

Paper Reference 4MA1/2F
Pearson Edexcel
International GCSE

Total Marks

Mathematics A
Paper 2F
(Calculator)
Foundation Tier

Wednesday 13 January 2021 – Afternoon

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					

V66299A

YOU MUST HAVE

Ruler, protractor, compasses, writing and drawing equipment, calculator. Tracing paper may be used.

YOU WILL BE GIVEN

**Diagram Book
Formulae Pages**

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.

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 Questions 6(a) and 6(b).

There may be spare copies of some diagrams.

ADVICE

Read each question carefully before you start to answer it.

Check your answers if you have time at the end.

5

**Answer ALL TWENTY FOUR
questions.**

**Write your answers in the spaces
provided.**

**You must write down all the
stages in your working.**

Turn over

1. Here is a list of seven numbers.

6 8 17 36 44 76 91

From the numbers in the list, write down

(a) a multiple of 11
(1 mark)

(continued on the next page)

1. continued.

Remember:

Here is the list of seven numbers.

6 8 17 36 44 76 91

From the numbers in the list, write
down

(b) a factor of 30
(1 mark)



(continued on the next page)

Turn over

1. continued.

Remember:

Here is the list of seven numbers.

6 8 17 36 44 76 91

From the numbers in the list, write
down

(c) a square number
(1 mark)



(continued on the next page)

Turn over

1. continued.

Remember:

Here is the list of seven numbers.

6 8 17 36 44 76 91

**From the numbers in the list, write
down**

**(d) a prime number
(1 mark)**

(continued on the next page)

Turn over

1. continued.

Remember:

Here is the list of seven numbers.

6 8 17 36 44 76 91

**From the numbers in the list, write
down**

**(e) two numbers whose sum is 84
(1 mark)**

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

1. (e) continued.

_____ and _____

(Total for Question 1 is 5 marks)

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

They show a frequency table and a blank grid.

The 20 students in class 7T were asked how they got to school one day.

(continued on the next page)

2. continued.

Here is a list of their method of travel to school.

walk	bus	bicycle	walk
bus	bicycle	walk	car
bus	bicycle	bus	bicycle
bus	car	walk	walk
bus	walk	walk	car

(a) Complete the frequency table in the Diagram Book for the methods of travel in the list. There are eight spaces to fill. (2 marks)

(continued on the next page)

Turn over

2. continued.

(b) Draw a bar chart on the grid in the Diagram Book for the information in your table.

(3 marks)

(Total for Question 2 is 5 marks)

3. The temperature in New York is -2°C

At the same time, the temperature in Rabat is 16°C higher than the temperature in New York.

(a) Work out the temperature in Rabat.

(1 mark)

_____ $^{\circ}\text{C}$

(continued on the next page)

Turn over

3. continued.

Also, at the same time, the temperature in Helsinki is 17°C lower than the temperature in New York.

(b) Work out the temperature in Helsinki.

(1 mark)

_____ $^{\circ}\text{C}$

(Total for Question 3 is 2 marks)

Turn over

4. Look at the diagram for Question 4 in the Diagram Book.

It represents a rectangle made from 30 small coloured square tiles.

There are yellow tiles, blue tiles and red tiles.

30% of the rectangle is made from yellow tiles.

$\frac{1}{3}$ of the rectangle is made from blue tiles.

The rest of the rectangle is made from red tiles.

(continued on the next page)

4. continued.

(a) Work out the number of red tiles.

(3 marks)



(continued on the next page)

4. continued.

(b) Put the following five numbers in order of size.

Start with the smallest number.

0.76 25% 0.0766 8% 0.026

(2 marks)

Answer space continues on the next page.

Turn over

4. (b) continued.

(Total for Question 4 is 5 marks)

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

It shows a number machine.

(a) Work out the output when the input is 7

(1 mark)



(continued on the next page)

5. continued.

**(b) Work out the input when the
output is 160
(2 marks)**

(continued on the next page)

Turn over

5. continued.

When the input is n , the output is P

**(c) Find a formula for P in terms
of n**

(2 marks)

(Total for Question 5 is 5 marks)

Turn over

6. Look at the diagram for Questions 6(a) and 6(b) in the Diagram Book.

You may be provided with a model. The diagram and the model show a solid prism.

**(a) How many vertices has the prism?
(1 mark)**

(continued on the next page)

Turn over

6. continued.

(b) How many faces has the prism?

(1 mark)



(continued on the next page)

6. continued.

(c) Look at the diagram for Question 6(c) in the Diagram Book. It shows side **AB**

Using ruler and compasses only, in the space in the Diagram Book construct the equilateral triangle **ABC with sides of length **7 cm****

You must show all your construction lines.

Side **AB has already been drawn for you.**

(2 marks)

(Total for Question 6 is 4 marks)

Turn over

7. (a) Simplify

$$p + p + p + p + p + p$$

(1 mark)

(continued on the next page)

7. continued.

