

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

Total Marks

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.

Turn over

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.

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)

Turn over

2. Simplify

$$p + p + p + p$$

(Total for Question 2 is 1 mark)

Turn over

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)

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

(Total for Question 4 is 1 mark)

5. Write the three numbers below in order of size.

Start with the smallest number.

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

$$0.55$$

$$45\%$$

(Total for Question 5 is 1 mark)

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)

Turn over

- 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.

(Total for Question 7 is 3 marks)

Turn over

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)

(Total for Question 8 is 3 marks)

Turn over

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 on the
next page.**

There are two spaces to fill.

(1 mark)

9. (b) continued.

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

(Total for Question 9 is 2 marks)

Turn over

10. In Norway last year, the lowest temperature was -15°C

In Norway last year, the highest temperature was 42°C greater than the lowest temperature.

Work out the highest temperature in Norway last year.

(2 marks)

Answer space continues on the next page.

10. continued.

_____ °C

(Total for Question 10 is 2 marks)

Turn over

- 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 two pages.

11. continued.

Turn over

11. continued.

(Total for Question 11 is 4 marks)

Turn over

12. (a) Work out

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

(2 marks)

(continued on the next page)

Turn over

12. continued.

(b) Work out

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

Give your answer as a fraction in its simplest form.

(2 marks)

Answer space continues on the next page.

Turn over

12. (b) continued.

(Total for Question 12 is 4 marks)

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)

(continued on the next page)

Turn over

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

(continued on the next page)

Turn over

13. continued.

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

(1 mark)

(Total for Question 13 is 2 marks)

14. $y = 6x - 5$

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

$y =$ _____

(Total for Question 14 is 2 marks)

15. (a) Work out an estimate for the value of

$$92 \times 1.63$$

You must show all your working.

(2 marks)

Answer space continues on the next page.

15. (a) continued.

(continued on the next page)

15. continued.

Given that

$$2 \cdot 96 \times 3 \cdot 2 = 9 \cdot 472$$

(b) find the value of $29 \cdot 6 \times 32$

(1 mark)

(Total for Question 15 is 3 marks)

Turn over

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 two pages.

16. (a) continued.

Turn over

16. (a) continued.

(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)

(Total for Question 16 is 4 marks)

Turn over

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)

Turn over

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)

(Total for Question 17 is 5 marks)

Turn over

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.

(2 marks)

Answer space continues on the next page.

18. continued.

_____ grams

(Total for Question 18 is 2 marks)

Turn over

19. Increase

240 by 20%

(Total for Question 19 is 3 marks)

Turn over

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 two pages.

20. continued.

Turn over

20. continued.

(Total for Question 20 is 3 marks)

Turn over

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.

19	28	29	33	27
27	37	25	27	37
17	45	47	25	26

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

(3 marks)

Space for working is on the next page.

Turn over

21. continued.

(Total for Question 21 is 3 marks)

Turn over

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 π

(3 marks)

Answer space continues on the next two pages.

22. continued.

Turn over

22. continued.

_____ **cm³**

(Total for Question 22 is 3 marks)

Turn over

23. Solve

$$7x - 27 < 8$$

(Total for Question 23 is 2 marks)

Turn over

24. Write 124 as a product of its prime factors.

(2 marks)

Answer space continues on the next page.

24. continued.

(Total for Question 24 is 2 marks)

Turn over

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.

(continued on the next page)

25. continued.

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.

Turn over

25. continued.

(Total for Question 25 is 5 marks)

Turn over

26. (a) Write

**1.63×10^{-3} as an ordinary
number.**

(1 mark)

(continued on the next page)

Turn over

26. continued.

(b) Write

438 000 in standard form.

(1 mark)

(continued on the next page)

Turn over

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)

Answer space continues on the next page.

26. (c) continued

(Total for Question 26 is 4 marks)

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 two pages.

27. continued.

Turn over

27. continued.

_____○

(Total for Question 27 is 3 marks)

Turn over

28. (a) Complete the table of values
below for

$$y = x^2 - 3x + 1$$

There are four spaces to fill.

(2 marks)

Space for working is on the
next page.

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

Turn over

28. (a) continued.

(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)

(continued on the next page)

28. continued.

(c) Using your graph, find estimates

for the solutions of the equation

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

(2 marks)

(Total for Question 28 is 6 marks)

Turn over

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.**

(continued on the next page)

29. continued.

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.**

Turn over

29. continued.

(Total for Question 29 is 3 marks)

Turn over

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

(Total for Question 30 is 1 mark)

TOTAL FOR PAPER IS 80 MARKS

END OF PAPER
