

**Paper Reference 4MA1/1F**  
**Pearson Edexcel**  
**International GCSE**

Total Marks
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**Mathematics A**  
**PAPER: 1F**  
**Foundation Tier**  
**(Calculator)**

**Time: 2 hours**

**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>					

**Y68795A**

**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.**

**You may be provided with a model for Question 22**

## **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 FIVE questions.**

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

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

**Turn over**

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

**Nav found the table in the Diagram Booklet that shows the age, in years, of each of six cities.**

- (a) Write down the name of the city with the greatest age.**

**(1 mark)**

---

**(continued on the next page)**

**Turn over**

**1. continued.**

**(b) Write the number**

**2534 in words.**

**(1 mark)**

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**(c) Write the number**

**2351 correct to the nearest ten.**

**(1 mark)**

---

**(continued on the next page)**

**Turn over**

1. continued.

(d) Work out the difference between  
the age of Cadiz and the age of  
Nanjing.

(1 mark)

\_\_\_\_\_ years

(continued on the next page)

Turn over



1. continued.

A millennium is **1000** years.

(e) What is the age of Jenin in whole  
millenniums?

(1 mark)

\_\_\_\_\_ millenniums

(Total for Question 1 is 5 marks)

---

Turn over

2. (a) Simplify

$$12p + 3p - 7p$$

(1 mark)

---

(b) Simplify

$$8 \times 3q$$

(1 mark)

---

(continued on the next page)

Turn over

**2. continued.**

**(c) Solve**

$$\frac{r}{3} = 9$$

**(1 mark)**

**r = \_\_\_\_\_**

**(Total for Question 2 is 3 marks)**

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**Turn over**

- 3. Look at the diagram for Question 3 in the Diagram Booklet.**

**It shows a probability scale.**

**(continued on the next page)**

**3. continued.**

**In a fruit bowl, there are only**

**3 bananas**

**7 pears**

**Shimon is going to take at random  
one of the fruits from the bowl.**

**(a) Write down the letter of the arrow  
that points to the probability that  
Shimon takes**

**(i) a pear,**

**(1 mark)**

---

**(continued on the next page)**

**Turn over**

**3. (a) continued.**

**Remember:**

**In a fruit bowl, there are only**

**3 bananas**

**7 pears**

**Shimon is going to take at random  
one of the fruits from the bowl.**

**Write down the letter of the arrow  
that points to the probability that  
Shimon takes**

**(ii) a grape.**

**(1 mark)**

---

**(continued on the next page)**

**Turn over**

**3. continued.**

**Emma has some carrots, some potatoes and some onions in a bag. She says that the probability of taking at random a carrot from the bag is  $1 \cdot 4$**

**Emma is not correct.**

**(b) Explain why.**

**(1 mark)**

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

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**Turn over**

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

**It shows a polygon.**

- (a) Write down the mathematical name of the polygon.**

**(1 mark)**

---

**(continued on the next page)**

**Turn over**



**4. continued.**

**Look at the diagram for Question 4(b)  
in the Diagram Booklet.  
It shows a scale.**

**(b) On the scale, mark the  
number 360  
(1 mark)**

**(continued on the next page)**

**Turn over**

**4. continued.**

**Look at the diagram for Question 4(c)  
in the Diagram Booklet.  
It shows a clock face.**

**(c) Write down the time shown on  
the clock face.  
(1 mark)**

---

**(continued on the next page)**

**Turn over**

**4. continued.**

**(d) Complete the sentence below by writing a suitable metric unit on the line.**

**(1 mark)**

**The length of a pen is**

**16 \_\_\_\_\_**

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

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**Turn over**

**5. Below is a list of seven numbers.**

**3      6      7      8      11      25      27**

**(a) From the numbers in the list,  
write down**

**(i) an even number  
(1 mark)**

---

**(continued on the next page)**

**Turn over**

5. (a) continued.

**Remember:**

**Below is a list of seven numbers**

**3    6    7    8    11    25    27**

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

**(ii) a multiple of 9  
(1 mark)**

---

**(continued on the next page)**

**Turn over**

5. (a) continued.

**Remember:**

**Below is a list of seven numbers**

**3    6    7    8    11    25    27**

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

**(iii) a square number  
(1 mark)**

---

**(continued on the next page)**

**Turn over**

5. (a) continued.

