

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 plus your additional time allowance

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. 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 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 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.

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1. Write 45% as a decimal.

(Total for Question 1 is 1 mark)

2. Write down two factors of 35

(Total for Question 2 is 1 mark)

3. What is the time 2 hours 40 minutes after 8.05 am?

_____ am

(Total for Question 3 is 1 mark)

4. Work out $\frac{1}{6}$ of 66

(Total for Question 4 is 1 mark)

5. Look at the diagram for Question 5 in the Diagram Booklet.

It shows a straight line AB

Mark with a cross (X) the midpoint of AB

(Total for Question 5 is 1 mark)

6. (a) Simplify

$$m \times n \times 4$$

(1 mark)

(continued on the next page)

6. continued.

(b) Simplify

$$4y + 3 - y + 5$$

(2 marks)

(Total for Question 6 is 3 marks)

Turn over

7. There are three cards in bag **A** and two cards in bag **B**

There is a letter on each card.

In bag **A**, the three cards have the letters **E**, **F** and **G** written on them.

In bag **B**, the two cards have the letters **J** and **K** written on them.

(continued on the next page)

7. continued.

James takes a card from bag **A and
then a card from bag **B****

List all the possible outcomes.

(Total for Question 7 is 2 marks)

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

It shows information about prices.

On Monday, Sandy pays for

**2 plane tickets, 7 nights in a hotel
and 2 theme park tickets.**

Show that Sandy pays more than

2500 dollars on Monday.

(3 marks)

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

8. continued.

(Total for Question 8 is 3 marks)

Turn over

- 9. Look at the two–way table for Question 9 in the Diagram Booklet.**

Vadim has 56 clocks.

The clocks are only red, only blue or only black.

32 of the clocks are plastic.

5 of the 14 blue clocks are plastic.

8 of the 12 red clocks are NOT plastic.

(continued on the next page)

9. continued.

**Use this information to complete
the two–way table in the
Diagram Booklet.**

There are twelve spaces to fill.

(3 marks)

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

9. continued.

(Total for Question 9 is 3 marks)

Turn over

- 10. Corina has £300 to spend on books.
Each book costs £4.85**

**Work out the greatest number of
books Corina can buy.**

(3 marks)

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

10. continued.

(Total for Question 10 is 3 marks)

Turn over

11. (a) Write 196 minutes in hours and minutes.

(2 marks)

_____ hours _____ minutes

(continued on the next page)

Turn over

11. continued.

A train travels X miles in 2 hours.

(b) Write down an expression, in terms of X , for the average speed of the train.

(1 mark)

_____ miles per hour

(Total for Question 11 is 3 marks)

Turn over

**12. Look at the diagram for Question 12
in the Diagram Booklet.**

**It shows two places, Shelton and
Trilby, on a map.**

**It has the scale: 1 cm represents
10 kilometres.**

(continued on the next page)

12. continued.

**(a) What is the actual distance,
in kilometres, from Shelton to
Trilby?**

(2 marks)

_____ kilometres

(continued on the next page)

Turn over

12. continued.

On a scale drawing, the scale is given as 1:1200

**(b) How many metres does
5 centimetres represent on this
drawing?**

(2 marks)

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

Turn over

12. (b) continued.

_____ metres

(Total for Question 12 is 4 marks)

Turn over

13. In the Northern hemisphere the ratio of the area of land to the area of water is 2:3

(a) Work out what percentage of the area of the Northern hemisphere is land.

(2 marks)

_____ %

(continued on the next page)

Turn over

13. continued.

20% of the area of the Southern hemisphere is land.

(b) Work out the ratio of the area of land to the area of water in the Southern hemisphere.

(2 marks)

Answer space continues on the next page.

13. (b) continued.

(Total for Question 13 is 4 marks)

14. A stadium cost £600 million.

$\frac{13}{15}$ of this cost was for the building.

The rest of the cost was for the land.

Work out the cost of the land.

(3 marks)

Answer space continues on the next page.

14. continued.

£_____ million

(Total for Question 14 is 3 marks)

Turn over

15. Jenna measures all the angles around a point.

Her results are 23° , 145° , 23° and 69°

Explain why these results cannot be true.

(Total for Question 15 is 1 mark)

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

It shows two right-angled triangles on a grid.

The triangles are labelled BAC and DAE

Point A for each of the triangles is in the same position on the grid.

Angle BAC and angle DAE are right angles.

Describe fully the single transformation that maps triangle BAC onto triangle DAE (2 marks)

Answer lines are on the next page.

Turn over

16. continued.

(Total for Question 16 is 2 marks)

- 17. (a) Expand**
 $y(y + 5)$
(1 mark)
-

(continued on the next page)

17. continued.

(b) Factorise

$$4m - 6$$

(1 mark)

(continued on the next page)

Turn over

17. continued.

(c) Solve

$$2(5x - 4) = 21$$

(3 marks)

x = _____

(continued on the next page)

Turn over

17. continued.

