

**Paper Reference 4MA1/2F**  
**Pearson Edexcel**  
**International GCSE**

Total Marks
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**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.**

<b>Surname</b>					
<b>Other names</b>					
<b>Centre Number</b>					
<b>Candidate Number</b>					

**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.**

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**Answer ALL TWENTY FOUR questions.**

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

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

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)

---

(b) a factor of 30  
(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

(c) a square number

(1 mark)

---

(d) a prime number

(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

(e) two numbers whose sum is 84

(1 mark)

\_\_\_\_\_ and \_\_\_\_\_

(Total for Question 1 is 5 marks)

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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.

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)

- (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  $-2^{\circ}\text{C}$

At the same time, the temperature in Rabat is  $16^{\circ}\text{C}$  higher than the temperature in New York.

(a) Work out the temperature in Rabat.

(1 mark)

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

(continued on the next page)

**3. continued.**

**Also, at the same time, the temperature in Helsinki is  $17^{\circ}\text{C}$  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)**

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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.

- (a) Work out the number of red tiles.

(3 marks)

---

(continued on the next page)

Turn over

**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)**

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**(Total for Question 4 is 5 marks)**

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**Turn over**

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)

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(continued on the next page)

5. continued.

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

---

(continued on the next page)

5. continued.

When the input is  $n$ , the output is  $P$

(c) Find a formula for  $P$  in terms of  $n$   
(2 marks)

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(Total for Question 5 is 5 marks)

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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)

---

- (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)

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7. (a) Simplify

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

(1 mark)

---

(b) Simplify

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

(1 mark)

---

(continued on the next page)

7. continued.

(c) Simplify

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

(1 mark)

---

(d) Simplify

$$5t \times 4u$$

(1 mark)

---

(continued on the next page)

7. continued.

(e) Solve

$$x - 7 = 19$$

(1 mark)

$$x = \underline{\hspace{4cm}}$$

Given that

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

(f) work out the value of  $n$

(2 marks)

$$n = \underline{\hspace{4cm}}$$

(continued on the next page)

Turn over

7. continued.

(g) Factorise  $9w - 6$

(1 mark)

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(Total for Question 7 is 8 marks)

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**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.**

**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)

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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.

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)



**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)**

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

**(1 mark)**

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**(Total for Question 9 is 4 marks)**

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**Turn over**

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 continues on the next page.

10. continued.

\_\_\_\_\_  $\text{cm}^2$

(Total for Question 10 is 4 marks)

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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** =  $76^\circ$

Angle **BCE** =  $143^\circ$

Angle **GDF** is marked **x**

Work out the size of the angle marked **x**

(3 marks)

Answer space continues on the next page.

11. continued.

\_\_\_\_\_ o

(Total for Question 11 is 3 marks)

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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

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 page.

12. continued.

\_\_\_\_\_ dollars

(Total for Question 12 is 4 marks)

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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  $\text{NRT} = 125^\circ$

Angle  $\text{TRW} = 84^\circ$

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

(1 mark)

\_\_\_\_\_ °

(continued on the next page)



13. continued.

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

\_\_\_\_\_ °

(Total for Question 13 is 3 marks)

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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

- (a) Work out the area of the trapezium.  
(2 marks)

\_\_\_\_\_  $\text{cm}^2$

(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  $15.5 \text{ cm}$ , width  $8 \text{ cm}$  and height  $x \text{ cm}$

The volume of the cuboid is  $806 \text{ cm}^3$

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

$x =$  \_\_\_\_\_

(Total for Question 14 is 5 marks)

- 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 page.**

15. continued.

\_\_\_\_\_ km/h

(Total for Question 15 is 3 marks)

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**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 page.**

16. continued.

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**(Total for Question 16 is 3 marks)**

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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)

\_\_\_\_\_ %

(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)**

**\$\_\_\_\_\_**

**(Total for Question 17 is 6 marks)**

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**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)**

**(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)**

19. (a) Expand and simplify

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

(2 marks)

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Given that

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

(b) work out the value of  $n$

(2 marks)

$$n = \underline{\hspace{2cm}}$$

(continued on the next page)

Turn over

**19. continued.**

**(c) (i) Solve the inequality**

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

**(2 marks)**

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**(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)**

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**Turn over**

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

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- (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 continues on the next page.

20. (b) continued.

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(Total for Question 20 is 4 marks)

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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 page.

21. continued.

\_\_\_\_\_ grams

(Total for Question 21 is 3 marks)

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**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.**

**$AB = 8 \text{ cm}$**

**$BC = 15 \text{ cm}$**

**Angle  $ABC = 90^\circ$**

**Triangle ABC is shaded.**

**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 two pages.**

22. continued.

22. continued.

\_\_\_\_\_  $\text{cm}^2$

(Total for Question 22 is 5 marks)

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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.

23. continued.

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**(Total for Question 23 is 2 marks)**

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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 continues on the next two pages.

24. continued.

24. continued.

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**(Total for Question 24 is 3 marks)**

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**TOTAL FOR PAPER IS 100 MARKS**

**END OF PAPER**

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