1 cm represents 5 metres.

He draws a line 3 cm long.

(a) What real distance does the line represent?  
(1 mark)

\_\_\_\_\_ metres

(continued on the next page)

7. continued.

Remember: 1 cm represents 5 metres

The real distance between two points is 20 metres.

(b) What is the distance between the two points on the scale diagram?

(1 mark)

\_\_\_\_\_ cm

(Total for Question 7 is 2 marks)

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8. Look at the information for Question 8 in the Diagram Booklet.

Miss Bailey asked **24** students where they each wanted to go on a school trip.

The results are shown in the Diagram Booklet.

- (a) Complete the frequency table below.

There are six spaces to fill.

(2 marks)

There is a spare copy of this table on page 13 of the Diagram Booklet if you wish to use it.

Place	Tally	Frequency
castle (C)		
farm (F)		
museum (M)		

(continued on the next page)

**8. continued.**

**(b) Write down the place that is the mode.**

**(1 mark)**

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

**It shows a grid.**

**Draw a bar chart on the grid in the  
Diagram Booklet to show the results.**

**(3 marks)**

**Space for working continues on the next page.**

8. (c) continued.

(Total for Question 8 is 6 marks)

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9. Look at the information for Question 9 in the Diagram Booklet.

Selina has a bag of **22** counters.

Selina takes at random a counter from the bag.

Write down the probability that Selina

- (i) takes a red counter,  
(1 mark)

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(continued on the next page)

**9. continued.**

**Write down the probability that Selina**

**(ii) does NOT take a pink counter,  
(1 mark)**

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**(iii) takes a white counter.  
(1 mark)**

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

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**10. Look at the information for Question 10 in the Diagram Booklet.**

**It shows the ingredients needed to make 20 peanut butter cookies.**

**Derek wants to make 60 cookies.**

**He has 900 grams of peanut butter.**

**Does Derek have enough peanut butter to make 60 cookies?**

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

**(3 marks)**

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

10. continued.

(Total for Question 10 is 3 marks)

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**11. Look at the diagram for Question 11 in the Diagram Booklet.**

**It shows a triangle P and triangle Q on a grid.**

**Describe fully the single transformation that maps triangle P onto triangle Q**

**Two cutout shapes may be available if you wish to use them.**

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

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12. Given that

$$P = 2m + 4n$$

- (a) (i) work out the value of **P** when **m = 3** and  
**n = 5**  
(2 marks)

**P =** \_\_\_\_\_

(continued on the next page)

12. (a) continued.

Given that

$$P = 2m + 4n$$

(ii) work out the value of  $m$  when  $P = 38$  and  
 $n = 3$

(2 marks)

$m =$  \_\_\_\_\_

(continued on the next page)

12. continued.

Given that

$$V = 3r - q$$

(b) work out the value of  $V$  when  $r = -3$  and

$$q = 2$$

(2 marks)

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

(Total for Question 12 is 6 marks)

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**13. Chloe is making scrunchies.**

**Chloe has a large number of hair bands.**

**Each hair band costs 8 pence.**

**She buys 100 grams of wool for £3**

**Chloe uses 1 hair band and 5 grams of wool to make each scrunchy.**

**She makes as many scrunchies as she can.**

**Work out the total cost of each scrunchy that she makes.**

**Give your answer in pence.**

**(4 marks)**

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

13. continued.

\_\_\_\_\_ pence

(Total for Question 13 is 4 marks)

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**14. Look at the diagram for Question 14 in the Diagram Booklet.**

**It shows a grid.**

**On the grid, draw the graph of  $y = 4x - 1$  for values of  $x$  from  $-2$  to  $2$**

**(Total for Question 14 is 3 marks)**

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**15. Steve is buying a car.**

**The car costs £12 000**

**Steve pays 25% of the cost as a deposit.**

**He pays the rest of the cost in 20 equal monthly payments.**

**How much is each monthly payment?**

**(4 marks)**

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

15. continued.

£ \_\_\_\_\_

(Total for Question 15 is 4 marks)

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**16. Shah takes an exam.**

**The exam is out of 60 marks.**

**Shah needs to score at least 70% of the marks to pass the exam.**

**He scores 45 marks.**

**Show that Shah passes the exam.**

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

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17. Work out

$$\frac{3}{5} \div \frac{1}{6}$$

Give your answer as a mixed number.

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(Total for Question 17 is 3 marks)

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18. Work out

$$6.3 \times 2.4$$

(3 marks)

Answer space continues on the next page.



18. continued.

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(Total for Question 18 is 3 marks)

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19. (a) (i) Write down the value of  $5^0$   
(1 mark)
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- (ii) Write down the value of  $5^{-2}$   
(1 mark)
- 

(continued on the next page)

19. continued.

(b) Write

$\frac{2^5 \times 2^4}{2^3}$  in the form  $2^n$  where  $n$  is an integer.

(2 marks)

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(Total for Question 19 is 4 marks)

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- 20. (a) Write 156 as a product of its prime factors.  
(2 marks)**

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**(continued on the next page)**

**20. continued.**

- (b) Find the highest common factor (HCF) of  
156 and 130  
(2 marks)**

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

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**Turn over**

21. The mean length of 5 sticks is 4.2 cm

Nawal measured the length of one of the sticks as 7 cm

- (a) Work out the mean length of the other 4 sticks.  
(3 marks)

Answer space continues on the next page.

21. (a) continued.

\_\_\_\_\_ cm

(continued on the next page)

**21. continued.**

**Remember:**

**The mean length of 5 sticks is 4.2 cm**

**Nawal measured the length of one of the sticks as 7 cm**

**(b) Nawal made a mistake.**

**The stick was not 7 cm long.**

**It was 17 cm long.**

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

**(1 mark)**

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**(Total for Question 21 is 4 marks)**

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

**It shows point P on the line AB**

**Use ruler and compasses to construct an angle of  $90^\circ$  at P**

**You must show all your construction lines.**

**(Total for Question 22 is 2 marks)**

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

It shows an isosceles triangle **ABD** and the straight line **ABC**

$$\text{Angle DAB} = x^\circ$$

$$\text{Angle DBA} = y^\circ$$

$$\text{Angle DBC} = w^\circ$$

$$BA = BD$$

$$x:y = 2:1$$

Work out the value of **w**

(4 marks)

Answer space continues on the next page.

23. continued.

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

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

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**Turn over**

**24. Mano has three shelves of books.**

**There are  $y$  books on shelf A**

**There are  $(3y + 1)$  books on shelf B**

**There are  $(2y - 5)$  books on shelf C**

**There is a total of 44 books on the three shelves.**

**All the books have the same mass.**

**The books on shelf B have a total mass of 7500 grams.**

**Work out the total mass of the books on shelf A  
(5 marks)**

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

24. continued.

24. continued.

\_\_\_\_\_ grams

(Total for Question 24 is 5 marks)

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25. A piece of glass has a mass of 27 grams and a volume of  $10 \text{ cm}^3$

Work out the density of the piece of glass.

\_\_\_\_\_  $\text{g/cm}^3$

(Total for Question 25 is 2 marks)

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26. Work out an estimate for

$$\frac{5.7 \times 8.2}{0.26}$$

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(Total for Question 26 is 3 marks)

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27. (a) Expand and simplify  
 $(3y + 2)(2y - 5)$   
(2 marks)

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(continued on the next page)

27. continued.

(b) Factorise

$$y^2 - 16$$

(1 mark)

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(Total for Question 27 is 3 marks)

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**TOTAL FOR PAPER IS 80 MARKS**

**END OF PAPER**

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