

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

Total Marks

Mathematics
PAPER 3 (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, calculator, Formulae Sheet (enclosed). Tracing paper may be used.

YOU WILL BE GIVEN

Diagram Booklet

Turn over

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 3.142 unless the question instructs otherwise.

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 to use them.

**You may be provided with a model for Question 9
It is NOT accurate.**

Turn over

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.

Good luck with your examination.

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 fraction.

(Total for Question 1 is 1 mark)

Turn over

2. Work out

$\frac{1}{4}$ of 28

(Total for Question 2 is 1 mark)

Turn over

3. Write down two factors of 12

(Total for Question 3 is 1 mark)

Turn over

4. Simplify
 $2m \times 3$

(Total for Question 4 is 1 mark)

5. Find

$$\sqrt{1 \cdot 69}$$

(Total for Question 5 is 1 mark)

Turn over

- 6. Look at the diagram for Question 6 in the Diagram Booklet.
It shows a blank grid.**

**On the grid, draw a quadrilateral with
no lines of symmetry
and rotational symmetry of order 2**

(Total for Question 6 is 2 marks)

- 7. Look at the table for Question 7 in the Diagram Booklet.**

It shows the total number of apples sold and the total number of oranges sold in a shop in each of three weeks.

In total for the three weeks, more apples than oranges were sold.

How many more?

(3 marks)

Answer space continues on the next page.

Turn over

7. continued.

(Total for Question 7 is 3 marks)

Turn over

15

- 8. Below are the first five terms of a number sequence.**

3 8 13 18 23

- (a) Write down the next two terms of this sequence.**
(1 mark)

(continued on the next page)

Turn over

8. continued.

Remember:

Below are the first five terms of a number sequence.

3 8 13 18 23

Jim says that 50 is a term in this sequence.

Jim is wrong.

(b) Explain why.

(1 mark)

Answer lines are on the next page.

Turn over

8. (b) continued.

(Total for Question 8 is 2 marks)

Turn over

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

You may be provided with a model.

They show a solid triangular prism.

- (a) Write down the number of faces of the prism.**

(1 mark)

(continued on the next page)

Turn over

9. continued.

**(b) Write down the number of edges
of the prism.**

(1 mark)

(Total for Question 9 is 2 marks)

Turn over

10. Below is a list of 8 numbers.

2	2	3	5
6	6	8	9

Kim picks at random one of these numbers.

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

It shows a probability scale.

On the probability scale, mark the probability that Kim picks a number 7

(1 mark)

(continued on the next page)

Turn over

10. continued.

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

It shows a probability scale.

**On the probability scale, mark
the probability that Kim picks a
number greater than 5**

(1 mark)

(continued on the next page)

Turn over

10. continued.

- (c) Find the probability that Kim
picks an even number.
(2 marks)**

(Total for Question 10 is 4 marks)

Turn over

11. Sinita wants to make 35 picture frames.

She needs 4 nails for each frame.

Sinita has 3 boxes of nails.

There are 48 nails in each box.

Has Sinita got enough nails to make all 35 frames?

Show how you get your answer.

(3 marks)

Answer space continues on the next two pages.

11. continued.

Turn over

11. continued.

(Total for Question 11 is 3 marks)

Turn over

12. Write 60 metres as a fraction of 1000 metres.

Give your answer in its simplest form.

(Total for Question 12 is 2 marks)

Turn over

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

It is an accurately drawn map which shows the positions of three points, A, B and C, in a field.

Parveen walks in a straight line from A to B

She then walks in a straight line from B to C

Susan walks in a straight line from A to C

(continued on the next page)

Turn over

13. continued.

**Parveen walks more metres than
Susan.**

(a) How many more?

(3 marks)

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

Turn over

13. (a) continued.

_____ metres

(continued on the next page)

Turn over

13. continued.

- (b) Find by measurement the bearing
of **A** from **C**
(1 mark)**



(Total for Question 13 is 4 marks)

Turn over

14. Below is the shoe size of each of 12 boys in a class.

4	5	6	6
6	7	7	8
8	8	8	9

- (a) Find the median.
(1 mark)
-

(continued on the next page)

Turn over

14. continued.

Remember:

**Below is the shoe size of each of
12 boys in a class.**

4	5	6	6
6	7	7	8
8	8	8	9

**(b) Work out the range.
(1 mark)**

(continued on the next page)

Turn over

14. continued.

**For the shoe sizes of each of 12 girls
in the class,**

the median size is 6

the range is 3

**(c) Compare the distribution of the
shoe sizes of the boys with the
distribution of the shoe sizes of
the girls.**

(2 marks)

**Answer lines continue on the
next page.**

Turn over

14. (c) continued.

(Total for Question 14 is 4 marks)

Turn over

15. Work out

$$\frac{2 \cdot 75 \times 14 \cdot 6}{10 - 1 \cdot 97}$$

(Total for Question 15 is 2 marks)

Turn over

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

It shows a blank grid.

**On the grid, draw an isosceles
triangle with an area of 12 cm^2**

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

(Total for Question 16 is 2 marks)

17. (a) Expand
 $3(4 - 2x)$
(1 mark)
-

(continued on the next page)

17. continued.

(b) Solve

$$\frac{3y}{4} = 12$$

(2 marks)

$y =$ _____

(continued on the next page)

Turn over

17. continued.

