

**Paper Reference 4MA1/1F**  
**Pearson Edexcel**  
**International GCSE**  
**Mathematics A**  
**PAPER 1F**  
**Foundation Tier**  
**(Calculator)**

Total Marks
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**Wednesday 8 November 2023 – Morning**

**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>					

**Y73463A**

**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.**

**You may be provided with a model for Question 3(d)  
It is NOT accurate.**

**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.**

**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 six numbers.

9      11      25      27      33      40

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

(i) an even number  
(1 mark)

---

(ii) a cube number  
(1 mark)

---

(continued on the next page)

Turn over

1. continued.

Here are the temperatures, in  $^{\circ}\text{C}$ , in Paris at midnight for one week.

$-3$       $-7$       $-2$       $-6$   
 $-9$       $-1$       $-5$

(b) Write down the lowest temperature.

(1 mark)

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

(continued on the next page)

Turn over

1. continued.

(c) Find the square root of **441**

(1 mark)

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Hassan says,

“the sum of two prime numbers is  
always even”

(d) Give an example to show that  
Hassan is **NOT** correct.

(1 mark)

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

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**Turn over**

**2. Look at the diagram for Question 2 in the Diagram Booklet.**

**It is a bar chart showing information about the number of international students who studied in each of five countries in 2019**

**By using the figures shown in the bar chart, answer the following questions.**

**(continued on the next page)**

**2. continued.**

**(a) In which of these five countries did the greatest number of international students study?**

**(1 mark)**

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**(b) Write down the number of international students who studied in Australia.**

**(1 mark)**

\_\_\_\_\_ **thousand**

**(continued on the next page)**

**Turn over**

**2. continued.**

**The number of international students who studied in Japan was more than the number of international students who studied in Spain.**

**(c) How many more?**

**(1 mark)**

\_\_\_\_\_ **thousand**

**(continued on the next page)**

**Turn over**

**2. continued.**

**In 2019, the number of international students who studied in France was 350 thousand.**

**(d) Draw a bar on the bar chart in the Diagram Booklet to show this information.**

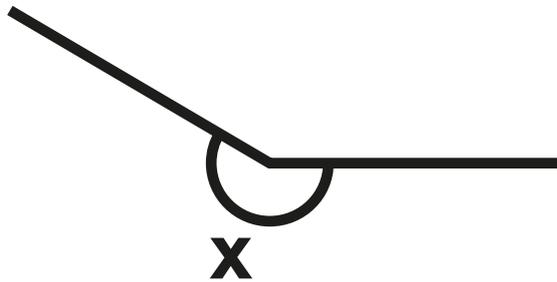
**(1 mark)**

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

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**Turn over**

3. (a) Write down the mathematical name of the angle marked **X** below.  
(1 mark)



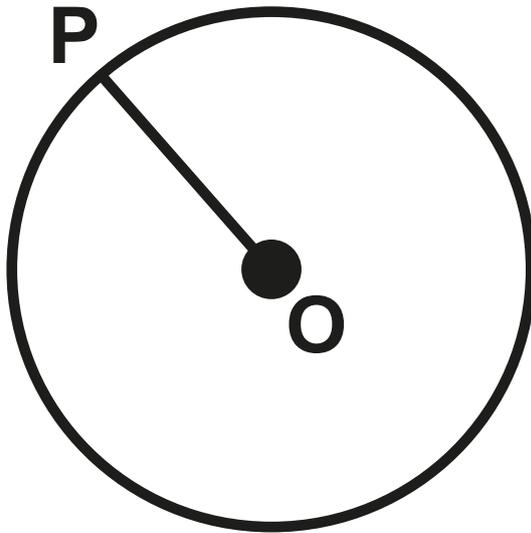
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(continued on the next page)

Turn over

3. continued.