(b) Simplify

$$5y^2 + 6y^2 - 3y^2$$

(1 mark)

(continued on the next page)

Turn over

7. continued.

(c) Simplify

$$q \times q \times q \times q \times q$$

(1 mark)

(continued on the next page)

Turn over

7. continued.

(d) Simplify

$$5t \times 4u$$

(1 mark)

(continued on the next page)

Turn over

7. continued.

(e) Solve

$$\mathbf{x - 7 = 19}$$

(1 mark)

$$\mathbf{x = \underline{\hspace{15em}}}$$

(continued on the next page)

7. continued.

Given that

$$18^2 + 15^2 - 5^3 = 4n$$

(f) work out the value of n
(2 marks)

$n =$ _____

(continued on the next page)

Turn over

7. continued.

(g) Factorise $9w - 6$

(1 mark)

(Total for Question 7 is 8 marks)

Turn over

8. Paolo has a bag of flour.

**The flour in the bag has a weight of
3 kilograms.**

**Paolo makes 8 pies using the flour in
the bag.**

**3 of the pies each need 150 grams of
the flour.**

**5 of the pies each need 180 grams of
the flour.**

(continued on the next page)

8. continued.

Work out the weight of flour that remains in the bag when Paolo has made these pies.

Give your answer in grams.

(3 marks)

Answer space continues on the next page.

8. continued.

_____ grams

(Total for Question 8 is 3 marks)

Turn over

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

Grace has a fair spinner and a fair dice.

The spinner is 3-sided and can land on 6, 7 or 8 as shown in the Diagram Book.

The dice can land on 1, 2, 3, 4, 5 or 6

Grace spins the spinner once and throws the dice once.

(continued on the next page)

9. continued.

Grace subtracts the number that the dice lands on from the number that the spinner lands on to get her score.

(a) Look at the table for Question 9(a) in the Diagram Book.

Complete the table to show all possible scores.

Eight of the scores have been done for you.

There are ten spaces to fill.

(2 marks)

(continued on the next page)

Turn over

9. continued.

**Grace spins the spinner once and
throws the dice once.**

**(b) Find the probability that her
score is less than 6
(1 mark)**

(continued on the next page)

Turn over

9. continued.

(c) Find the probability that her score is an odd number.

(1 mark)

(Total for Question 9 is 4 marks)

10. Look at the diagram for Question 10 in the Diagram Book.

It is NOT accurately drawn.

It shows a right-angled triangle labelled ABC

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

$$AC = (6y + 11) \text{ cm}$$

$$BC = (9y - 18) \text{ cm}$$

Angle ABC is a right angle.

The perimeter of the triangle is 126 cm

Work out the area of the triangle.

(4 marks)

Answer space is on the next two pages.

Turn over

10. continued.

Turn over

10. continued.

_____ **cm²**

(Total for Question 10 is 4 marks)

Turn over

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

It is NOT accurately drawn.

ABD is a triangle.

AEDF, BCDG and HCEJ are straight lines.

BA is parallel to HCEJ

Angle BAE = 76°

Angle BCE = 143°

Angle GDF is marked x

Work out the size of the angle marked x

(3 marks)

Answer space is on the next two pages.

Turn over

11. continued.

Turn over

11. continued.

_____ ○

(Total for Question 11 is 3 marks)

12. Elvira and Anja go on holiday to Sweden and to Finland.

In Sweden, Elvira bought some trainers for 438 Swedish krona.

In Finland, Anja bought the same type of trainers for 44·39 euros.

1 Swedish krona = 0·12 dollars

1 dollar = 0·92 euros

(continued on the next page)

12. continued.

Work out the difference in the cost of the trainers bought by Elvira and the trainers bought by Anja.

Give your answer in dollars.

(4 marks)

Answer space continues on the next two pages.

12. continued.

Turn over

12. continued.

_____ dollars

(Total for Question 12 is 4 marks)

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

It is NOT accurately drawn.

**It shows the positions of three
villages, R, T and W**

On the diagram North is labelled N

Angle $NRT = 125^\circ$

Angle $TRW = 84^\circ$

(continued on the next page)

13. continued.

**(a) Work out the bearing of village W
from village R**

(1 mark)



(continued on the next page)

Turn over

13. continued.

(b) Work out the bearing of village R
from village T
(2 marks)

_____ °

(Total for Question 13 is 3 marks)

14. Look at the diagram for
Question 14(a) in the Diagram Book.
It is NOT accurately drawn.
It shows a trapezium labelled **ABCD**

AB is parallel to **DC**

AB = 13.5 cm

DC = 17 cm

The perpendicular distance between
AB and **DC** is **10.4 cm**

(continued on the next page)

14. continued.

(a) Work out the area of the trapezium.

(2 marks)

_____ **cm²**

(continued on the next page)

Turn over

14. continued.

Look at the diagram for

Question 14(b) in the Diagram Book.

It is NOT accurately drawn.

It shows a cuboid with

length 15.5 cm, width 8 cm and

height x cm

The volume of the cuboid

is 806 cm^3

(continued on the next page)

14. continued.

