Paper Reference 4MA1/2F
Pearson Edexcel
International GCSE

Mathematics A
Paper 2F
(Calculator)
Foundation Tier

Wednesday 15 January 2020 − Morning

Time: 2 hours plus your additional time allowance.

In the boxes below, write your name, centre number and candidate number.

Surname	
Other names	
Centre Number	
Candidate Number	

Y59753A

Pearson

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.

There may be spare copies of some diagrams.

You may be provided with a model for Question 6(a), six shapes for Question 6(c) and one shape for Question 14

ADVICE

Read each question carefully before you start to answer it.

Check your answers if you have time at the end.

Answer ALL TWENTY SEVEN questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1. Here is a list of six numbers

    13   14   18   23   30   36

    From the numbers in the list, write down

    (i)   an odd number

    (1 mark)

    _____

(continued on the next page)

1.   continued.

Remember:

Here is a list of six numbers

13   14   18   23   30   36

From the numbers in the list, write down

(ii)   the multiple of **4**

(1 mark)

_____

(continued on the next page)

1. continued.

Remember:

Here is a list of six numbers

13   14   18   23   30   36

From the numbers in the list, write down

(iii) the factor of 28

(1 mark)

_____

(Total for Question 1 is 3 marks)

2. (a) Write these four decimals in order of size.

Start with the smallest decimal.

0·501   0·51   0·5   0·55

(1 mark)

_____

(continued on the next page)

2. **continued.**

(b) **Write 0·3 as a fraction.**

(1 mark)

_____

(c) **Write 0·46832 correct to**

2 decimal places.

(1 mark)

_____

(Total for Question 2 is 3 marks)

3. Look at the diagram for Question 3 in the Diagram Book.

It is NOT accurately drawn.

It shows a rectangle made from **12** square tiles.

The perimeter of each tile is **20 cm**

Work out the area of the rectangle.

(3 marks)

Answer space continues on the next page.

3.   continued.

_____ **cm^2**

(Total for Question 3 is 3 marks)

4. Look at the diagram for Question 4 in the Diagram Book.

It shows an incomplete pictogram.

The pictogram gives information about the number of rickshaws sold from a garage each month from January to April.

36 rickshaws were sold in January.

(a) Complete the key shown in the Diagram Book.

(1 mark)

(continued on the next page)

4. continued.

(b) How many rickshaws were sold in February?

(1 mark)

_____

15 rickshaws were sold in May from the garage.

(c) Show this information on the pictogram.

There is one row to complete.

(1 mark)

(continued on the next page)

Turn over

4. **continued.**

Sandeep makes a profit of **5000** rupees on each rickshaw sold from the garage.

His target profit for January was **200 000** rupees.

(d) Did Sandeep reach his target profit for January?

You must show your working.

(2 marks)

Answer space continues on the next page.

4. **(d)** **continued.**

(Total for Question 4 is 5 marks)

5. (a) Simplify

$$10p \times q$$

(1 mark)

_____

(b) Solve

$$n + 3 = 7$$

(1 mark)

n = _____

(Total for Question 5 is 2 marks)

6. Look at the model or at the diagram for Question 6(a) in the Diagram Book.

They are NOT accurate.

(a) Write down the mathematical name of this **3−D** shape.

You may be provided with a model.

(1 mark)

_____

Turn over

6.   continued.

(b)   Look at the diagram for

Question 6(b) in the

Diagram Book.

Measure the length of **AB**

(1 mark)

_____ **cm**

(continued on the next page)

6.   continued.

Look at the diagram for Question 6(c)

in the Diagram Book.

It shows six shapes.

Six cut–out shapes may be available

if you wish to use them.

Two of these shapes are congruent.

(c)   Write down the letters of these

two shapes.

(1 mark)

_____ and _____

(Total for Question 6 is 3 marks)

7. **Look at the diagrams for Question 7 in the Diagram Book.**

    They show three number machines.

    (a) **Complete the number machine by writing the correct output on the answer line.**

    (1 mark)

(continued on the next page)

7. continued.

(b) Complete the number machine by writing the correct input on the answer line.

(2 marks)

(continued on the next page)

7.   continued.

The diagram shows an incomplete number machine.

(c)   Complete the number machine.

(1 mark)

(Total for Question 7 is 4 marks)

8. (a) Complete the table of values below for

$$y = 3x - 1$$

There are five spaces to fill.