**Remember:**

**Below is a list of seven numbers**

**3    6    7    8    11    25    27**

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

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

---

**(continued on the next page)**

**Turn over**

**5. continued.**

**(b) Use brackets to make the statement correct.**

**You may use more than one pair of brackets in the statement.**

**(1 mark)**

$$2^2 + 5 \times 2 + 3^2 = 99$$

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

---

**Turn over**



6. Look at the diagram for Question 6(a) in the Diagram Booklet.

It is NOT accurately drawn.

It shows a straight line **ABC**

The angles  $x^\circ$  and  $48^\circ$  are marked on the line.

- (a) (i) Work out the value of  $x$   
(1 mark)

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

(continued on the next page)

Turn over

**6. (a) continued.**

**(ii) Give a reason for your  
answer to (i)  
(1 mark)**

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**(continued on the next page)**

**Turn over**

**6. continued.**

**Look at the diagram for Question 6(b)  
in the Diagram Booklet.**

**It is NOT accurately drawn.**

**It shows a quadrilateral  $ABCF$  and  
an equilateral triangle  $CDE$ , touching  
at point  $C$**

**$BCE$  and  $DCF$  are straight lines.**

**Angle  $ABC = 105^\circ$**

**Angle  $AFC = 125^\circ$**

**Angle  $BAF = y^\circ$**

**(continued on the next page)**

**Turn over**

**6. continued.**

**(b) Work out the value of  $y$**

**You must show your working.**

**(3 marks)**

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

**Turn over**

**6. (b) continued.**

**$y =$  \_\_\_\_\_**

**(Total for Question 6 is 5 marks)**

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**Turn over**

7. Sandeep buys some flowers.  
He has **5000** rupees to spend.

He buys **6** carnations at **220** rupees each.

He also buys some roses at **295** rupees each.

Sandeep should receive **140** rupees in change from his **5000** rupees.

Work out how many roses Sandeep buys.

(4 marks)

Answer space is on the next two pages.

Turn over

**7. continued.**

**Turn over**

**7. continued.**

---

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

---

**Turn over**



8. (a) Simplify

$$12t - 8u - 5t + 6u$$

(2 marks)

---

(continued on the next page)

Turn over

8. continued.

Given that

$$X = 3y - 5z$$

(b) work out the value of  $X$  when

$$y = 12 \text{ and } z = 4$$

(2 marks)

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

(continued on the next page)

Turn over

**8. continued.**

**(c) Solve**

$$4p + 9 = 24$$

**(2 marks)**

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

**Turn over**

8. (c) continued.

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

**(Total for Question 8 is 6 marks)**

---

**Turn over**

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

It shows the line **AB**

**ABC** is a triangle.

**AB = 8 cm, AC = 6 cm and**

**BC = 9 cm**

Use a ruler and compasses to  
construct the triangle **ABC**

The side **AB** has been drawn for you  
in the Diagram Booklet.

You must show all your construction  
lines.

**(Total for Question 9 is 2 marks)**

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- 10. Anjali wants to go on a boat at the seaside.**

**At the seaside there are 20 boats.**

**Of these boats**

**2 are white**

**5 are blue**

**7 are green**

**6 are yellow**

**Anjali selects at random one of these boats.**

**(continued on the next page)**

**Turn over**

**10. continued.**

**Write down the probability that she  
selects**

**(i) a green boat,  
(1 mark)**

---

**(continued on the next page)**

**Turn over**

**10. continued.**

**Write down the probability that she selects**

**(ii) a white boat or a yellow boat.**

**(2 marks)**

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**(Total for Question 10 is 3 marks)**

---

**Turn over**



**11. Johan wants to make some small cakes.**

**He finds a recipe that says he needs 360 grams of flour to make 15 small cakes.**

**Johan has 0.85 kg of flour.**

**Johan works out how much flour he would need to make 38 small cakes, using the information given in the recipe.**

**(continued on the next page)**

**Turn over**

**11. continued.**

**Does Johan have enough flour,  
according to the recipe, to make  
38 small cakes?**

**Show your working clearly.**

**(4 marks)**

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

**Turn over**

**11. continued.**

**Turn over**

**11. continued.**

**(Total for Question 11 is 4 marks)**

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**Turn over**

**12. Look at the table for Question 12 in the Diagram Booklet.**

**It gives information about the number of gold stars won by each of 25 students in class 7T last week.**

**(a) Work out the mean number of gold stars won.**

**(3 marks)**

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

12. (a) continued.

