

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

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.**

**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.**

## **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.**

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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 fraction.

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(Total for Question 1 is 1 mark)

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2. Work out  
 $\frac{1}{4}$  of 28

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(Total for Question 2 is 1 mark)

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**3. Write down two factors of 12**

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

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4. Simplify  
 $2m \times 3$

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(Total for Question 4 is 1 mark)

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5. Find

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

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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 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)

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- 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?**

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

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**Turn over**

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)

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)

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(Total for Question 8 is 2 marks)

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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)

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- (b) Write down the number of edges of the prism.  
(1 mark)

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(Total for Question 9 is 2 marks)

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**10. Below is a list of 8 numbers.**

<b>2</b>	<b>2</b>	<b>3</b>	<b>5</b>
<b>6</b>	<b>6</b>	<b>8</b>	<b>9</b>

**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)**

**(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)**

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**(Total for Question 10 is 4 marks)**

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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 page.

**11. continued.**

**(Total for Question 11 is 3 marks)**

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12. Write **60** metres as a fraction of **1000** metres.  
Give your answer in its simplest form.

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(Total for Question 12 is 2 marks)

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- 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**

**Parveen walks more metres than Susan.**

**(a) How many more?**

**(3 marks)**

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

13. (a) continued.

\_\_\_\_\_ metres

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

\_\_\_\_\_ °

(Total for Question 13 is 4 marks)

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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)

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

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(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)**

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**(Total for Question 14 is 4 marks)**

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**Turn over**

15. Work out

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

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(Total for Question 15 is 2 marks)

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**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  $12\text{ cm}^2$**

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

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

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

- (b) Solve  
 $\frac{3y}{4} = 12$   
(2 marks)

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

(continued on the next page)

Turn over

17. continued.

(c) Factorise

$$4p + 6$$

(1 mark)

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(Total for Question 17 is 4 marks)

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Turn over

18. (a) Write

**2530** correct to **2** significant figures.

(1 mark)

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(b) Write

**0.0874** correct to **1** significant figure.

(1 mark)

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(Total for Question 18 is 2 marks)

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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 page.

19. continued.

\_\_\_\_\_ %

(Total for Question 19 is 4 marks)

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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 continues on the next page.

**20. continued.**

**(Total for Question 20 is 5 marks)**

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**Turn over**



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

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

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

**It shows a right-angled triangle,  $ABC$**

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

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

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

**Angle  $ABC$  is a right angle.**

**Work out the value of  $x$**

**(2 marks)**

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

22. continued.

**x** = \_\_\_\_\_

(Total for Question 22 is 2 marks)

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Turn over

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

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

$T =$  \_\_\_\_\_

(continued on the next page)

**23. continued.**

**(b) Make  $p$  the subject of the formula**

$$n = 3p + 4$$

**(2 marks)**

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

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**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 page.**

24. continued.

$p =$  \_\_\_\_\_

(Total for Question 24 is 5 marks)

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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.**

**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 page.**



**25. continued.**

**(Total for Question 25 is 4 marks)**

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**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

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

(continued on the next page)

**26. continued.**

**Write down TWO mistakes that Amos has made.**

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

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

**(Total for Question 26 is 2 marks)**

\_\_\_\_\_

**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 page.**

**27. continued.**

\_\_\_\_\_ miles per hour

**(Total for Question 27 is 4 marks)**

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**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**

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

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

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

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

The trapezium **QUVR** is shaded.

The area of trapezium **QUVR** is  $A \text{ cm}^2$

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

(3 marks)

Answer space continues on the next page.

**28. continued.**

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

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**Turn over**

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

\_\_\_\_\_ kilometres per hour

(Total for Question 29 is 2 marks)

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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.

£ \_\_\_\_\_

(Total for Question 30 is 2 marks)

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**TOTAL FOR PAPER IS 80 MARKS**

**END OF PAPER**

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