

Paper Reference 4MA1/1F
Pearson Edexcel
International GCSE

Total Marks

Mathematics A
Paper 1F
Foundation Tier
(Calculator)

Thursday 7 January 2021 – Morning
Time: 2 hours 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
Formulae Pages**

Turn over

INSTRUCTIONS

Answer ALL questions.

Without sufficient working, correct answers may be awarded no marks.

Answer the questions in the spaces provided in this Question Paper or on the separate diagrams – there may be more space than you need.

CALCULATORS MAY BE USED.

You must NOT write anything on the Formulae Pages. Anything you write on the Formulae Pages will gain NO credit.

Turn over

INFORMATION

The total mark for this paper is 100

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 model for Question 19

You may be provided with a shape for Question 14

There may be spare copies of some diagrams.

Turn over

ADVICE

Read each question carefully before you start to answer it.

Check your answers if you have time at the end.

Answer ALL TWENTY SIX questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1. Look at the table for Question 1 in the Diagram Book.

It shows the height, in metres, of each of six volcanoes.

- (a) Which of these volcanoes has the greatest height?

(1 mark)

(continued on the next page)

8

1. continued.

**(b) Write down the value of the 8 in
the number 4585
(1 mark)**

(continued on the next page)

Turn over

1. continued.

(c) Write the number 6046 in words.

(1 mark)

(d) Write the number 5137 correct to the nearest hundred.

(1 mark)

(continued on the next page)

Turn over

1. continued.

(e) Work out the difference in the height of the Acamarachi volcano and the height of the Semeru volcano.

(1 mark)

_____ metres

(Total for Question 1 is 5 marks)

Turn over

2. Look at the diagrams for Question 2(a)(i) and 2(a)(ii) in the Diagram Book.

Sandeep is designing some 3-sided spinners.

He is going to spin each spinner once.

(continued on the next page)

2. continued.

- (a) (i) Write a different number on each line so that when the spinner is spun it is IMPOSSIBLE that the spinner will land on a number greater than 9**
- There are three spaces to fill.**
- (1 mark)**

(continued on the next page)

2. (a) continued.

**(ii) Write a different number
on each line so that when
the spinner is spun it is
CERTAIN that the spinner
will land on a multiple of 10
There are three spaces to fill.
(1 mark)**

(continued on the next page)

2. continued.

**Look at the diagram for Question 2(b)
in the Diagram Book.**

It shows a probability scale.

**The likelihood of an outcome
is EVENS.**

**(b) On the probability scale, mark
the probability of this outcome.
(1 mark)**

(Total for Question 2 is 3 marks)

3. Look at the diagram for Question 3 in the Diagram Book.

It shows a weighing scale.

Amir is going on holiday.

He weighs his suitcase on the weighing scales at the airport.

The reading on the scale gives the weight of Amir's suitcase.

An excess luggage charge has to be paid when the weight of a suitcase is greater than 25 kg

This charge is 7·45 euros for each kilogram over the 25 kg limit.

(continued on the next page)

Turn over

3. continued.

**Work out the excess luggage charge
that Amir has to pay.**

(3 marks)

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

3. continued.

_____ euros

(Total for Question 3 is 3 marks)

Turn over

4. (a) Write

0.57 as a fraction.

(1 mark)

(continued on the next page)

Turn over

4. continued.

(b) Write

0·02 as a percentage.

(1 mark)

_____ %

(continued on the next page)

Turn over

4. continued.

(c) Write

$\frac{72}{84}$ as a fraction in its simplest form.

(1 mark)

(continued on the next page)

Turn over

4. continued.

(d) Write

$\frac{22}{5}$ as a mixed number.

(1 mark)

(continued on the next page)

Turn over

4. continued.

(e) Work out

$$\frac{1}{8} \text{ of } 624$$

(1 mark)

(Total for Question 4 is 5 marks)

Turn over

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

It shows a sequence of shapes made by shading squares on a square grid.

**(a) On the grid in the Diagram Book, draw Shape number 4
(1 mark)**

(continued on the next page)

5. continued.

(b) Complete the table below.

There are two spaces to fill.

(1 mark)

Shape number	Number of shaded squares
1	5
2	9
3	13
4	
5	

(continued on the next page)

Turn over

5. continued.

**(c) Find the number of shaded
squares in Shape number 8
(1 mark)**

(continued on the next page)

5. continued.

(d) Explain why no shape in the sequence is made by shading exactly 50 squares.

(1 mark)

(Total for Question 5 is 4 marks)

6. Nav makes bracelets using cord.

Nav has a 6 metre length of cord.

**Each bracelet needs 17.5 cm
of cord.**

**Work out the greatest number of
bracelets that Nav can make.**

(3 marks)

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

6. continued.

