

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

Total Marks
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Mathematics  
PAPER 1 (Non-Calculator)  
Foundation Tier

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, 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.**

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

**You may be provided with a shape for Question 3**

**You may be provided with a model for Question 22  
It is NOT 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.**

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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. Change

**40** centimetres into millimetres.

\_\_\_\_\_ millimetres

(Total for Question 1 is 1 mark)

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2. Simplify

$$p + p + p + p$$

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(Total for Question 2 is 1 mark)

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- 3. Look at the diagram for Question 3 in the Diagram Booklet.**

**It shows a shaded triangle.**

**On the grid, reflect the shaded triangle in the mirror line.**

**You do not need to shade your shape.**

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

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

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4. Write down the value of the 6 in the number 16 007

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(Total for Question 4 is 1 mark)

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5. Write the three numbers below in order of size.  
Start with the smallest number.

$$\frac{1}{2}$$

$$0.55$$

$$45\%$$

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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 shows a pictogram which gives information about the number of hours of sunshine on a Saturday and on a Sunday.

Work out the number of hours of sunshine on Saturday.

\_\_\_\_\_ hours

(Total for Question 6 is 1 mark)

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- 7. Simon buys some candles.  
Each candle costs £2**

**Simon pays with a £20 note.  
He gets £6 change.**

**Work out the number of candles Simon buys.  
(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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8. Look at the diagram for Question 8 in the Diagram Booklet.

It is a bar chart which shows information about the total rainfall each month for four months in a city.

In May, the total rainfall was 35 cm

In June, the total rainfall was 20 cm

- (a) Use this information to complete the bar chart in the Diagram Booklet.

(2 marks)

(continued on the next page)

8. continued.

Rupa says,

**“In February there was  $15.5$  cm of rainfall  
because the bar is half a square above 15”**

**(b) Explain why Rupa is incorrect.**

**(1 mark)**

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**(Total for Question 8 is 3 marks)**

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

It shows a sequence of patterns made from shaded square tiles.

- (a) In the space below Pattern number 4, complete Pattern number 5  
(1 mark)

(continued on the next page)

9. continued.

(b) Complete the table below.

There are two spaces to fill.

(1 mark)

Pattern number	Number of squares
1	1
2	3
3	5
4	7
5	
6	

(Total for Question 9 is 2 marks)



10. In Norway last year, the lowest temperature was  $-15^{\circ}\text{C}$

In Norway last year, the highest temperature was  $42^{\circ}\text{C}$  greater than the lowest temperature.

Work out the highest temperature in Norway last year.

\_\_\_\_\_  $^{\circ}\text{C}$

(Total for Question 10 is 2 marks)

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**11. At the end of October, Fiona's electricity meter reads 88 738 kWh**

**At the end of November, her electricity meter reads 89 198 kWh**

**Each kWh of electricity Fiona uses costs 16 pence.**

**Work out how much Fiona had to pay for the electricity she used in November.**

**(4 marks)**

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

11. continued.

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(Total for Question 11 is 4 marks)

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12. (a) Work out

$$\frac{5}{12} + \frac{1}{6}$$

(2 marks)

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(continued on the next page)

12. continued.

(b) Work out

$$\frac{3}{10} \times \frac{5}{8}$$

Give your answer as a fraction in its simplest form.

(2 marks)

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(Total for Question 12 is 4 marks)

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Turn over

13. There are 15 sweets in a jar.  
4 of the sweets are red.

Jill takes at random a sweet from the jar.

- (a) Write down the probability that the sweet is red.  
(1 mark)

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(continued on the next page)

**13. continued.**

**There are only green counters and blue counters in a bag.**

**A counter is taken at random from the bag.**

**The probability that the counter is green is  $0.3$**

**(b) Find the probability that the counter is blue.**

**(1 mark)**

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

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14.  $y = 6x - 5$

Work out the value of  $y$  when  $x = 4$

$y =$  \_\_\_\_\_

(Total for Question 14 is 2 marks)

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- 15. (a) Work out an estimate for the value of**  
 **$92 \times 1.63$**

**You must show all your working.**

**(2 marks)**

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**(continued on the next page)**

15. continued.

Given that

$$2.96 \times 3.2 = 9.472$$

(b) find the value of  $29.6 \times 32$

(1 mark)

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(Total for Question 15 is 3 marks)

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**16. Savio leaves his home at 07 30 to drive to work.**

**He drives a distance of 50 miles.**

**Savio thinks he drives at an average speed of 40 miles per hour.**

**(a) If Savio is correct, at what time will he arrive at work?**

**(3 marks)**

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

16. (a) continued.