---

(continued on the next page)

Turn over

**12. continued.**

**A student in class 8R is to be chosen at random.**

**The probability that this student won at least one gold star last week is 0.39**

**(b) Work out the probability that this student did NOT win at least one gold star last week.**

**(1 mark)**

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

**Turn over**

**12. (b) continued.**

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**(Total for Question 12 is 4 marks)**

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**Turn over**



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

**It shows a grid.**

**On the grid, draw the graph of**

**$y = -2x + 3$  for values of  $x$  from  $-1$  to  $5$**

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

---

**Turn over**

- 14. In 2001, the total number of cars produced in the world was 39·8 million.**

**In 2006, the total number of cars produced in the world was 10·1 million greater than the total number produced in 2001**

**(continued on the next page)**

**14. continued.**

**(a) Express  $10.1$  million as a percentage of  $39.8$  million.**

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

**(2 marks)**

\_\_\_\_\_ %

**(continued on the next page)**

**Turn over**

**14. continued.**

**In 2011, the total number of cars produced in the world was 59.9 million.**

**In 2016, the total number of cars produced in the world was 21% greater than the total number produced in 2011**

**In 2016, the total number of cars produced in the world was N million.**

**(continued on the next page)**

**Turn over**

**14. continued.**

**(b) Work out the value of N**

**Give your answer correct to the nearest whole number.**

**(3 marks)**

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

**Turn over**

14. (b) continued.

N = \_\_\_\_\_

(Total for Question 14 is 5 marks)

---

Turn over

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

It is NOT accurately drawn.

It shows a shape **ABCDEFGF** made from a square **ABDF** and three identical isosceles triangles **BCD**, **DEF** and **FGA**

The perimeter of the square **ABDF** is **48 cm**

The perimeter of each isosceles triangle is **30 cm**

(continued on the next page)

Turn over

**15. continued.**

**Work out the perimeter of the  
shape **ABCDEFG****

**(4 marks)**

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

**Turn over**



15. continued.

\_\_\_\_\_ cm

**(Total for Question 15 is 4 marks)**

---

**Turn over**

16. Below are the first five terms of an arithmetic sequence.

1      5      9      13      17

- (a) Find an expression, in terms of  $n$ , for the  $n$ th term of this sequence.

(2 marks)

Answer space continues on the next page.

16. (a) continued.

---

(continued on the next page)

Turn over

**16. continued.**

**The  $n$ th term of another arithmetic sequence is  $3n + 5$**

**(b) Find an expression, in terms of  $m$ , for the  $(2m)$ th term of this sequence.**

**(1 mark)**

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

**Turn over**

16. (b) continued.

---

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

---

**Turn over**

- 17. Look at the diagram and the table for Question 17 in the Diagram Booklet. The diagram shows a biased 4-sided spinner.**

**The table in the Diagram Booklet gives the probabilities that, when the spinner is spun once, it will land on 1 or it will land on 3**

**The probability that the spinner will land on 2 is equal to the probability that the spinner will land on 4**

**(continued on the next page)**

**Turn over**

**17. continued.**

**Ravina is going to spin the spinner a number of times.**

**Ravina works out that an estimate for the number of times the spinner will land on 3 is 45**

**Work out an estimate for the number of times the spinner will land on 4  
(4 marks)**

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

**Turn over**

**17. continued.**

---

**(Total for Question 17 is 4 marks)**

---

**Turn over**



- 18. (a) Find the highest common factor (HCF) of 56 and 84**

**Show your working clearly.**

**(2 marks)**

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

18. (a) continued.

---

(continued on the next page)

Turn over

**18. continued.**

**(b) Find the lowest common multiple  
(LCM) of 60 and 72**

**Show your working clearly.**

**(2 marks)**

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

**Turn over**

18. (b) continued.

