

**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.**

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

**Y66299A**

**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 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**

**6**

- 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)**

**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**

**(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.**

**Turn over**

1. (e) continued.

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

**(Total for Question 1 is 5 marks)**

---

**Turn over**

- 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)**

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**Turn over**

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)

Turn over

**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)**

---

**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)**

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**(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)**

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

**Turn over**

4. (b) continued.

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

---

**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)**

**Turn over**

**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)

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(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)**

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**(continued on the next page)**

**Turn over**

**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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**Turn over**

7. (a) Simplify

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

(1 mark)

---

(continued on the next page)

Turn over

**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)**

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**(continued on the next page)**

**Turn over**

**7. continued.**

**(e) Solve**

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

**(1 mark)**

**x = \_\_\_\_\_**

**(continued on the next page)**

**Turn over**

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)**

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**(Total for Question 7 is 8 marks)**

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**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)**

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**(continued on the next page)**

**Turn over**

**9. continued.**

- (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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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.**

\_\_\_\_\_ **cm<sup>2</sup>**

**(Total for Question 10 is 4 marks)**

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**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** =  $76^\circ$

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

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.**

○

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**(Total for Question 11 is 3 marks)**

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**Turn over**

- 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)**

---

**Turn over**

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

**(continued on the next page)**

**13. continued.**

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

○

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**(continued on the next page)**

**Turn over**

**13. continued.**

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

○

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**(Total for Question 13 is 3 marks)**

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**Turn over**

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)**

\_\_\_\_\_ **cm<sup>2</sup>**

**(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  $806 \text{ cm}^3$**

**(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**

**60**

**15. continued.**

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

**(Total for Question 15 is 3 marks)**

---

**Turn over**

**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.**

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

---

**Turn over**

**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.**

**Turn over**

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)**

**Turn over**

**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)

Turn over

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)**

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**(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)**

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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.**

**Turn over**

**20. (b) continued.**

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**(Total for Question 20 is 4 marks)**

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**Turn over**

- 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.**

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

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

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

**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.**

\_\_\_\_\_ **cm<sup>2</sup>**

**(Total for Question 22 is 5 marks)**

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**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.**

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**(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.**

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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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