(2 marks)

x	y
−1	
0	−1
1	
2	5
3	
4	
5	14
6	

(continued on the next page)

Turn over

8. continued.

(b) Now look at the diagram for

Question 8(b) in the

Diagram Book.

On the grid, draw the graph of

$y = 3x - 1$ for values of

x from -1 to 6

(2 marks)

(Total for Question 8 is 4 marks)

_____

9.   There are **25** pens in a packet.

7 of the pens are green.

10 of the pens are black.

The rest of the pens are red.

Jurgen takes at random a pen from the packet.

(continued on the next page)

9.   continued.

(a) Find the probability that

(i)   the pen is black,

(1 mark)

_____

(ii)   the pen is red.

(1 mark)

_____

(continued on the next page)

Turn over

9. continued.

Look at the table for Question 9 in the Diagram Book.

Heidi records the number of packets of pens sold in her shop to each customer last Friday.

The table shows information about her results.

(b) Write down the mode of the number of packets.

(1 mark)

_____

Turn over

9.   continued.

(c)   Work out the total number of

packets of pens sold last Friday.

(2 marks)

_____

(Total for Question 9 is 5 marks)

10. In a shop,

   3 bottles of juice cost **$5·25**

   2 bottles of juice and

   5 bars of chocolate cost **$9·75**

   Work out the cost of **5** bottles of juice

   and **3** bars of chocolate.

   (4 marks)

   Answer space continues on the next

   page.

10. continued.

$\$$_____

(Total for Question 10 is 4 marks)

11. Here are five mathematical signs

+   >   =   ∈   <

(a) Write one of these five signs in each box so that each of these statements is true.

There are two boxes to fill.

(i)

4°C   ☐   9°C

(1 mark)

(ii)

−3°C   ☐   −8°C

(1 mark)

(continued on the next page)

11. continued.

Look at the table for Question 11(b) in the Diagram Book.

It gives information about the boiling points and the freezing points of some elements.

(b) Which of these elements has the lowest boiling point?

(1 mark)

_____

(continued on the next page)

Turn over

11. continued.

(c) Which of these elements has the largest difference in temperature between its boiling point and its freezing point?

(1 mark)

_____

(continued on the next page)

11. continued.

Dr Strauss is going to cool chlorine from its boiling point to its freezing point.

He knows that it will take **2** minutes for the temperature of the chlorine to go down **10°C**

(d) Work out how long it will take the chlorine to cool from its boiling point to its freezing point.

(2 marks)

Answer space continues on the next page.

11. (d) continued.

_____ **minutes**

(Total for Question 11 is 6 marks)

12. In **2018**, Salman saved **120** riyals each month.

At the start of **2019**, Salman increased **120** riyals by **7·5%**

He then saved this new amount each month during **2019**

Work out how much money Salman saved in total in **2019**

(3 marks)

Answer space continues on the next two pages.

12. continued.

12. continued.

_____ **riyals**

(Total for Question 12 is 3 marks)

Turn over

13. **(a)** **Expand**

$$x(5 - x)$$

(1 mark)

_____

(b) **Factorise**

$$3y - 21$$

(1 mark)

_____

(continued on the next page)

13. continued.

(c) Make **p** the subject of the formula

$$f = 3p - d$$

(2 marks)

_____

Turn over

13. continued.

Sergio buys m boxes of seeds and n packets of seeds.

Each box contains **10** seeds.
Each packet contains **6** seeds.

The total number of seeds that Sergio buys is T

(d) Write down a formula for T in terms of m and n

(3 marks)

Answer space is on the next page.

13. (d) continued.

_____

(Total for Question 13 is 7 marks)

14. Look at the diagram for Question 14 in the Diagram Book.

It shows triangle **A** and triangle **B** on a grid.

A cut–out shape may be available if you wish to use it.

Describe fully the single transformation that maps triangle **A** onto triangle **B**

_____

_____

_____

_____

_____

(Total for Question 14 is 2 marks)

15. A regular polygon has n sides.

The size of each interior angle of the regular polygon is **140°**

Work out the value of n

(3 marks)

Answer space continues on the next page.

15. continued.

n = _____

(Total for Question 15 is 3 marks)

16. Look at the diagram for Question 16 in the Diagram Book.

It shows an incomplete Venn diagram.

