

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

Total Marks

Mathematics
Paper 2
(Calculator)
Foundation Tier

Thursday 7 November 2019 – Morning
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

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 two models for Question 29

They are NOT accurate.

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.

7

- 1. Write these five numbers in order of size.**

Start with the smallest number.

8 -4 1 -7 -2

(Total for Question 1 is 1 mark)

Turn over

- 2. Write the number 8375 correct to the nearest thousand.**

(Total for Question 2 is 1 mark)

3. Write 0.23 as a percentage.

_____ %

(Total for Question 3 is 1 mark)

4. Find the value of

$$\sqrt{17 \cdot 64}$$

(Total for Question 4 is 1 mark)

5. Find the value of

$$6^5$$

(Total for Question 5 is 1 mark)

Turn over

6. There are 14 rows of seats in a cinema.

There are 15 seats in each row.

A film was shown in the cinema on Saturday.

Each ticket for the film cost £6.50

The tickets that were sold cost a total of £1274

**How many tickets were NOT sold?
(3 marks)**

Answer space is on the next two pages.

6. continued.

Turn over

6. continued.

(Total for Question 6 is 3 marks)

Turn over

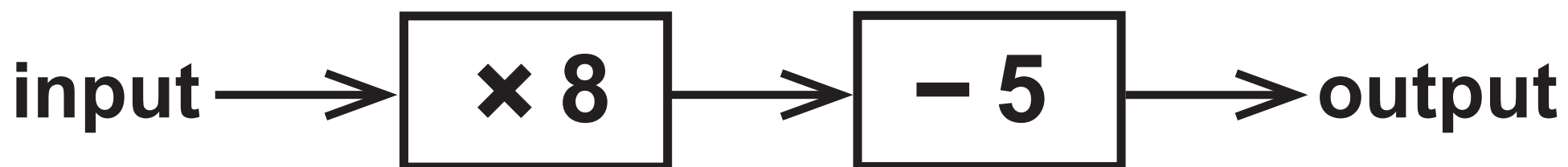
7. Harry has 20 sweets.

He gives 7 of the sweets to Nadia.

**What fraction of the 20 sweets does
Harry have now?**

(Total for Question 7 is 2 marks)

8. Here is a number machine.



- (a) Work out the output when the
input is 6
(1 mark)

(continued on the next page)

8. continued.

**Look at the diagram for Question 8(b)
in the Diagram Book.**

It shows a different number machine.

**When the input is 17, the output
is 10**

**(b) Complete the number machine.
(1 mark)**

(Total for Question 8 is 2 marks)

9. Here is a list of six numbers.

6 4 8 9 4 3

(a) Work out the median.

(2 marks)

(continued on the next page)

9. continued.

Remember:

6 4 8 9 4 3

Aisha picks at random one of the numbers.

(b) What is the probability that she picks an odd number?

(2 marks)

(continued on the next page)

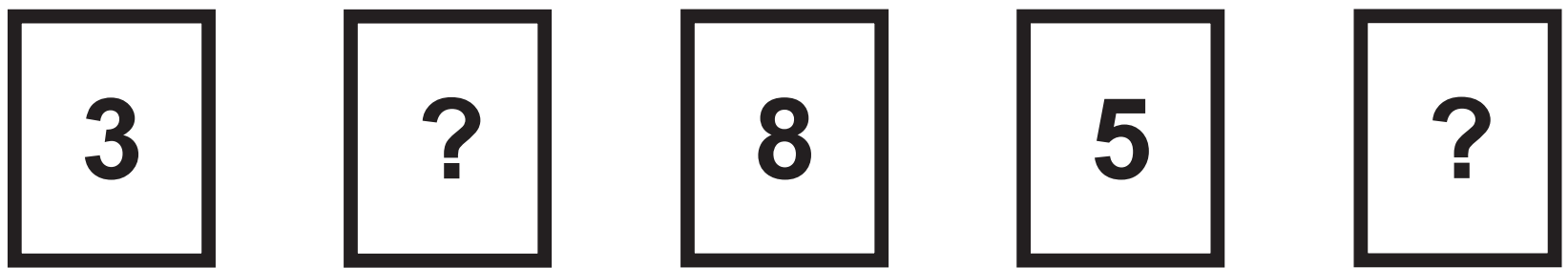
Turn over

9. continued.