(b) **P** is a point on a circle with  
centre **O**



Write down the mathematical  
name of the line **OP**  
(1 mark)

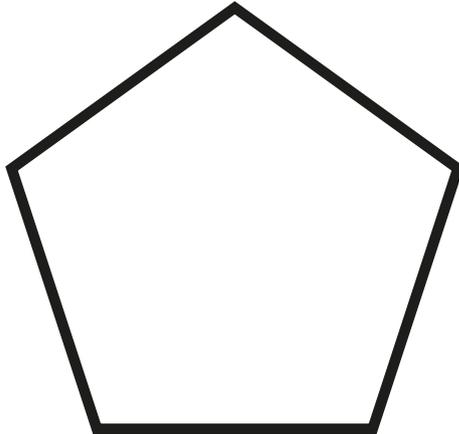
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(continued on the next page)

Turn over

3. continued.

(c) Here is a polygon.



**Write down the mathematical  
name of this polygon.**

**(1 mark)**

---

**(continued on the next page)**

**Turn over**

**3. continued.**

**(d) Look at the diagram  
for Question 3(d) in the  
Diagram Booklet.**

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

**They show a solid prism.**

**Write down the number of edges  
of the solid prism.**

**(1 mark)**

---

**(Total for Question 3 is 4 marks)**

---

**Turn over**

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

**It shows three points, A, B and C, marked on a grid.**

**(a) Write down the coordinates of point A**

**(1 mark)**

**( \_\_\_\_\_ , \_\_\_\_\_ )**

**(b) Write down the coordinates of point B**

**(1 mark)**

**( \_\_\_\_\_ , \_\_\_\_\_ )**

**(continued on the next page)**

**Turn over**

4. continued.

**M** is the midpoint of the line **AC**

- (c) On the grid in the  
Diagram Booklet, mark the  
point **M**  
Label the point **M**  
(1 mark)

(continued on the next page)

4. continued.

The point **D** is such that the shape **ABCD** is a kite.

(d) On the grid in the  
Diagram Booklet, mark  
point **D** (6, -1)

Label the point **D**

(1 mark)

(e) How many lines of symmetry has  
kite **ABCD**?

(1 mark)

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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(a) in the Diagram Booklet.

It shows a shape made of squares.

(a) Shade  $\frac{2}{3}$  of the shape.

(1 mark)

(b) Write  $\frac{3}{10}$  as a percentage.

(1 mark)

\_\_\_\_\_ %

(continued on the next page)

Turn over

5. continued.

(c) Write  $\frac{48}{150}$  as a fraction in its simplest form.

(1 mark)

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(continued on the next page)

Turn over

5. continued.

(d) Write  $\frac{46}{7}$  as a mixed number.

(1 mark)

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

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Turn over

**6. Akbar goes to a restaurant with his friends.**

**They have a total of 1000 dirhams to spend on food.**

**They order**

**2 dishes of chicken makhani at 145.50 dirhams each**

**3 dishes of vegetable korma at 110 dirhams each**

**some naans at 30 dirhams each**

**(continued on the next page)**

**Turn over**

**6. continued.**

**They order as many naans as they can.**

**They pay with a 1000 dirham note.**

**Work out how much change they should receive.**

**(4 marks)**

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

**6. continued.**

**Turn over**

6. continued.

\_\_\_\_\_ dirhams

**(Total for Question 6 is 4 marks)**

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**Turn over**

7. (a) Simplify  
 $9r \times 5w$   
(1 mark)
- 

(continued on the next page)

**7. continued.**

**(b) Simplify**

$$7p + 5n - 9p + 3n$$

**(2 marks)**

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**(continued on the next page)**

**Turn over**

7. continued.

$$T = 8x - 6u$$

(c) Work out the value of  $T$  when

$$x = 9 \text{ and } u = 5$$

(2 marks)

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

(continued on the next page)

Turn over

7. continued.

(d) Solve

$$5m - 6 = 17$$

(2 marks)

Answer space continues on the  
next page.

7. (d) continued.

