

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

Total Marks
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**Mathematics A**  
**PAPER 2F**  
**Foundation Tier**  
**(Calculator)**

**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>					

**Y65917RA**

**YOU MUST HAVE**

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

**YOU WILL BE GIVEN**

**Diagram Booklet  
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.**

**There may be spare copies of some diagrams in case you need them.**

## **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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**Turn over**

**5**

**Answer ALL TWENTY SIX  
questions.**

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

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

**Turn over**

- 1. Look at the diagram for Question 1 in the Diagram Booklet.**

**It shows a pictogram which gives information about the number of ice creams Sandeep sold on each of four days last week.**

- (a) How many ice creams did Sandeep sell on Thursday?  
(1 mark)**

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**(continued on the next page)**

**Turn over**

**1. continued.**

**Sandeep sold 30 ice creams on Friday.**

**(b) Complete the pictogram in the Diagram Booklet to show the number of ice creams Sandeep sold on Friday.**

**(1 mark)**

**(continued on the next page)**

**Turn over**

**1. continued.**

- (c) On which day was the least  
number of ice creams sold?  
(1 mark)**
- 

**(continued on the next page)**

**Turn over**

**1. continued.**

- (d) Work out the total number of ice creams Sandeep sold last week.  
(2 marks)**

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

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**Turn over**

2. (a) Write these five numbers in order of size.

Start with the smallest number.

2·12

2·19

2·07

2·1

2·001

(1 mark)

---

(continued on the next page)

Turn over

**2. continued.**

**(b) Write down the value of 6 in the  
number 54·623  
(1 mark)**

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**(continued on the next page)**

**Turn over**

**2. continued.**

- (c) Write the number  $3.4896$   
correct to 2 decimal places.  
(1 mark)**
- 

**(continued on the next page)**

**Turn over**

**2. continued.**

**(d) Write  $0.6$  as a percentage.**

**(1 mark)**

\_\_\_\_\_ %

**(Total for Question 2 is 4 marks)**

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**Turn over**

3. (a) Simplify  $4y + 5y - 2y$   
(1 mark)
- 

- (b) Simplify  $4p \times 7$   
(1 mark)
- 

(Total for Question 3 is 2 marks)

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Turn over

4. (a) Change

**5·48 metres into centimetres.**

**(1 mark)**

\_\_\_\_\_ **cm**

**(continued on the next page)**

**Turn over**

**4. continued.**

**(b) Change**

**4600 millilitres into litres.**

**(1 mark)**

\_\_\_\_\_ **litres**

**(continued on the next page)**

**Turn over**

**4. continued.**

**Look at the diagram for Question 4(c)  
in the Diagram Booklet.**

**It is NOT accurately drawn.**

**It shows an isosceles triangle **ABC****

**$AC = 5 \text{ cm}$**

**The perimeter of the triangle is  
 $32 \text{ cm}$**

**(c) Work out the length of **AB**  
(2 marks)**

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

**Turn over**

**4. (c) continued.**

\_\_\_\_\_ **cm**

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

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**Turn over**

5. Adisha plays basketball for her school.

Here is the number of points that she scored in each of nine games.

15	16	15	18	17
15	13	19	18	

- (a) Find the mode of the numbers of points that Adisha scored.

(1 mark)

---

(continued on the next page)

Turn over

**5. continued.**

**Remember: here is the number of points that she scored in each of nine games.**

<b>15</b>	<b>16</b>	<b>15</b>	<b>18</b>	<b>17</b>
<b>15</b>	<b>13</b>	<b>19</b>	<b>18</b>	

**(b) Work out the range of the numbers of points that Adisha scored.**

**(2 marks)**

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

**Turn over**

**5. (b) continued.**

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**(Total for Question 5 is 3 marks)**

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**Turn over**

6. Here are the first four terms of a number sequence.

4      8      12      16

- (a) Write down the next term of the sequence.