(c) Clara has five cards.

There is a number on each card.

Two of the numbers are hidden.



**The mode of the five numbers
is 3**

**The mean of the five numbers
is 5**

**Work out the two numbers that
are hidden.**

(2 marks)

Answer space is on the next page.

Turn over

9. (c) continued.

_____, _____

(Total for Question 9 is 6 marks)

Turn over

- 10. The charge at a car park in Spain is 0·024 euros per minute.**

Jon parked his car in this car park.

Jon drove into the car park at 10 45

When he drove out of the car park he had to pay 8·40 euros.

At what time did Jon drive out of the car park?

(3 marks)

Answer space continues on the next page.

10. continued.

(Total for Question 10 is 3 marks)

Turn over

11. Look at the diagram for Question 11 in the Diagram Book.

It shows a graph used to change between stones and kilograms.

**(a) Change 4 stones to kilograms.
(1 mark)**

_____ kilograms

(continued on the next page)

11. continued.

(b) Change 80 kilograms to stones.

(2 marks)

_____ **stones**

(Total for Question 11 is 3 marks)

12. Find the number that is exactly halfway between

$$\frac{1}{10} \text{ and } \frac{3}{5}$$

(2 marks)

Answer space continues on the next page.

12. continued.

(Total for Question 12 is 2 marks)

Turn over

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

It shows shape X and shape Y on a grid of squares.

Describe fully the single transformation that maps shape X to shape Y

(Total for Question 13 is 2 marks)

14. A shop sells compost in 20 litre bags and in 40 litre bags.

One day the shop had two special offers for the compost.

Special Offer 1

20 litres: 2 bags for £3·50

Special Offer 2

40 litres: 3 bags for £9

(continued on the next page)

14. continued.

Which offer is the better value for money?

You must show how you get your answer.

(3 marks)

Answer space continues on the next page.

Turn over

14. continued.

(Total for Question 14 is 3 marks)

Turn over

15. The length of a plane is 19.2 metres.

Lukas buys a scale model of the plane.

The scale of the model is $1 : 24$

**Work out the length of the scale
model of the plane.**

Give your answer in centimetres.

(3 marks)

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

15. continued.

_____ centimetres

(Total for Question 15 is 3 marks)

Turn over

16. Maria invests £4500 in a savings account for 3 years.

The account pays simple interest at a rate of 1.8% per year.

**Work out the total amount of interest Maria gets by the end of the 3 years.
(2 marks)**

Answer space continues on the next page.

16. continued.

£ _____

(Total for Question 16 is 2 marks)

Turn over

17. Look at the diagram for Question 17 in the Diagram Book.

It shows triangle ADC

ABC is a straight line.

$AB = BC = BD$

Angle DAB = 64°

Angle DCA is marked x

Work out the size of the angle marked x

Give a reason for each stage of your working.

(4 marks)

Answer space is on the next two pages.

Turn over

17. continued.

Turn over

17. continued.

(Total for Question 17 is 4 marks)

Turn over

18. Ben is n years old.

Chloe is twice as old as Ben.

Dan is five years younger than Ben.

**The total of Ben's age, Chloe's age
and Dan's age is T years.**

**(a) Find a formula for T in terms
of n**

(3 marks)

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

18. (a) continued.

(continued on the next page)

Turn over

18. continued.

**(b) Look at the table for
Question 18(b) in the
Diagram Book.**

**In the table, put a tick in the box
next to the identity.**

(1 mark)

(Total for Question 18 is 4 marks)

- 19. Look at the information for Question 19 in the Diagram Book. It shows the ingredients needed to make 16 biscuits.**

Anna has

500 grams of butter

300 grams of sugar

625 grams of flour

Work out the greatest number of biscuits Anna can make.

(3 marks)

Answer space is on the next two pages.

Turn over

19. continued.

Turn over

19. continued.

(Total for Question 19 is 3 marks)

Turn over

20. An estimate of the height, H metres, of a tall building can be found using the formula

$$H = 4f + 12$$

where the building is f floors high.

A tall building is 110 floors high.

The real height of the building is 442 metres.

Seb uses the formula to find an estimate of the height of this building. He then finds the difference between his estimate and the real height.

(continued on the next page)

Turn over

20. continued.