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

$x =$ _____

(Total for Question 14 is 5 marks)

Turn over

- 15. A train takes 6 hours 39 minutes to travel from New Delhi to Kanpur. The train travels a distance of 429 km**

Work out the average speed of the train.

Give your answer in km/h correct to one decimal place.

(3 marks)

Answer space continues on the next two pages.

15. continued.

Turn over

15. continued.

_____ km/h

(Total for Question 15 is 3 marks)

**16. Ava writes down five whole numbers.
For these five numbers**

the median is 7

the mode is 8

the range is 5

**Find a possible value for each of the
five numbers that Ava writes down.**

(3 marks)

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

16. continued.

Turn over

16. continued.

(Total for Question 16 is 3 marks)

17. Gladys buys a table for \$465 to sell in her shop.

She sells the table for \$520

(a) Work out the percentage profit that Gladys makes from the sale of the table.

Give your answer correct to 3 significant figures.

(3 marks)

Answer space continues on the next page.

17. (a) continued.

_____ %

(continued on the next page)

Turn over

17. continued.

Gladys has a sale in her shop.

**She decreases all the normal prices
by 12%**

**The normal price of an armchair was
\$550**

**(b) Work out the sale price of the
armchair.**

(3 marks)

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

17. (b) continued.

\$ _____

(Total for Question 17 is 6 marks)

Turn over

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

It shows a blank grid.

(a) On the grid in the Diagram Book, draw and LABEL the straight line with equation

(i) $x = 1.5$

(ii) $y = x$

(iii) $x + y = 6$

(3 marks)

(continued on the next page)

18. continued.

(b) On the grid, mark the region that satisfies ALL THREE of the inequalities

$$x \geq 1.5$$

$$y \geq x$$

$$x + y \leq 6$$

Label the region R

(1 mark)

(Total for Question 18 is 4 marks)

Turn over

19. (a) Expand and simplify

$$4p(2p + 5) - 3p(2p - 3)$$

(2 marks)



(continued on the next page)

19. continued.

Given that

$$\frac{y^5 \times y^n}{y^6} = y^{13}$$

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

$n =$ _____

(continued on the next page)

Turn over

19. continued.

(c) (i) Solve the inequality

$$7t - 8 < 2t + 7$$

(2 marks)

(continued on the next page)

Turn over

19. (c) continued.

(ii) Look at the diagram for Question 19(c)(ii) in the Diagram Book.

**On the number line in the Diagram Book, represent the solution set of the inequality solved in part (c)(i)
(1 mark)**

(Total for Question 19 is 7 marks)

20. (a) Write down the value of y^0
(1 mark)
-

- (b) Work out

$$\frac{9 \cdot 6 \times 10^{141} + 6 \cdot 4 \times 10^{140}}{3 \cdot 2 \times 10^{16}}$$

Give your answer in standard form.

(3 marks)

Answer space is on the next two pages.

Turn over

20. (b) continued.

20. (b) continued.

(Total for Question 20 is 4 marks)

**21. There are 5 cocoa pods in a bag.
The mean weight of the 5 cocoa pods
is 398 grams.**

**A sixth cocoa pod is put into the bag.
The mean weight of the 6 cocoa pods
is 401 grams.**

**Work out the weight of the sixth
cocoa pod that is put into the bag.**

(3 marks)

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

21. continued.

Turn over

21. continued.

_____ grams

(Total for Question 21 is 3 marks)

Turn over

22. Look at the diagram for Question 22 in the Diagram Book.

It is NOT accurately drawn.

A, B and C are points on a circle with centre O

AOC is a diameter of the circle.

AB = 8 cm

BC = 15 cm

Angle ABC = 90°

Triangle ABC is shaded.

(continued on the next page)

22. continued.

Work out the total area of the region not shaded in the diagram.

Give your answer correct to 3 significant figures.

(5 marks)

Answer space continues on the next three pages.

22. continued.

Turn over

22. continued.

Turn over

22. continued.

_____ **cm²**

(Total for Question 22 is 5 marks)

Turn over

23. $A = 2^3 \times 3^2 \times 5^2 \times 11$
 $B = 2^4 \times 3 \times 5^4 \times 13$

Find the lowest common multiple (LCM) of A and B

Give your answer as a product of powers of prime numbers.

(2 marks)

Answer space continues on the next page.

Turn over

23. continued.

(Total for Question 23 is 2 marks)

Turn over

24. The people working for a company work in Team A or in Team B

number of people in Team A : number of people in Team B = 3 : 4

$\frac{4}{5}$ of Team A work full time.

24% of Team B work full time.

Work out what fraction of the people working for the company work full time.

Give your fraction in its simplest form.

(3 marks)

Answer space is on the next three pages.

Turn over

24. continued.

Turn over

24. continued.

Turn over

24. continued.

(Total for Question 24 is 3 marks)

TOTAL FOR PAPER IS 100 MARKS

END OF PAPER
