

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

Total Marks

Mathematics A

Level 1/2

Paper 2F

(Calculator)

Foundation Tier

Thursday 6 June 2019 – 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					

V58368A

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.

Turn over

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.

Turn over

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 TWO questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

Turn over

6

- 1. (a) Write these five numbers in order.**

Start with the smallest number.

(1 mark)

3 -8 1 -5 0

(continued on the next page)

Turn over

1. continued.

(b) Write these five numbers in order of size.

Start with the smallest number.

(1 mark)

2.5 2.85 2.082 2.28 2.805

(continued on the next page)

Turn over

1. continued.

(c) Find

(i) the value of
 $\sqrt{196}$

(continued on the next page)

Turn over

1. (c) continued.

(ii) the cube root of
6859

(2 marks)

(Total for Question 1 is 4 marks)

2. Look at the diagram for Question 2 in the Diagram Book.

The bar chart gives information about the population, in millions, of each of five cities.

Cairo has a population of 12 million.

(a) Draw a bar on the bar chart to show this information.

(1 mark)

(continued on the next page)

2. continued.

The populations of two cities are equal.

(b) Write down the names of these two cities.

(1 mark)

_____ and

(continued on the next page)

Turn over

2. continued.

**(c) Write down the name of the city
with a population of 15 million.
(1 mark)**

(continued on the next page)

Turn over

2. continued.

(d) Work out the difference in population between Jakarta and Phoenix.

(1 mark)

_____ **million**

(continued on the next page)

Turn over

2. continued.

**In Manila, there are
90 badminton clubs and
60 football clubs.**

**(e) Find the ratio of the number of
badminton clubs to the number
of football clubs.**

**Give your ratio in its simplest
form.**

(2 marks)

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

2. (e) continued.

(Total for Question 2 is 6 marks)

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

A, B and C are points on a circle,
centre **O**

AOC is a straight line.

(a) Write down the mathematical
name for the line **AC**

(1 mark)

(continued on the next page)

3. continued.

(b) Write down the mathematical name for the line AB

(1 mark)

(c) On the diagram, shade a sector of the circle.

(1 mark)

(Total for Question 3 is 3 marks)

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

It shows four shapes.

One of these four shapes has exactly one line of symmetry.

(a) Write down the letter of this shape.

(1 mark)

(continued on the next page)

4. continued.

One of these four shapes has an order of rotational symmetry greater than 1

(b) (i) Write down the letter of this shape.

(continued on the next page)

Turn over

4. (b) continued.

(ii) Write down the order of rotational symmetry of this shape.

(2 marks)

(c) Write down the name of a polygon with 8 sides.

(1 mark)

(Total for Question 4 is 4 marks)

Turn over

5. (a) Which one of these five fractions is equivalent to $\frac{4}{5}$?
(1 mark)

$$\frac{20}{24}$$

$$\frac{8}{12}$$

$$\frac{1}{2}$$

$$\frac{16}{20}$$

$$\frac{6}{10}$$

(continued on the next page)

Turn over

5. continued.

**Look at the diagram for Question 5(b)
in the Diagram Book.**

It shows a shape made of squares.

(b) Shade $\frac{4}{5}$ of the shape.

(1 mark)

(continued on the next page)

Turn over

5. continued.

(c) Write $\frac{4}{5}$ as a percentage.

(1 mark)

_____ %

(continued on the next page)

Turn over

5. continued.

$\frac{4}{5}$ of a number is 48

(d) What is the number?

(2 marks)

(Total for Question 5 is 5 marks)

Turn over

6. Look at the diagram for Question 6 in the Diagram Book.

It shows a sequence of patterns made from sticks: Pattern number 1, Pattern number 2, Pattern number 3

**(a) Pattern number 4 has been started below Pattern number 3
Complete Pattern number 4 on the diagram.**

(1 mark)

(continued on the next page)

6. continued.

**(b) How many sticks are needed to
make Pattern number 7?**

(2 marks)

(continued on the next page)

Turn over

6. continued.

(c) Work out the Pattern number of the pattern made from exactly 62 sticks.

(2 marks)

(continued on the next page)

Turn over

6. continued.

Pedro says,

“There will be a pattern in the sequence with exactly 123 sticks.”

(d) Is Pedro correct?

You must give a reason for your answer.

(1 mark)

Answer space and lines continue on the next page.

6. (d) continued.