(Total for Question 6 is 3 marks)

Turn over

7. (a) Simplify

$$10w + 4y + 3w - 6y$$

(2 marks)

(continued on the next page)

Turn over

7. continued.

(b) Solve

$$2n + 5 = 16$$

(2 marks)

n = _____

(Total for Question 7 is 4 marks)

Turn over

- 8. Look at the two–way table for Question 8 in the Diagram Book. It shows some information about the 60 noodle meals eaten in a noodle bar by each of 60 people last Friday.**

- (a) Complete the two–way table.
There are six spaces to fill.
(3 marks)**

(continued on the next page)

8. continued.

One of the 60 people is selected at random.

(b) Write down the probability that this person ate Fried Udon noodles.

(1 mark)

(Total for Question 8 is 4 marks)

Turn over

9. Look at the diagram for Question 9 in the Diagram Book.

It shows quadrilateral ABCD and isosceles triangle ADE, where $AE = AD$

EDC is a straight line.

Angle BAD = 59°

Angle ABC = 115°

Angle BCD = 68°

Angle AED = x°

(continued on the next page)

9. continued.

Work out the value of x

Give a reason for each stage of your working.

(4 marks)

Answer space continues on the next two pages.

9. continued.

Turn over

9. continued.

X = _____

(Total for Question 9 is 4 marks)

Turn over

10. In Koko's shop

5 chocolate bars cost \$5.75

**2 chocolate bars and 3 packets of
sweets cost \$7.85**

**Work out the cost of one packet of
sweets.**

(3 marks)

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

10. continued.

\$_____

(Total for Question 10 is 3 marks)

Turn over

11. Akiko travelled from London to Tokyo by plane.

The plane left London at 18 40 on Friday.

The plane arrived in Tokyo the next day, at 06 25 London time.

How long did the flight take?

Give your answer in hours and minutes.

(2 marks)

Answer space continues on the next page.

11. continued.

_____ hours

_____ minutes

(Total for Question 11 is 2 marks)

Turn over

- 12. (a) Expand**
 $x(4 - x)$
(1 mark)
-

(continued on the next page)

12. continued.

Given that

$$\mathbf{t = pq - r}$$

$$\mathbf{p = 1.5 \quad q = 2.4 \quad r = -5.6}$$

(b) work out the value of t
(2 marks)

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

Turn over

12. (b) continued.

t = _____

(continued on the next page)

Turn over

12. continued.

(c) Make m the subject of

$$y = mx - n$$

(2 marks)

(Total for Question 12 is 5 marks)

Turn over

- 13. (a) Express 180 as a percentage
of 750
(2 marks)**

_____ %

(continued on the next page)

Turn over

13. continued.

Zaina has booked a singer for a show.

The singer will get 94% of the total money from the ticket sales.

The cost of each ticket for the show is 32.50 dirhams.

Zaina sells 180 tickets.

(b) Work out the amount of money the singer will get.

(3 marks)

Answer space continues on the next two pages.

13. (b) continued.

Turn over

13. (b) continued.

_____ **dirhams**

(Total for Question 13 is 5 marks)

14. Look at the diagram for Question 14 in the Diagram Book.

It shows shape **A, shape **B** and shape **C** on a grid.**

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

- (a) Describe fully the single transformation that maps shape **A** onto shape **B****
(2 marks)

(continued on the next page)

Turn over

14. continued.

(b) Describe fully the single transformation that maps shape **B onto shape **C****
(3 marks)

(Total for Question 14 is 5 marks)

Turn over

15. Look at the table for Question 15 in the Diagram Book.

A bag contains 30 coloured counters.

The table gives the number of counters of each colour.

One of the counters is taken at random from the bag.

(a) Write down the probability that this counter is green.

(1 mark)

(continued on the next page)

Turn over

15. continued.

**(b) Write down the probability that
this counter is NOT red.**

(2 marks)

(Total for Question 15 is 3 marks)

Turn over

16. Show that

$$\frac{5}{6} - \frac{3}{8} = \frac{11}{24}$$

(2 marks)

Answer space continues on the next page.

16. continued.

(Total for Question 16 is 2 marks)

Turn over

17. Pieter owns a currency conversion shop.

Last Monday, Pieter changed a total of 20 160 rand into a number of different currencies.

He changed $\frac{3}{10}$ of the 20 160 rand into euros.

He changed the rest of the rands into dollars, rupees and francs in the ratios 9 : 5 : 2

(continued on the next page)

17. continued.

Pieter changed more rands into dollars than he changed into francs.

Work out how many more.

(4 marks)

Answer space continues on the next two pages.

17. continued.

Turn over

17. continued.

_____ rand

(Total for Question 17 is 4 marks)

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

It gives information about the speeds, in kilometres per hour, of 80 motorbikes as each pass under a bridge.

**(a) Write down the modal class.
(1 mark)**

(continued on the next page)

Turn over

18. continued.