---

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

---

**Turn over**

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

**It is NOT accurately drawn.**

**It shows parts of three regular polygons, **A**, **B** and **C**, meeting at a point.**

**The internal angle shown for polygon **A** =  $8x^\circ$**

**The internal angle shown for polygon **B** =  $7x^\circ$**

**The internal angle shown for polygon **C** =  $3x^\circ$**

**(continued on the next page)**

**Turn over**

**19. continued.**

**Polygon B has  $n$  sides.**

**Work out the value of  $n$**

**(4 marks)**

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

**19. continued.**

**Turn over**

**19. continued.**

**n = \_\_\_\_\_**

**(Total for Question 19 is 4 marks)**

---

**Turn over**



**20. (a) Expand and simplify**

$$(n - 6)(n + 4)$$

**(2 marks)**

---

**(continued on the next page)**

**Turn over**

**20. continued.**

**(b) Solve**

$$2x - 3 = \frac{3x - 5}{4}$$

**Show clear algebraic working.**

**(3 marks)**

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

**Turn over**

20. (b) continued.

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

**(Total for Question 20 is 5 marks)**

---

**Turn over**

**21. Look at the table for Question 21(a) in the Diagram Booklet.**

**Asha bought an apartment.**

**The table in the Diagram Booklet gives information about the value of apartments, in euros, and the annual service charge band.**

**In 2021, the value of Asha's apartment was 634 400 euros.**

**The value of Asha's apartment had increased by 4% from its value in 2020**

**(continued on the next page)**

**Turn over**

**21. continued.**

- (a) Has the annual service charge band changed for Asha's apartment?**

**Show your working clearly.**

**(3 marks)**

**(continued on the next page)**

**Turn over**

**21. continued.**

**Pam bought a boat.**

**In each year after Pam bought the boat, the value of the boat depreciated by 15%**

**(b) Work out the total percentage by which the value of the boat had depreciated by the end of the second year after Pam bought the boat.**

**(3 marks)**

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

**Turn over**

**21. (b) continued.**

\_\_\_\_\_ %

**(Total for Question 21 is 6 marks)**

---

**Turn over**

**22. Look at the diagram for Question 22 in the Diagram Booklet.**

**You may be provided with a model.**

**They are NOT accurate.**

**They show a cylinder.**

**The cylinder is placed on the ground.**

**The height of the cylinder is 18 cm**

**The force exerted by the cylinder on the ground is 72 newtons.**

**The pressure on the ground due to the cylinder is  $1.4 \text{ newtons/cm}^2$**

$$\text{pressure} = \frac{\text{force}}{\text{area}}$$

**(continued on the next page)**

**Turn over**



**22. continued.**

**Work out the volume of the cylinder.**

**Give your answer correct to**

**3 significant figures.**

**(4 marks)**

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

**Turn over**

**22. continued.**

**Turn over**

**22. continued.**

\_\_\_\_\_ **cm<sup>3</sup>**

**(Total for Question 22 is 4 marks)**

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**Turn over**

**23. (a) Write**

**$0.000\,089$  in standard form.**

**(1 mark)**

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**(continued on the next page)**

**Turn over**

**23. continued.**

**(b) Write**

**$8.34 \times 10^4$  as an ordinary  
number.**

**(1 mark)**

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

---

**Turn over**

24. (a) Simplify

$$8 \times (4t)^0$$

(1 mark)

---

(continued on the next page)

Turn over

**24. continued.**

**Given that**

$$y^6 \div y^{-5} = y^p$$

**(b) find the value of p**  
**(1 mark)**

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

**(continued on the next page)**

**Turn over**

**24. continued.**

**(c) Simplify fully**

$$(2k^2m^4)^3$$

**(2 marks)**

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

---

**Turn over**



25. Two circles,  $C_1$  and  $C_2$ , are drawn on a centimetre grid, with a scale of 1 cm for 1 unit on each axis.

The centre of circle  $C_1$  is at the point with coordinates  $(-1, 3)$  and the radius of  $C_1$  is 13 cm

The centre of circle  $C_2$  is at the point with coordinates  $(7, 18)$  and the radius of  $C_2$  is 6 cm

(continued on the next page)

Turn over

**25. continued.**

- (a) Work out the distance between the centre of  $C_1$  and the centre of  $C_2$**

**(3 marks)**

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

**Turn over**

**25. (a) continued.**

**Turn over**

25. (a) continued.

\_\_\_\_\_ cm

(continued on the next page)

Turn over

**25. continued.**

- (b) Explain why circle  $C_1$  intersects  
circle  $C_2$   
(1 mark)**

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**(Total for Question 25 is 4 marks)**

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**TOTAL FOR PAPER IS 100 MARKS**

**END OF PAPER**

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