(Total for Question 6 is 6 marks)

Turn over

7. Look at the diagram and table for Question 7 in the Diagram Book.

The diagram shows a fair 3-sided spinner and a fair dice.

In a game, the spinner is spun once and the dice is rolled once.

The spinner can land on 1, 2 or 3

The dice can land on 1, 2, 3, 4, 5 or 6

In the game, the score is found by multiplying the number the spinner lands on by the number the dice lands on.

(continued on the next page)

Turn over

7. continued.

(a) Complete the table in the Diagram Book to show all possible scores.

Eleven of the scores have been done for you.

(2 marks)

Steven plays the game once.

(b) Work out the probability that his score is greater than 10

(2 marks)

Answer space is on the next page.

Turn over

7. (b) continued.



(continued on the next page)

Turn over

7. continued.

Adam plays the game and Carmen plays the game.

Adam gets a prize if his score is 5 or less.

Carmen gets a prize if her score is a multiple of 6

Carmen says the game is unfair because Adam is more likely to get a prize.

(continued on the next page)

7. continued.

(c) Is the game unfair?

You must give a reason for your answer.

(2 marks)

(Total for Question 7 is 6 marks)

8. Nina buys 8 pencils and 13 identical rulers.

Each pencil costs \$0.58

The total cost is \$23.62

(a) Work out the cost of each ruler.

(3 marks)

\$ _____

(continued on the next page)

Turn over

8. continued.

Bjorn has \$15 to spend on pens.

Each pen costs \$0.62

He buys as many pens as he can.

(b) Work out how much change

Bjorn should get.

(3 marks)

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

8. (b) continued.

\$ _____

(Total for Question 8 is 6 marks)

9. Simon has X sweets.

Yuen has 2 more sweets than Simon.

Giulia has 3 times as many sweets as Yuen.

Simon, Yuen and Giulia have a total of T sweets.

(a) Write down a formula for T in terms of X

Give your formula in its simplest form.

(3 marks)

Answer space is on the next page.

9. (a) continued.



(continued on the next page)

Turn over

9. continued.

(b) Make g the subject of the formula

$$r = 4g + 7$$

(2 marks)

(continued on the next page)

Turn over

9. continued.

(c) Solve

$$6y - 3 = 2y + 8$$

Show clear algebraic working.

(3 marks)

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

9. (c) continued.

$y =$ _____

(Total for Question 9 is 8 marks)

Turn over

10. ABC is an isosceles triangle.

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

$$AC = BC = 7 \text{ cm}$$

(a) Look at the diagram for Question 10(a) in the Diagram Book.

Use ruler and compasses to construct triangle ABC

You must show all your construction lines.

The line AB has been drawn for you.

(2 marks)

(continued on the next page)

Turn over

10. continued.

**(b) Look at the diagram for
Question 10(b) in the
Diagram Book.**

**Use ruler and compasses to
construct the perpendicular
bisector of the line DE**

**You must show all your
construction lines.**

(2 marks)

(Total for Question 10 is 4 marks)

11. Calvin and Jenny are planning a holiday together.

The total cost of the flights is £1190

Calvin and Jenny share the cost of the flights so that

the money that Calvin pays : the money that Jenny pays = 2 : 5

(a) How much more money does Jenny pay than Calvin?

(3 marks)

Answer space is on the next page.

Turn over

11. (a) continued.

£ _____

(continued on the next page)

Turn over

11. continued.

The cost of the villa for their holiday is £3500

They have to pay a deposit of 12% of this cost.

The rest of the cost of the villa is to be paid in monthly instalments of £220

(b) How many monthly instalments must be paid?

(3 marks)

Answer space is on the next two pages.

Turn over

11. (b) continued.

Turn over

11. (b) continued.



(Total for Question 11 is 6 marks)



12. Look at the diagram for Question 12 in the Diagram Book.

On the grid, draw the graph of $y = 3x - 1$ for values of x from -2 to 3

(Total for Question 12 is 3 marks)

13. Look at the table for Question 13 in the Diagram Book.

It shows information about the heights, in cm, of 48 sunflowers in a garden centre.

Work out an estimate for the mean height of the sunflowers.

(4 marks)

Answer space continues on the next page.

13. continued.