(1 mark)

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- (b) Explain how you found your answer to part (a).

(1 mark)

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(continued on the next page)

Turn over

**6. continued.**

**Remember: Here are the first four terms of a number sequence.**

**4      8      12      16**

**(c) Find an expression, in terms of  $n$ , for the  $n$ th term of the sequence.**

**(1 mark)**

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**(Total for Question 6 is 3 marks)**

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**Turn over**

- 7. Look at the information for Question 7 in the Diagram Booklet. Carmel is working out the cost of using her mobile phone in March. The information in the Diagram Booklet is what she uses.**

**Work out the total cost that Carmel has to pay for using her mobile phone in March.**

**(4 marks)**

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

**Turn over**

**7. continued.**

**Turn over**

**7. continued.**

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

**(Total for Question 7 is 4 marks)**

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**Turn over**

8. Look at the diagram for Question 8 in the Diagram Booklet.

It is NOT accurately drawn.

It shows a rhombus, **ABCD**

Angle **BAD** =  $122^\circ$

Angle **ADC** =  $x^\circ$

Work out the value of **x**

Give a reason for your answer.

(3 marks)

Answer space continues on the next page.

Turn over

**8. continued.**

**X =** \_\_\_\_\_

**(Total for Question 8 is 3 marks)**

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**Turn over**

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

It is NOT accurately drawn.

It shows a cuboid with length 12 cm, width 6 cm and height 9 cm

Work out the volume of the cuboid.

\_\_\_\_\_  $\text{cm}^3$

(Total for Question 9 is 2 marks)

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Turn over

10. (a) Write **25** as a fraction of **145**

Give your fraction in its simplest form.

(2 marks)

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(continued on the next page)

Turn over

**10. continued.**

**(b) Work out 9 as a percentage of 25  
(2 marks)**

\_\_\_\_\_ %

**(continued on the next page)**

**Turn over**

**10. continued.**

**The cost of 16 sandwiches of the same type is 28 euros.**

**(c) Work out the cost of 27 of these sandwiches.**

**(2 marks)**

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

**Turn over**

**10. (c) continued.**

\_\_\_\_\_ **euros**

**(Total for Question 10 is 6 marks)**

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**Turn over**

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

It shows line **AB**  
**ABC** is a triangle.

$$AB = 9 \text{ cm}$$

$$AC = 6 \text{ cm}$$

$$BC = 8 \text{ cm}$$

Use ruler and compasses to  
construct triangle **ABC** with **AB** as  
its base.

You must show all construction lines.

The line **AB** has been drawn for you.

(Total for Question 11 is 2 marks)

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Turn over

12. Given that

$$T = 6p - 4w$$

(a) work out the value of  $T$  when

$$p = 8 \text{ and } w = 3$$

(2 marks)

$$T = \underline{\hspace{10cm}}$$

(continued on the next page)

Turn over

**12. continued.**

**Given that**

$$\mathbf{T = 6p - 4w}$$

**(b) work out the value of  $p$  when**

$$\mathbf{T = -41 \text{ and } w = 5}$$

**(3 marks)**

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

**Turn over**

12. (b) continued.

**p =** \_\_\_\_\_

**(continued on the next page)**

**Turn over**

**12. continued**

**(c) Solve  $4(y - 3) = 7y + 15$**

**Show clear algebraic working.**

**(3 marks)**

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

**Turn over**

**12. (c) continued.**

$$y = \underline{\hspace{10cm}}$$

**(Total for Question 12 is 8 marks)**

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**Turn over**

**40**

**13. Trains leave Agra station to go to New Delhi every 40 minutes.**

**Trains leave Agra station to go to Mumbai every 48 minutes.**

**At 6 am a train leaves Agra station to go to New Delhi and at the same time a train leaves Agra station to go to Mumbai.**

**Work out the next time a train leaves Agra station to go to New Delhi and at the same time a train leaves Agra station to go to Mumbai.**