(d) Simplify

$$4p^2q \times 5pq^3$$

(2 marks)

(Total for Question 17 is 7 marks)

Turn over

18. Change 1 m^2 into cm^2

_____ cm^2

(Total for Question 18 is 1 mark)

19. Look at the diagram for Question 19 in the Diagram Booklet.

It shows two squares, ABCD and EFGH

The square EFGH is shaded.

EFGH is inside ABCD

$AE = BF = CG = DH = 3 \text{ cm}$

$EB = FC = GD = HA = 5 \text{ cm}$

All the marked angles are right angles.

Work out the area of the square shown shaded in the diagram.

(4 marks)

Answer space is on the next two pages.

Turn over

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.

It shows an incomplete stem and leaf diagram.

Below are the heights, in centimetres, of 15 plants.

15	20	25	33	17
22	25	18	22	19
32	35	24	28	19

Draw a stem and leaf diagram for these heights in the Diagram Booklet.
(3 marks)

Space for working is on the next page.

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 is a scatter graph which shows information about the volume of traffic and the carbon monoxide level at a point on a road each day for 22 days.

One point is an outlier.

(a) Write down the coordinates of this point.

(1 mark)

(_____ , _____)

(continued on the next page)

Turn over

21. continued.

For another day, 370 cars pass the point on the road.

(b) Estimate the carbon monoxide level for this day.

(2 marks)

_____ **mg/m³**

(continued on the next page)

Turn over

21. continued.

Alfie says,

“Because there is an outlier, there is no correlation.”

(c) Is Alfie correct?

You must give a reason for your answer.

(1 mark)

(Total for Question 21 is 4 marks)

Turn over

22. Natalie makes potato cakes in a restaurant.

She mixes potato, cheese and onion so that

**weight of potato : weight of
cheese : weight of onion = 9 : 2 : 1**

**Natalie needs to make 6000 grams of
potato cakes.**

Cheese costs £2.25 for 175 grams.

(continued on the next page)

22. continued.

**Work out the cost of the cheese
needed to make 6000 grams of
potato cakes.**

(4 marks)

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

22. continued.

Turn over

22. continued.

£ _____

(Total for Question 22 is 4 marks)

Turn over

23. (a) Write

**4.5×10^5 as an ordinary
number.**

(1 mark)

(continued on the next page)

Turn over

23. continued.

(b) Write 0.007 in standard form.

(1 mark)

(continued on the next page)

Turn over

23. continued.

(c) Work out

$$4 \cdot 2 \times 10^3 + 5 \cdot 3 \times 10^2$$

Give your answer in standard form.

(2 marks)

(Total for Question 23 is 4 marks)

Turn over

24. A water tank is empty.

**Anil needs to fill the tank with
2400 litres of water.**

**Company A supplies water at a rate
of 8 litres in 1 minute 40 seconds.**

**Company B supplies water at a rate
of 2·2 gallons per minute.**

1 gallon = 4·54 litres

**Company A would take more time to
fill the tank than Company B would
take to fill the tank.**

(continued on the next page)

Turn over

24. continued.

How much more time?

**Give your answer in minutes correct
to the nearest minute.**

(4 marks)

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

24. continued.

_____ minutes

(Total for Question 24 is 4 marks)

Turn over

25. The first four terms of a Fibonacci sequence are

n $2n$ $3n$ $5n$

The sum of the first five terms of this sequence is 228

Work out the value of n

(3 marks)

Answer space continues on the next two pages.

25. continued.

Turn over

25. continued.

(Total for Question 25 is 3 marks)

Turn over

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

In a bag there are only red counters, blue counters, green counters and pink counters.

A counter is going to be taken at random from the bag.

The table in the Diagram Booklet shows the probabilities of taking a red counter or a blue counter.

(continued on the next page)

26. continued.

The probability of taking a green counter is 0.2 more than the probability of taking a pink counter.

(a) Complete the table in the Diagram Booklet.

There are two spaces to fill.

(2 marks)

(continued on the next page)

Turn over

26. continued.

There are 18 blue counters in the bag.

(b) Work out the total number of counters in the bag.

(2 marks)

Answer space continues on the next page.

Turn over

26. (b) continued.

(Total for Question 26 is 4 marks)

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

It shows a sector $OPQR$ of a circle, centre O and radius 8 cm

$OP = OR = 8\text{ cm}$

The marked angle is a right angle.

OPR is a triangle.

Work out the area of the shaded segment PQR

Give your answer correct to 3 significant figures.

(4 marks)

Answer space is on the next two pages.

Turn over

27. continued.

Turn over

27. continued.

_____ **cm²**

(Total for Question 27 is 4 marks)

Turn over

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

It shows a set of axes.

Sketch the graph of $y = \frac{1}{x}$ on the axes in the Diagram Booklet.

(Total for Question 28 is 2 marks)

TOTAL FOR PAPER IS 80 MARKS

END OF PAPER