(b) Work out an estimate for the mean speed of the motorbikes as they pass under the bridge.

Give your answer correct to 3 significant figures.

(4 marks)

Answer space continues on the next page.

Turn over

18. (b) continued.

_____ kilometres
per hour

(Total for Question 18 is 5 marks)

Turn over

19. Look at Diagram 1 and Diagram 2 for Question 19 in the Diagram Book.

You may be provided with a model.

They are NOT accurate.

Diagram 1 and the model show a container for water in the shape of a prism.

Diagram 2 shows the front view of the prism.

The dimensions of the container are shown on the model and the diagrams.

All the corners of the prism are right angles.

(continued on the next page)

19. continued.

The rectangular base of the prism, shown shaded in Diagram 1, is horizontal and has width 85 cm and length 125 cm

The container is completely full of water.

Tuah is going to use a pump to empty the water from the container so that the volume of water in the container decreases at a constant rate.

(continued on the next page)

19. continued.

The pump starts to empty water from the container at 10 30 and at 12 00 the water level in the container has dropped by 20 cm

Find the time at which all the water has been pumped out of the container.

(4 marks)

Answer space continues on the next two pages.

19. continued.

Turn over

19. continued.

(Total for Question 19 is 4 marks)

20. $\mathcal{E} =$

$\{20, 21, 22, 23, 24, 25, 26, 27, 28, 29\}$

$A = \{\text{odd numbers}\}$

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

List the members of the set

(i) $A \cap B$

(1 mark)

Answer space continues on the
next page.

20. (i) continued.

(continued on the next page)

20. continued.

Remember:

$$\mathcal{E} =$$

$\{20, 21, 22, 23, 24, 25, 26, 27, 28, 29\}$

$A = \{\text{odd numbers}\}$

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

List the members of the set

(ii) $A \cup B$

(1 mark)

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

Turn over

20. (ii) continued.

(Total for Question 20 is 2 marks)

- 21. (a) Factorise fully**
 $15y^4 + 20uy^3$
(2 marks)
-

(continued on the next page)

21. continued.

(b) Solve

$$4 - 3x = \frac{5 - 8x}{4}$$

Show clear algebraic working.

(3 marks)

Answer space continues on the next page.

21. (b) continued.

x = _____

(Total for Question 21 is 5 marks)

Turn over

22. (a) Write

2 840 000 000 in standard form.

(1 mark)

(continued on the next page)

Turn over

22. continued.

(b) Write

**2.5×10^{-4} as an ordinary
number.**

(1 mark)

(Total for Question 22 is 2 marks)

Turn over

23. Chen invests 40 000 yuan in a fixed-term bond for 3 years.

The fixed-term bond pays compound interest at a rate of 3.5% each year.

(a) Work out the value of Chen's investment at the end of 3 years. Give your answer to the nearest yuan.

(3 marks)

Answer space continues on the next page.

23. (a) continued.

_____ yuan

(continued on the next page)

Turn over

23. continued.

Wang invested P yuan.

**The value of his investment
decreased by 6.5% each year.**

**At the end of the first year, the
value of Wang's investment was
 $30\,481$ yuan.**

**(b) Work out the value of P
(3 marks)**

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

23. (b) continued.

P = _____

(Total for Question 23 is 6 marks)

Turn over

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

It is NOT accurately drawn.

The diagram shows a curved path.

The boundary of the path is formed by two semicircles, with the same centre **O, and two straight lines.**

The inner semicircle has a radius of 7 metres.

The path has a width of 2 metres.

(continued on the next page)

24. continued.

Work out the perimeter of the path.

**Give your answer correct to
one decimal place.**

(3 marks)

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

24. continued.

Turn over

24. continued.

_____ metres

(Total for Question 24 is 3 marks)

Turn over

25. (a) Simplify

$$(2x^3y^5)^4$$

(2 marks)

(continued on the next page)

Turn over

25. continued.

(b) (i) Factorise

$$y^2 + 5y - 36$$

(2 marks)

(continued on the next page)

Turn over

25. (b) continued.

(ii) Hence, solve

$$y^2 + 5y - 36 = 0$$

(1 mark)

(Total for Question 25 is 5 marks)

Turn over

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

It is NOT accurately drawn.

It shows an isosceles triangle ABC

$$\mathbf{BA = BC}$$

D is the midpoint of AC

$$\mathbf{DB = 16 \text{ cm}}$$

Angle ADB is a right angle.

$$\mathbf{\text{Angle } DAB = 65^\circ}$$

Work out the perimeter of triangle ABC

Give your answer correct to one decimal place.

(4 marks)

Answer space is on the next two pages.

Turn over

26. continued.

Turn over

26. continued.

_____ **cm**

(Total for Question 26 is 4 marks)

TOTAL FOR PAPER IS 100 MARKS

END OF PAPER