**(3 marks)**

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

**Turn over**

**13. continued.**

**Turn over**

**13. continued.**

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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 in the Diagram Booklet.**

**On the grid in the Diagram Booklet, draw the graph of**

**$y = 1 - 3x$  for values of  $x$  from  $-2$  to  $3$**

**(Total for Question 14 is 3 marks)**

---

**Turn over**

**15. Look at the diagram for Question 15 in the Diagram Booklet.**

**It shows an incomplete Venn diagram.**

$$\mathcal{E} = \{2, 4, 6, 8, 10, 12, 14, 16, 18\}$$

$$X = \{4, 8, 12, 16\}$$

$$Y = \{6, 12, 18\}$$

**(a) Complete the Venn diagram in the Diagram Booklet for this information.**

**(3 marks)**

**(continued on the next page)**

**Turn over**

15. continued.

Remember:

$$\mathcal{E} = \{2, 4, 6, 8, 10, 12, 14, 16, 18\}$$

$$X = \{4, 8, 12, 16\}$$

$$Y = \{6, 12, 18\}$$

A number is chosen at random  
from  $\mathcal{E}$

- (b) Find the probability that the  
number is in the set  $X \cup Y$   
(2 marks)

Answer space continues on the  
next page.

Turn over

**15. (b) continued.**

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**(Total for Question 15 is 5 marks)**

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**Turn over**

16. Ravina leaves her home at 1 35 pm in her car.

Ravina drives 60 km from her home to get to an appointment.

She drives at an average speed of 80 km/h.

At what time does Ravina get to her appointment?

(3 marks)

Answer space continues on the next page.

Turn over

**16. continued.**

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

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**Turn over**

17. (a) Write down the value of  $m$ , given that

$$3^4 \times 3^5 = 3^m$$

(1 mark)

$m =$  \_\_\_\_\_

- (b) Write down the value of  $n$ , given that

$$(5^3)^7 = 5^n$$

(1 mark)

$n =$  \_\_\_\_\_

(continued on the next page)

Turn over

17. continued.

(c) Find the value of  $p$ , given that

$$\frac{7^8 \times 7^2}{7^p} = 7^6$$

(2 marks)

$p =$  \_\_\_\_\_

(Total for Question 17 is 4 marks)

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Turn over

**18. Look at the diagram for Question 18 in the Diagram Booklet.**

**It is NOT accurately drawn.**

**It shows two rectangles, rectangle A and rectangle B**

**Rectangle A has length 4 cm and width  $(5 - x)$  cm**

**Rectangle B has length 5 cm and width  $(2x - 1)$  cm**

**The area of rectangle B is twice the area of rectangle A**

**(continued on the next page)**

**18. continued.**

**Work out the value of  $x$**

**Show your working clearly.**

**(4 marks)**

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

**Turn over**

**18. continued.**

**X =** \_\_\_\_\_

**(Total for Question 18 is 4 marks)**

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**Turn over**

**19. Look at the table for Question 19 in the Diagram Booklet.**

**It gives information about the amounts of money, in euros, that 70 of Anjali's friends spent last Saturday.**

**One of Anjali's 70 friends is going to be chosen at random.**

**(continued on the next page)**

**19. continued.**

**(a) Find the probability that this friend spent more than 24 euros last Saturday.**

**(1 mark)**

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**(continued on the next page)**

**Turn over**

**19. continued.**

**(b) Work out an estimate for the mean amount of money spent by Anjali's friends last Saturday.**

**Give your answer correct to 2 decimal places.**

**(4 marks)**

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

**Turn over**

**19. (b) continued.**

\_\_\_\_\_ euros

**(Total for Question 19 is 5 marks)**

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**Turn over**

**20. Look at the diagram for Question 20 in the Diagram Booklet.**

**It is NOT accurately drawn.**

**It shows two similar triangles ABC and DEF**

**In triangle ABC,  $AC = 45$  cm**

**In triangle DEF,  $DE = 36$  cm and  $DF = 20$  cm**

**Angle BAC = angle EDF**

**Angle BCA = angle EFD**

**(continued on the next page)**

**20. continued.**

**(a) Work out the length of AB**  
**(2 marks)**

\_\_\_\_\_ **cm**

**(continued on the next page)**

**Turn over**

20. continued.