Show that this difference is less than 5% of the real height.

(4 marks)

Answer space continues on the next page.

Turn over

20. continued.

(Total for Question 20 is 4 marks)

Turn over

21. Look at the diagram for Question 21 in the Diagram Book.

It shows a frequency polygon.

The table below shows some information about the weights of 55 potatoes.

Weight (w grams)	Frequency
$10 < w \leq 20$	5
$20 < w \leq 30$	20
$30 < w \leq 40$	15
$40 < w \leq 50$	10
$50 < w \leq 60$	5

(continued on the next page)

Turn over

21. continued.

Iveta drew the frequency polygon shown in the Diagram Book for the information in the table.

The frequency polygon is NOT fully correct.

**Write down TWO things that are wrong with the frequency polygon.
(2 marks)**

Answer lines continue on the next page.

1

Turn over

21. continued.

2 _____

(Total for Question 21 is 2 marks)

22. The length of a pencil is 128 mm correct to the nearest millimetre.

Complete the error interval for the length of the pencil.

_____ mm \leq length $<$ _____ mm

(Total for Question 22 is 2 marks)

**23. Look at the information for
Question 23 in the Diagram Book.
Tom and Adam have some stamps.**

**How many stamps does Tom buy
from Adam?**

You must show all your working.

(4 marks)

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

23. continued.

Turn over

23. continued.

(Total for Question 23 is 4 marks)

Turn over

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

Each person in a fitness club is going to get a free gift.

Stan is going to order the gifts.

Stan takes a sample of 50 people in the fitness club.

He asks each person to tell him the gift they would like.

The table in the Diagram Book shows information about his results.

(continued on the next page)

Turn over

24. continued.

There are 700 people in the fitness club.

(i) Work out how many sports bags Stan should order.

(2 marks)

Answer space continues on the next page.

24. (i) continued.

(continued on the next page)

Turn over

24. continued.

(ii) Write down any assumption you made AND explain how this could affect your answer.

(1 mark)

(Total for Question 24 is 3 marks)

Turn over

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

It shows six graphs labelled A, B, C, D, E, F

Write down the letter of the graph that could have the equation

(a) $y = x^3$

(1 mark)

(continued on the next page)

Turn over

25. continued.

(b) $y = \frac{1}{x}$

(1 mark)

(Total for Question 25 is 2 marks)

Turn over

26. The n th term of a sequence is $2n^2 - 1$

The n th term of a different sequence is $40 - n^2$

Show that there is only one number that is in both of these sequences.

(3 marks)

Answer space continues on the next page.

26. continued.

(Total for Question 26 is 3 marks)

Turn over

27. Work out

$$(3.42 \times 10^{-7}) \div (7.5 \times 10^{-6})$$

Give your answer in standard form.

(Total for Question 27 is 2 marks)

Turn over

28. The number of days, d , that it will take to build a house is given by

$$d = \frac{720}{n}$$

where n is the number of workers used each day.

Ali's company will take 40 days to build the house.

Hayley's company will take 30 days to build the house.

(continued on the next page)

28. continued.

**Hayley's company will have to use
more workers each day than Ali's
company.**

How many more?

(3 marks)

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

Turn over

28. continued.

(Total for Question 28 is 3 marks)

Turn over

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

You may be provided with two models.

They show a cube and a cuboid.

**The cuboid has length 18 cm,
width 8 cm and height 6 cm**

**The total surface area of the cube is
equal to the total surface area of the
cuboid.**

Janet says,

**“The volume of the cube is equal to
the volume of the cuboid.”**

(continued on the next page)

Turn over

29. continued.

Is Janet correct?

**You must show how you get your
answer.**

(5 marks)

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

Turn over

29. continued.

Turn over

29. continued.

(Total for Question 29 is 5 marks)

Turn over

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

It shows a grid.

Here are two column vectors

$$\mathbf{a} = \begin{pmatrix} 5 \\ 2 \end{pmatrix}$$

$$\mathbf{b} = \begin{pmatrix} 3 \\ -1 \end{pmatrix}$$

On the grid draw the vector $\mathbf{a} - 2\mathbf{b}$

Label this vector.

(Total for Question 30 is 3 marks)

TOTAL FOR PAPER IS 80 MARKS

END OF PAPER