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

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

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**8. There are four teams in a cricket competition.**

**The teams are**

**Australia (A)**

**England (E)**

**Pakistan (P)**

**West Indies (W)**

**Each team will play every other team once.**

**(continued on the next page)**

**Turn over**

**8. continued.**

**Write down all the matches that will  
take place.**

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**(Total for Question 8 is 2 marks)**

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

It is NOT accurately drawn.

It shows two triangles **ABE** and **ECD**

Triangle **ABE** is isosceles with

$$AE = EB$$

**AED** and **EBC** are straight lines.

$$\text{Angle } CDE = 42^\circ$$

$$\text{The reflex angle } ECD = 296^\circ$$

$$\text{Angle } BAE = x^\circ$$

Work out the value of **x**

(4 marks)

Answer space is on the next page.

Turn over

9. continued.

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

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

---

**Turn over**

**10. Look at the table for Question 10 in the Diagram Booklet.**

**It is a table giving information about the number of rewards gained by each of 50 students last term.**

**(a) Write down the mode of the number of rewards.**

**(1 mark)**

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**(continued on the next page)**

**Turn over**

**10. continued.**

**(b) Work out the mean number of  
rewards.**

**(3 marks)**



**(continued on the next page)**

**Turn over**

**10. continued.**

**One of these students is chosen at random.**

- (c) Find the probability that this student gained more than 2 rewards.**  
**(2 marks)**

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

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**Turn over**

11. A rental company has **360** cars and some vans.

The ratio of the number of cars to the number of vans is **3 : 5**

$\frac{4}{9}$  of the cars are electric.

**36%** of the vans are electric.

The company has more electric vans than electric cars.

(continued on the next page)

**11. continued.**

**Work out how many more.**

**Show your working clearly.**

**(5 marks)**

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

11. continued.

Turn over

11. continued.

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**(Total for Question 11 is 5 marks)**

---

**Turn over**

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

**It is a grid.**

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

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

**(Total for Question 12 is 3 marks)**

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**Turn over**

- 13. A wheel on a tractor has a diameter of  
160 cm**

**The tractor travels 1750 metres.**

**Work out the number of complete  
turns made by the wheel.**

**Show your working clearly.**

**(4 marks)**

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

13. continued.

Turn over

13. continued.

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**(Total for Question 13 is 4 marks)**

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**Turn over**

**14. Look at the diagram for Question 14 in the Diagram Booklet.**

**It is an accurate scale drawing showing the positions of a hotel and a museum.**

**On the diagram, 1 cm represents 4.5 km.**

**(a) Find, by measuring, the bearing of the hotel from the museum.  
(1 mark)**



**(continued on the next page)**

**Turn over**

14. continued.

(b) Work out the real distance  
between the hotel and the  
museum.

(2 marks)

\_\_\_\_\_ km

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

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Turn over

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

**It is a Venn diagram.**

**List the members of the set**

**(a) A**

**(1 mark)**

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**(continued on the next page)**

**Turn over**

15. continued.

List the members of the set

(b)  $A \cap B$

(1 mark)

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(continued on the next page)

Turn over

15. continued.

List the members of the set

(c)  $(A \cup B)'$

(1 mark)

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

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Turn over

16. (a) Factorise fully

$$12pq - 18p$$

(2 marks)



(continued on the next page)

Turn over

16. continued.

There are **56** metal bars in a box.

Each metal bar is gold or silver or zinc.

$y$  metal bars are gold.

$(3y + 7)$  metal bars are silver.

$(2y - 5)$  metal bars are zinc.

(b) Work out the number of metal bars that are zinc.

Show clear algebraic working.

(4 marks)

Answer space continues on the next two pages.

Turn over

16. (b) continued.

Turn over

16. (b) continued.

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**(Total for Question 16 is 6 marks)**

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**Turn over**

**17. Joshua buys a car for \$12 500**

**He sells the car to Nina.**

**Nina pays**

- **a deposit of \$1500**
- **followed by 36 monthly payments of \$450**

**Work out Joshua's percentage profit.**

**(4 marks)**

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

**Turn over**

17. continued.