Given that **BC = 54 cm**,

(b) work out the length of **EF**

(2 marks)

\_\_\_\_\_ **cm**

(Total for Question 20 is 4 marks)

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**Turn over**

**21. Look at the diagram for Question 21  
in the Diagram Booklet.**

**It is NOT accurately drawn.**

**It shows a regular octagon**

**ABCDHIJK and a pentagon**

**DEFGH**

**Angle GHD = angle FGH**

**Angle EDH =  $112^\circ$**

**Angle DEF =  $102^\circ$**

**Angle EFG =  $96^\circ$**

**The exterior angle GHI is marked x**

**(continued on the next page)**

**21. continued.**

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

**Show your working clearly.**

**(5 marks)**

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

**Turn over**

**21. continued.**

o

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**(Total for Question 21 is 5 marks)**

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**Turn over**

- 22. Victor buys 12 bottles of apple juice for a total cost of \$21**  
**Victor sells all 12 bottles at \$2.45 each bottle.**

**Work out Victor's percentage profit.**  
**(3 marks)**

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

**22. continued.**

\_\_\_\_\_ %

**(Total for Question 22 is 3 marks)**

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**Turn over**

**23. Look at the information for  
Question 23 in the Diagram Booklet.  
It provides information about two  
banks.**

**Ali and Badia each have  
25 000 dollars to invest.**

**Ali invests in the Cyclone Bank for  
3 years.**

**Badia invests in the Tornado Bank for  
3 years.**

**By the end of the 3 years, Ali will  
have received more interest than  
Badia.**

**(continued on the next page)**

**Turn over**

**23. continued.**

**How much more?**

**Show your working clearly.**

**Give your answer correct to the  
nearest dollar.**

**(4 marks)**

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

**Turn over**

**23. continued.**

**Turn over**

**23. continued.**

\_\_\_\_\_ dollars

**(Total for Question 23 is 4 marks)**

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**Turn over**

**24. (a) Simplify**

$$(3x^2y)^0$$

**(1 mark)**

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**(continued on the next page)**

**Turn over**

**24. continued.**

**(b) (i) Factorise**

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

**(2 marks)**

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**(continued on the next page)**

**Turn over**

**24. (b) continued.**

**(ii) Hence solve**

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

**(1 mark)**

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**(Total for Question 24 is 4 marks)**

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**Turn over**

25. A rainwater tank contains  
 $2.4 \times 10^7$  raindrops.

The rainwater tank also contains  
 $1.75 \times 10^6$  bacteria.

Work out the number of bacteria per  
raindrop in the tank.

Give your answer in standard form  
correct to 2 significant figures.

(3 marks)

Answer space continues on the next  
page.

**25. continued.**

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**(Total for Question 25 is 3 marks)**

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**Turn over**

**26. Look at the diagram for Question 26 in the Diagram Booklet.**

**It is NOT accurately drawn.**

**$ABC$  is an isosceles triangle with  
 $BA = BC$**

**Angle  $BAN = 38^\circ$**

**$N$  is the point on  $AC$  such that**

**$AN = 9.3$  cm and  $BN$  is  
perpendicular to  $AC$**

**(continued on the next page)**

**26. continued.**

**Work out the perimeter of triangle  
ABC**

**Give your answer correct to  
3 significant figures.**

**(4 marks)**

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

**Turn over**

**26. continued.**

\_\_\_\_\_ **cm**

**(Total for Question 26 is 4 marks)**

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**TOTAL FOR PAPER IS 100 MARKS**

**END OF PAPER**

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