

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

Total Marks

Mathematics
Paper 3
(Calculator)
Foundation Tier

Monday 11 November 2019 – Afternoon
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 Book

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.

You may be provided with a shape for Question 18

There may be spare copies of some diagrams.

ADVICE

Read each question carefully before you start to answer it.

Keep an eye on the time.

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 down two factors of 12

_____ , _____

(Total for Question 1 is 1 mark)

2. Find $\frac{1}{3}$ of 30

(Total for Question 2 is 1 mark)

Turn over

3. Write 0.7 as a fraction.

(Total for Question 3 is 1 mark)

4. Here is a list of six numbers.

7 8 15 16 18 22

**Write down the number from the list
that is a multiple of 6**

(Total for Question 4 is 1 mark)

5. Change 4 kilometres into metres.

_____ metres

(Total for Question 5 is 1 mark)

6. Look at the diagram for Question 6 in the Diagram Book.

It shows a grid of squares.

Write down the ratio of the number of shaded squares to the number of unshaded squares.

(Total for Question 6 is 1 mark)

- 7. Find the value of w when $u = 8$
given that**

$$w = 4u + 3$$

(Total for Question 7 is 2 marks)

8. Here are the first five terms of a sequence.

1 3 6 10 15

Write down the next two terms of the sequence.

_____ , _____

(Total for Question 8 is 2 marks)

- 9. Look at the information for Question 9(a) in the Diagram Book. Mrs Brown asked each child in her class which pet they liked best.**

Her results are shown in the Diagram Book.

- (a) Complete the frequency table on the next page for the information.
(2 marks)**

9. (a) continued.

Pet	Tally	Frequency
dog		
rabbit		
cat		
hamster		

(continued on the next page)

Turn over

9. continued.

**(b) Look at the diagram for
Question 9(b) in the
Diagram Book.**

**On the grid, draw a bar chart for
the information.**

(3 marks)

**(c) Write down the most popular pet.
(1 mark)**

(Total for Question 9 is 6 marks)

Turn over

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

(a) On the diagram, draw a diameter of the circle.

(1 mark)

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

On the diagram, draw a segment of the circle.

Shade the segment.

(1 mark)

(Total for Question 10 is 2 marks)

11. Dylan buys 13 bicycle lights for £7.50 each.

He pays with five £20 notes.

(a) How much change should Dylan get?

(3 marks)

Answer space continues on the next page.

11. (a) continued.

£ _____

(continued on the next page)

Turn over

11. continued.

The normal price of a bicycle is £120

In a sale, there is $\frac{1}{5}$ off the normal price of the bicycle.

(b) Work out the price of the bicycle in the sale.

(2 marks)

Answer space continues on the next page.

Turn over

11. (b) continued.

£ _____

(Total for Question 11 is 5 marks)

Turn over

12. Look at the table for Question 12 in the Diagram Book.

Cornflakes are sold in two sizes of box.

Rae buys 3 small boxes of cornflakes and some large boxes of cornflakes.

In total she buys 5850 grams of cornflakes.

Work out the number of large boxes of cornflakes Rae buys.

(3 marks)

Answer space is on the next page.

12. continued.

(Total for Question 12 is 3 marks)

Turn over

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

The stem and leaf diagram gives information about the ages of people in a social club.

Find the range of these ages.

_____ years

(Total for Question 13 is 2 marks)

14. Look at the diagram for Question 14(a) in the Diagram Book.

It shows a rectangle with length 7 cm and width 3 cm

Coby has to find the perimeter of this rectangle.

He writes,

$$\text{Perimeter} = 7 \times 3$$

**(a) What mistake has Coby made?
(1 mark)**

Answer lines are on the next page.

14. (a) continued.

(continued on the next page)

14. continued.

**Look at the diagram for Question 14(b)
in the Diagram Book.**

It shows a triangle.

The sides of the triangle are

$(y + 7)$ cm

$(y + 8)$ cm

y cm

**Iram solves a problem about this
triangle to find the value of y**

Her answer is

$$y = -2$$

(continued on the next page)

Turn over

14. continued.

(b) Explain why Iram's answer must be wrong.

(1 mark)

(Total for Question 14 is 2 marks)

Turn over

**15. There are 800 students at a school.
Each student has either a school
dinner or a packed lunch.**

**31% of the students have
packed lunches.**

55% of the students are boys.

**60% of the boys have school
dinners.**

**How many girls have packed
lunches?**

You must show all your working.

(4 marks)

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

Turn over

15. continued.

Turn over

15. continued.

(Total for Question 15 is 4 marks)

Turn over

16. Look at the table for Question 16 in the Diagram Book.

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

A counter is taken at random from the bag.

The table in the Diagram Book shows the probabilities of getting a red counter or a yellow counter.

(continued on the next page)

16. continued.

**the number of blue counters : the
number of green counters = 3 : 4**

Complete the table.