(c) Factorise

$$4p + 6$$

(1 mark)

(Total for Question 17 is 4 marks)

Turn over

18. (a) Write

2530 correct to

2 significant figures.

(1 mark)

(continued on the next page)

18. continued.

(b) Write

0·0874 correct to

1 significant figure.

(1 mark)

(Total for Question 18 is 2 marks)

Turn over

19. There are **400** counters in a box.
The counters are red or yellow or green.

$\frac{3}{8}$ of the counters are red.

82 of the counters are yellow.

What percentage of the counters are green?

(4 marks)

Answer space continues on the next two pages.

19. continued.

Turn over

19. continued.

_____ %

(Total for Question 19 is 4 marks)

Turn over

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

In the diagram, PQR is an isosceles triangle with $PQ = PR$

APR and CQD are parallel lines.

BPQ is a straight line.

Angle $APB = 56^\circ$

Work out the size of angle CQR

Give a reason for each stage of your working.

(5 marks)

Answer space is on the next two pages.

Turn over

20. continued.

Turn over

20. continued.

(Total for Question 20 is 5 marks)

Turn over

21. Work out the lowest common multiple (LCM) of 24 and 56

(2 marks)

Answer space continues on the next page.

21. continued.

(Total for Question 21 is 2 marks)

Turn over

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

It shows a right-angled triangle, ABC

$$\mathbf{AB = 4\text{ cm}}$$

$$\mathbf{AC = 8.5\text{ cm}}$$

$$\mathbf{BC = x\text{ cm}}$$

Angle ABC is a right angle.

Work out the value of x

(2 marks)

Answer space continues on the next page.

Turn over

22. continued.

X = _____

(Total for Question 22 is 2 marks)

Turn over

23. $T = 4m^2 - 11$

- (a) Work out the value of T when
 $m = -3$

(2 marks)

Answer space continues on the
next page.

Turn over

23. (a) continued.

T = _____

(continued on the next page)

Turn over

23. continued.

(b) Make p the subject of the formula

$$n = 3p + 4$$

(2 marks)

(Total for Question 23 is 4 marks)

Turn over

- 24. Look at the information for Question 24 in the Diagram Booklet. Rick, Selma and Tony are playing a game with counters.**

Work out the value of p as shown in the ratio.

(5 marks)

Answer space continues on the next two pages.

24. continued.

Turn over

24. continued.

p = _____

(Total for Question 24 is 5 marks)

Turn over

25. Look at the information for Question 25 in the Diagram Booklet. Jo is going to buy 15 rolls of wallpaper.

The information in the Diagram Booklet shows the cost of rolls of wallpaper from each of two shops.

Jo wants to buy the 15 rolls of wallpaper as cheaply as possible.

(continued on the next page)

Turn over

25. continued.

Should Jo buy the wallpaper from Chic Decor or from Style Papers? You must show how you get your answer.

(4 marks)

Answer space continues on the next two pages.

25. continued.

Turn over

25. continued.

(Total for Question 25 is 4 marks)

Turn over

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

It shows a frequency polygon.

The table below gives information about the lengths, in cm, of some pieces of string.

Length (t cm)	Frequency
$0 < t \leq 10$	15
$10 < t \leq 20$	20
$20 < t \leq 30$	50
$30 < t \leq 40$	25
$40 < t \leq 50$	5

(continued on the next page)

Turn over

26. continued.

**Amos draws the frequency polygon
in the Diagram Booklet for the
information in the table.**

(continued on the next page)

Turn over

26. continued.

Write down TWO mistakes that Amos has made.

1

2

(Total for Question 26 is 2 marks)

Turn over

- 27. Jessica runs for 15 minutes at an average speed of 6 miles per hour. She then runs for 40 minutes at an average speed of 9 miles per hour.**

It takes Amy 45 minutes to run the same total distance that Jessica runs.

Work out Amy's average speed.

Give your answer in miles per hour.

(4 marks)

Answer space continues on the next two pages.

27. continued.

Turn over

27. continued.

_____ miles per hour

(Total for Question 27 is 4 marks)

Turn over

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

It shows rectangle STUV

TQU and SRV are straight lines.

All measurements are in cm

$$\mathbf{TQ = 2y \text{ cm}}$$

$$\mathbf{TS = 4y \text{ cm}}$$

$$\mathbf{SR = 3y \text{ cm}}$$

$$\mathbf{RV = 5 \text{ cm}}$$

The trapezium QUVR is shaded.

The area of trapezium QUVR is

$$\mathbf{A \text{ cm}^2}$$

(continued on the next page)

Turn over

28. continued.

Show that $A = 2y^2 + 20y$

(3 marks)

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

Turn over

28. continued.

(Total for Question 28 is 3 marks)

Turn over

29. Change 30 metres per second to kilometres per hour.

_____ kilometres per hour

(Total for Question 29 is 2 marks)

Turn over

- 30. The value of Michelle's car has decreased by 15%**

The car now has a value of £13 600

Work out the value of Michelle's car before the decrease.

(2 marks)

Answer space continues on the next page.

30. continued.

£_____

(Total for Question 30 is 2 marks)

TOTAL FOR PAPER IS 80 MARKS

END OF PAPER