Turn over

17. continued.

\_\_\_\_\_ %

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

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**Turn over**

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

**A biased spinner has three sections each of a different colour.**

**The table in the Diagram Booklet shows the probability that, when the spinner is spun once, it will land on blue or on orange or on white.**

**(a) Work out the value of  $x$   
(2 marks)**

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

18. (a) continued.

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

(continued on the next page)

**Turn over**

**18. continued.**

**The spinner is spun 250 times.**

**(b) Work out an estimate for the number of times the spinner will land on blue.**

**(2 marks)**

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

18. (b) continued.

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**(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 a shaded shape made from three identical semicircles, **X**, **Y** and **Z**

**ABCDE** is a straight line.

**AC** is the diameter of semicircle **X**

and **B** is the centre of semicircle **X**

**BD** is the diameter of semicircle **Y**

and **C** is the centre of semicircle **Y**

**CE** is the diameter of semicircle **Z**

and **D** is the centre of semicircle **Z**

(continued on the next page)

Turn over

19. continued.

$$AC = BD = CE = 20 \text{ cm}$$

Work out the perimeter of the shaded shape.

Give your answer correct to the nearest whole number.

(3 marks)

Answer space continues on the next page.

19. continued.

\_\_\_\_\_ cm

**(Total for Question 19 is 3 marks)**

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**Turn over**

**20. Look at the information for Question 20 in the Diagram Booklet. Juan wants to buy a ticket to fly from Madrid to Berlin.**

**Using the information in the Diagram Booklet, work out the difference between the normal price of ticket **A** and the normal price of ticket **B****

**(4 marks)**

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

20. continued.

Turn over

20. continued.

\_\_\_\_\_ euros

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

---

**Turn over**

21.  $A = 5^3 \times 7^3 \times 11^6$  and  
 $B = 5^6 \times 7^2 \times 11^4$

**Find the highest common factor  
(HCF) of A and B**

**Give your answer as a product of  
powers of its prime factors.**

**(2 marks)**

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

**Turn over**

**21. continued.**

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**(Total for Question 21 is 2 marks)**

---

**Turn over**

**22. (a) Solve the inequality**

$$8x - 4 \geq 3x - 10$$

**(2 marks)**

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**(continued on the next page)**

**Turn over**

**22. continued.**

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

**The region  $R$ , shown shaded in the  
diagram, is bounded by three straight  
lines.**

**(b) Write down the three inequalities  
that define the region  $R$   
(3 marks)**

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

**Turn over**

**22. (b) continued.**

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

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**Turn over**

23. (a) Write

$5.87 \times 10^{-4}$  as an  
ordinary number.

(1 mark)

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(b) Write

84 000 000 in standard form.

(1 mark)

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(continued on the next page)

Turn over

**23. continued.**

**The number of neurons in a human brain is  $8.5 \times 10^{10}$**

**The number of neurons in a monkey brain is  $1.47 \times 10^9$**

**The number of neurons in a human brain is**

**$K \times$  the number of neurons in a monkey brain.**

**(continued on the next page)**

**23. continued.**

**(c) Work out the value of  $K$**

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

**(2 marks)**

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

**23. (c) continued.**

**K = \_\_\_\_\_**

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

---

**Turn over**

**24. Look at the diagram for Question 24  
in the Diagram Booklet.**

**It is NOT accurately drawn.**

**It shows triangle ABC**

**ADB is a straight line.**

**AB = 22 metres**

**CD = 8 metres**

**Angle CAB =  $40^\circ$**

**Angle CDB is a right angle.**

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

**(continued on the next page)**

**Turn over**

**24. continued.**

**Work out the value of  $X$**

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

**Show your working clearly.**

**(5 marks)**

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

24. continued.

Turn over

24. continued.

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

**(Total for Question 24 is 5 marks)**

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**TOTAL FOR PAPER IS 100 MARKS**

**END OF PAPER**

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