$\mathscr{E}$ = {10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20}

A = {multiples of 5}
B = {even numbers}

Complete the Venn diagram for this information.

(Total for Question 16 is 3 marks)

17. (a) Simplify

$$\frac{x^9}{x^2}$$

(1 mark)

_____

(continued on the next page)

Turn over

17. continued.

(b) Write

$$\frac{7^8 \times 7^4}{7^3}$$

as a single power of 7

(2 marks)

Answer space continues on the next page.

17. (b) continued.

_____

(Total for Question 17 is 3 marks)

18. **Change**

$$32 \cdot 4 \text{ m}^3 \text{ into cm}^3$$

(2 marks)

Answer space continues on the next page.

18. continued.

_____ **cm³**

(Total for Question 18 is 2 marks)

19. **Show that**

$$4\frac{2}{3} + 3\frac{4}{5} = 8\frac{7}{15}$$

(3 marks)

Answer space continues on the next two pages.

19. continued.

19. continued.

(Total for Question 19 is 3 marks)

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

It is NOT accurately drawn.

It shows a triangle.

There are three angles marked:

30°

(y + 20)°

(4y + 10)°

Work out the value of y

(4 marks)

Answer space continues on the next two pages.

20. continued.

20. continued.

$y =$ _____

(Total for Question 20 is 4 marks)

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

   It shows angle BAC

   Use ruler and compasses to construct the bisector of angle BAC

   You must show all your construction lines.

(Total for Question 21 is 2 marks)

22. Look at the table for Question 22 in the Diagram Book.

A bag contains only red beads, blue beads, green beads and yellow beads.

The table gives the probabilities that, when a bead is taken at random from the bag, the bead will be blue or the bead will be yellow.

The probability that the bead will be green is twice the probability that the bead will be red.

Turn over

22. continued.

Sofia takes at random a bead from the bag.

She writes down the colour of the bead and puts the bead back into the bag.

She does this **180** times.

Work out an estimate for the number of times she takes a red bead from the bag.

(4 marks)

Answer space is on the next two pages.

22. **continued.**

22. **continued.**

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

$$2y + 7 > 4$$

(2 marks)

_____

(continued on the next page)

23. **continued.**

(b) **Solve**

$$x^2 - 3x - 40 = 0$$

Show clear algebraic working.

(3 marks)

Answer space continues on the next page.

23. (b) continued.

_____

(Total for Question 23 is 5 marks)

24. Look at the table for Question 24 in the Diagram Book.

   It shows the cost, in euros, of Brigitte's car insurance in each of the years **2016**, **2017** and **2018**

   Brigitte says,

   "The percentage increase in the cost of my car insurance from **2017** to **2018** is more than the percentage increase in the cost of my car insurance from **2016** to **2017**"

(continued on the next page)

Turn over

24. continued.

(a) **Is Brigitte correct?**

You must show how you get your answer.

(4 marks)

Answer space continues on the next page.

24. (a) continued.

(continued on the next page)

24. continued.

Henri wants to insure his car.

He gets a discount of **15%** off the normal price.

Henri pays **952** euros for his car insurance after the discount.

(b) Work out the discount that Henri gets.

(3 marks)

Answer space continues on the next page.

Turn over

24. (b) continued.

_____ **euros**

(Total for Question 24 is 7 marks)

Turn over

25. The density of gold is $19 \cdot 3$ g/cm^3

A gold bar has volume 150 cm^3

Work out the mass of the gold bar.
(2 marks)

Answer space continues on the next page.

25. continued.

_____ **grams**

(Total for Question 25 is 2 marks)

26. Change a speed of

50 metres per second to a speed in

kilometres per hour.

(3 marks)

Answer space continues on the next

two pages.

26. continued.

26. continued.

_____ **kilometres per hour**

(Total for Question 26 is 3 marks)

27. Look at the diagram for Question 27 in the Diagram Book.

It is NOT accurately drawn.

It shows a shape **ABCD** made from a semicircle **ABC** and a right–angled triangle **ACD**

AD = 17 cm

CD = 15 cm

AC is the diameter of the semicircle **ABC**

Work out the perimeter of the shape.

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

(5 marks)

Answer space is on the next two pages.

Turn over

27. continued.

27. continued.

_____ **cm**

(Total for Question 27 is 5 marks)

TOTAL FOR PAPER IS 100 MARKS

END OF PAPER