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(continued on the next page)

**16. continued.**

**In fact, Savio's average speed was greater than  
40 miles per hour.**

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

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**(Total for Question 16 is 4 marks)**

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

**It shows an incomplete frequency tree.**

**72 people did a test.**

**20 of the 32 adults who did the test passed.**

**6 of the children who did the test failed.**

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

**There are seven spaces to fill.**

**(3 marks)**

**(continued on the next page)**

17. continued.

One of these people is picked at random.

(b) Find the probability that this person is an adult who failed the test.

(2 marks)

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(Total for Question 17 is 5 marks)

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

**It shows a list of ingredients for making 10 scones.**

**Mia wants to make 25 scones.**

**Work out how much sugar she needs.**

\_\_\_\_\_ grams

**(Total for Question 18 is 2 marks)**

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19. Increase

240 by 20%

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(Total for Question 19 is 3 marks)

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20. Look at the diagram for Question 20 in the Diagram Booklet.

It shows three identical rectangles **A**, **B** and **C**

$\frac{5}{8}$  of rectangle **A** is shaded.

$\frac{9}{11}$  of rectangle **C** is shaded.

Work out the fraction of rectangle **B** that is shaded.

(3 marks)

Answer space continues on the next page.

20. continued.

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(Total for Question 20 is 3 marks)

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

**It shows an incomplete stem and leaf diagram.**

**Below are the ages, in years, of 15 people.**

<b>19</b>	<b>28</b>	<b>29</b>	<b>33</b>	<b>27</b>
<b>27</b>	<b>37</b>	<b>25</b>	<b>27</b>	<b>37</b>
<b>17</b>	<b>45</b>	<b>47</b>	<b>25</b>	<b>26</b>

**Show this information in the stem and leaf diagram in the Diagram Booklet.**

**(3 marks)**

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

**21. continued.**

**(Total for Question 21 is 3 marks)**

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

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

**The model is a cylinder.**

**The diagram shows the plan and the front elevation of a cylinder on a grid.**

**1 square length on the grid represents 1 cm**

**Work out the volume of the cylinder.**

**Give your answer in terms of  $\pi$**

**(3 marks)**

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

22. continued.

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

(Total for Question 22 is 3 marks)

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**23. Solve**

$$7x - 27 < 8$$

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

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24. Write 124 as a product of its prime factors.  
(2 marks)

Answer space continues on the next page.

24. continued.

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(Total for Question 24 is 2 marks)

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25. A delivery company has a total of 160 cars and vans.

the number of cars : the number of vans = 3 : 7

Each car and each van uses electricity or diesel or petrol.

$\frac{1}{8}$  of the cars use electricity.

25% of the cars use diesel.

The rest of the cars use petrol.

Work out the number of cars that use petrol.

You must show all your working.

(5 marks)

Answer space continues on the next two pages.

25. continued.

25. continued.

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(Total for Question 25 is 5 marks)

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26. (a) Write

$1.63 \times 10^{-3}$  as an ordinary number.

(1 mark)

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(b) Write

438 000 in standard form.

(1 mark)

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(continued on the next page)

**26. continued.**

**(c) Work out**

$$\left(4 \times 10^3\right) \times \left(6 \times 10^{-5}\right)$$

**Give your answer in standard form.**

**(2 marks)**

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**(Total for Question 26 is 4 marks)**

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**Turn over**

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

**It shows a regular hexagon and a regular pentagon which share a common side.**

**Work out the size of the angle marked  $x$**

**You must show all your working.**

**(3 marks)**

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



**27. continued.**

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

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28. (a) Complete the table of values below for  
 $y = x^2 - 3x + 1$

There are four spaces to fill.

(2 marks)

x	y
-1	
0	1
1	-1
2	
3	
4	

(continued on the next page)

Turn over

**28. continued.**

- (b) Look at the diagram for Question 28(b) in the Diagram Booklet.**

**It shows a grid.**

**On the grid, draw the graph of**

**$y = x^2 - 3x + 1$  for values of  $x$  from  $-1$  to  $4$**

**(2 marks)**

- (c) Using your graph, find estimates for the solutions of the equation**

**$x^2 - 3x + 1 = 0$**

**(2 marks)**

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**(Total for Question 28 is 6 marks)**

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

It shows cube **A** and cube **B**

Cube **A** has sides of length 3 cm

Cube **B** has sides of length 4 cm

Cube **A** has a mass of 81 grams.

Cube **B** has a mass of 128 grams.

Work out

the density of cube **A** : the density of cube **B**

Give your answer in the form  $a : b$ , where  $a$  and  $b$  are integers.

(3 marks)

Answer space continues on the next page.

29. continued.

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(Total for Question 29 is 3 marks)

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30. Write down the value of  
 $\sin 30^\circ$

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(Total for Question 30 is 1 mark)

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**TOTAL FOR PAPER IS 80 MARKS**

**END OF PAPER**

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