_____ cm

(Total for Question 13 is 4 marks)

Turn over

14. $\mathcal{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$

$$A = \{2, 3, 5, 7\}$$

$$B = \{4, 6, 8, 10\}$$

(a) Explain why $A \cap B = \emptyset$

(1 mark)

(continued on the next page)

Turn over

14. continued.

$$X \in \mathcal{E} \text{ and } X \notin A \cup B$$

(b) Write down the TWO possible values of X

(1 mark)

_____ , _____

(continued on the next page)

Turn over

14. continued.

Set **C** is such that

$$A \cup B \cup C = \mathcal{E}$$

$$A \cap C = \{2\}$$

$$B \cap C' = \{4, 6, 10\}$$

(c) List all the members of set **C**
(2 marks)

Answer space continues on the
next page.

14. (c) continued.

(Total for Question 14 is 4 marks)

Turn over

- 15. A cylinder has diameter 14 cm and height 20 cm**

Work out the volume of the cylinder.

Give your answer correct to

3 significant figures.

(2 marks)

Answer space continues on the next page.

15. continued.

_____ **cm³**

(Total for Question 15 is 2 marks)

Turn over

16. Josh buys and sells books for a living.

He buys 120 books for £4 each.

He sells $\frac{1}{2}$ of the books for £5 each.

**He sells 40% of the books for
£7 each.**

**He sells the rest of the books for
£8 each.**

**(a) Calculate Josh's percentage
profit.**

(5 marks)

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

Turn over

16. (a) continued.

Turn over

16. (a) continued.

_____ %

(continued on the next page)

Turn over

16. continued.

One book that Josh owns had a value of £15 on the 1st May 2019

The value of this book had increased by 20% in the last year.

(b) Find the value of the book on the 1st May 2018

(3 marks)

Answer space continues on the next page.

16. (b) continued.

£ _____

(Total for Question 16 is 8 marks)

Turn over

**17. Look at the diagram for Question 17
in the Diagram Book.**

It is NOT accurately drawn.

ABC and DEF are similar triangles.

In triangle ABC,

$$\mathbf{AB = 6 \text{ cm}}$$

$$\mathbf{AC = 4.2 \text{ cm}}$$

In triangle DEF,

$$\mathbf{DE = 15 \text{ cm}}$$

$$\mathbf{EF = 19.5 \text{ cm}}$$

$$\mathbf{\text{Angle } ABC = \text{Angle } DEF}$$

$$\mathbf{\text{Angle } BAC = \text{Angle } EDF}$$

(continued on the next page)

Turn over

17. continued.

(a) Work out the length of DF
(2 marks)

_____ cm

(continued on the next page)

Turn over

17. continued.

(b) Work out the length of BC

(2 marks)

_____ cm

(Total for Question 17 is 4 marks)

Turn over

18. 30 students in a class sat a Mathematics test.

The mean mark in the test for the 30 students was 26.8

13 of the 30 students in the class are boys.

The mean mark in the test for the boys was 25

Find the mean mark in the test for the girls.

Give your answer correct to 3 significant figures.

(3 marks)

Answer space is on the next page.

Turn over

18. continued.

(Total for Question 18 is 3 marks)

Turn over

19. Change a speed of X kilometres per hour into a speed in metres per second.

Simplify your answer.

(3 marks)

Answer space continues on the next page.

19. continued.

_____ m/s

(Total for Question 19 is 3 marks)

Turn over

20. Solve the simultaneous equations

$$x + 2y = -0.5$$

$$3x - y = 16$$

Show clear algebraic working.

(3 marks)

Answer space continues on the next page.

20. continued.

x = _____

y = _____

(Total for Question 20 is 3 marks)

Turn over

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

It is NOT accurately drawn.

It shows the positions of three ships A, B and C

B is 234 km due north of A

C is 356 km due east of A

Work out the bearing of B from C

Give your answer correct to the nearest degree.

(4 marks)

Answer space is on the next two pages.

21. continued.

Turn over

21. continued.

○

(Total for Question 21 is 4 marks)

Turn over

22. The straight line L has gradient 5 and passes through the point with coordinates $(0, -3)$

**(a) Write down an equation for L
(2 marks)**

(continued on the next page)

22. continued.

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

The region R , shown shaded in the diagram, is bounded by four straight lines.

Write down the inequalities that define R

(2 marks)

Answer space and lines continue on the next page.

Turn over

22. (b) continued.

(Total for Question 22 is 4 marks)

TOTAL FOR PAPER IS 100 MARKS

END OF PAPER