There are two spaces to fill.

(4 marks)

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

16. continued.

(Total for Question 16 is 4 marks)

Turn over

17. (a) Complete the table of values below for $y = 4x - 6$

There are four spaces to fill.

(2 marks)

x	y
-1	
0	
1	-2
2	
3	
4	10

Space for working is on the next page.

Turn over

17. (a) continued.

(continued on the next page)

17. continued.

**(b) Look at the diagram for
Question 17(b) in the
Diagram Book.**

**On the grid, draw the graph of
 $y = 4x - 6$ for values of x from
 -1 to 4
(2 marks)**

(Total for Question 17 is 4 marks)

18. Look at the diagram for Question 18 in the Diagram Book.

It shows shape P on a coordinate grid.

Reflect shape P in the line $y = 4$

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

(Total for Question 18 is 2 marks)

19. Solve

$$4(x - 6) = 44$$

x = _____

(Total for Question 19 is 2 marks)

Turn over

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

It shows an incomplete Venn diagram.

$$\mathcal{U} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13\}$$

$$A = \{\text{multiples of 3}\}$$

$$B = \{\text{even numbers}\}$$

Complete the Venn diagram for this information.

(Total for Question 20 is 4 marks)

21. Franco buys a house for £146 500

He sells the house for £158 220

Calculate the percentage profit

Franco makes.

(3 marks)

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

21. continued.

_____ %

(Total for Question 21 is 3 marks)

Turn over

- 22. (a) Expand and simplify**
 $(y + 5)(y - 9)$
(2 marks)

(continued on the next page)

22. continued.

(b) Factorise fully $9x^2 + 6x$
(2 marks)

(Total for Question 22 is 4 marks)

Turn over

23. (a) Use your calculator to work out

$$\frac{29^2 - 4 \cdot 6}{\sqrt{35 - 1 \cdot 9^3}}$$

Write down all the figures on
your calculator display.

(2 marks)

(continued on the next page)

Turn over

23. continued.

- (b) Write your answer to part (a)
correct to 4 significant figures.
(1 mark)**
-

(Total for Question 23 is 3 marks)

24. Look at the diagram for Question 24 in the Diagram Book.

The scatter graph shows information about the marks a group of students got in a Science test and in a Maths test.

Jamie got a mark of 35 in the Science test.

Using the scatter graph, find an estimate for Jamie's mark in the Maths test.

(2 marks)

Answer space is on the next page.

24. continued.

(Total for Question 24 is 2 marks)

Turn over

25. Look at the table for Question 25 in the Diagram Book.

It gives information about the times taken, in seconds, by 18 students to run a race.

Work out an estimate for the mean time.

Give your answer correct to 3 significant figures.

(3 marks)

Answer space continues on the next page.

25. continued.

_____ seconds

(Total for Question 25 is 3 marks)

Turn over

26. Write 37 cm^3 in mm^3

_____ mm^3

(Total for Question 26 is 1 mark)

27. Look at the table for Question 27 in the Diagram Book.

Nimer was driving to a hotel.

The table shows the information on his Sat Nav at 13 30

Nimer arrived at the hotel at 14 48

Work out the average speed of the car from 13 30 to 14 48

You must show all your working.

(4 marks)

Answer space is on the next two pages.

27. continued.

Turn over

27. continued.

_____ mph

(Total for Question 27 is 4 marks)

Turn over

28. (a) Write

32 460 000 in standard form.

(1 mark)

(continued on the next page)

Turn over

28. continued.

(b) Write

**4.96×10^{-3} as an ordinary
number.**

(1 mark)

(continued on the next page)

Turn over

28. continued.

Asma was asked to compare the following two numbers.

$$\mathbf{A = 6 \cdot 212 \times 10^8}$$

and

$$\mathbf{B = 4 \cdot 73 \times 10^9}$$

She says,

“6·212 is bigger than 4·73 so A is bigger than B”

(continued on the next page)

Turn over

28. continued.

(c) Is Asma correct?

**You must give a reason for your
answer.**

(1 mark)

(Total for Question 28 is 3 marks)

Turn over

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

It shows a regular pentagon and a parallelogram.

Two angles are marked 117° and x

Work out the size of the angle marked x

**You must show all your working.
(4 marks)**

Answer space continues on the next page.

29. continued.

○

(Total for Question 29 is 4 marks)

Turn over

30. Look at the diagram for Question 30 in the Diagram Book.

It shows two shapes.

Shape A is in the shape of a quarter circle of radius 15 cm

Shape B is in the shape of a circle.

The area of shape A is 9 times the area of shape B

Show that the radius of shape B is 2.5 cm

(3 marks)

Answer space is on the next two pages.

30. continued.

Turn over

30. continued.

(Total for Question 30 is 3 marks)

TOTAL FOR PAPER IS 80 MARKS

END OF PAPER
