

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

Total Marks

# Mathematics A

**Paper 1F**

**(Calculator)**

**Foundation Tier**

**Tuesday 19 May 2020 – Morning**

**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>					

**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 models for Question 3(a) and Questions 3(b) and 3(c)

You may be provided with shapes for Question 13(a) and Question 13(b)

## **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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**Answer ALL TWENTY THREE questions.**

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

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

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

**It gives information about the amount of crude oil, in barrels, produced per day by each of five countries.**

- (a) Write down the name of the country that produced the least number of barrels of crude oil.**

**(1 mark)**

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**(continued on the next page)**

1. continued.

(b) Work out the difference between the number of barrels of crude oil produced by Vietnam and the number of barrels of crude oil produced by Australia.

(1 mark)

\_\_\_\_\_ barrels

Thailand produced **248 200** barrels of crude oil.

(c) Write **248 200** correct to the nearest thousand.

(1 mark)

\_\_\_\_\_

(Total for Question 1 is 3 marks)

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Turn over

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

It shows an incomplete pictogram.

The pictogram shows information about the number of books sold in a shop each day from Monday to Thursday last week.

- (a) How many books were sold on Wednesday last week?

(1 mark)

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**35** books were sold in the shop on Friday last week.

- (b) Show this information on the pictogram.

(1 mark)

(continued on the next page)

2. continued.

Last week

some books were sold in the shop on Saturday

no books were sold in the shop on Sunday

a total of **500** books were sold in the shop.

(c) Work out the number of books that were sold in the shop on Saturday last week.

(3 marks)

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(Total for Question 2 is 5 marks)

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Turn over

3. Look at the diagram for Question 3(a) in the Diagram Book.

You may be provided with a model.

(a) Write down the mathematical name of the 3-D shape.

(1 mark)

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(continued on the next page)

**3. continued.**

**Look at the diagram for Questions 3(b) and 3(c) in the Diagram Book.**

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

**They are NOT accurate.**

**They show a solid cuboid 20 cm long, 8 cm wide and 11 cm high.**

**(b) (i) How many faces has the cuboid?**

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**(ii) How many vertices has the cuboid?**

**(2 marks)**

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**(continued on the next page)**

3. continued.

- (c) Work out the volume of the cuboid.  
(2 marks)

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

(Total for Question 3 is 5 marks)

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

It shows a polygon with five sides.

(a) Write down the mathematical name of a polygon with five sides.

(1 mark)

\_\_\_\_\_

(b) Measure the size of the angle marked X

(1 mark)

\_\_\_\_\_ °

(continued on the next page)

4. continued.

Two sides of the polygon are parallel.

(c) On the polygon, mark this pair of parallel lines.  
(1 mark)

Look at the diagrams for Question 4(d) in the  
Diagram Book.

They are NOT accurately drawn.

They show two triangles.

(d) Are triangle **A** and triangle **B** similar triangles?  
You must give a reason for your answer.  
(1 mark)

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(Total for Question 4 is 4 marks)

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5. Matt buys a notebook and some pencils.

The notebook costs \$2.35

Each pencil costs \$0.74

Matt has a total of \$20 to spend on the notebook and the pencils.

He buys the greatest number of pencils that he can.

Work out how many pencils he buys.

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(Total for Question 5 is 3 marks)

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6. (a) Write

$\frac{24}{40}$  as a fraction in its simplest form.

(2 marks)

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(b) Write

$\frac{1}{5}$  as a decimal.

(1 mark)

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(continued on the next page)

6. continued.

There are only blue bricks and white bricks in a box.  
The ratio of the number of blue bricks to the number  
of white bricks is **3 : 7**

(c) What fraction of the bricks in the box are  
blue bricks?

(1 mark)

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(continued on the next page)

6. continued.

(d) Show that

$$\frac{3}{8} + \frac{1}{24} = \frac{5}{12}$$

(2 marks)

Answer space continues on the next page.

6. (d) continued.

(continued on the next page)

6. continued.

There are **280** counters in a bag.

$\frac{1}{2}$  of the counters are red.

$\frac{2}{5}$  of the counters are yellow.

The rest of the counters are green.

(e) Work out the number of green counters in the bag.

(3 marks)

Answer space continues on the next page.

6. (e) continued.

**(Total for Question 6 is 9 marks)**

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7. (a) Simplify

$$5p \times q$$

(1 mark)

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(b) Solve

$$t + 5 = 12$$

(1 mark)

$$t = \underline{\hspace{10em}}$$

(continued on the next page)

Turn over

7. continued.

(c) Solve

$$9y = 36$$

(1 mark)

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

(continued on the next page)

7. continued.

(d) Simplify

$$8k + 5m - 2k + 6m$$

(2 marks)

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(continued on the next page)

7. continued.

(e) Expand

$$4(3s + 1)$$

(1 mark)

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**(Total for Question 7 is 6 marks)**

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8. Look at the table for Question 8 in the Diagram Book.

It shows an incomplete two-way table.

Pavel asked **60** people at an airport where they came from.

All of the **60** people came from Europe or Africa or Asia.

**9** people came from Africa.

**14** females came from Europe.

**3** males came from Africa.

**16** of the **29** males came from Asia.

Using this information, complete the two-way table in the Diagram Book.

There are six spaces to fill.

(Total for Question 8 is 4 marks)

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9. Given that

$$s = 4$$

$$t = 7$$

(a) Work out the value of

$$3s + 2t$$

(2 marks)

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(continued on the next page)

9. continued.

Given that

$$p = -6$$

$$m = -2$$

(b) Work out the value of

$$2p^2 + 3m$$

(2 marks)

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(continued on the next page)

9. continued.

There are **6** eggs in a small box of eggs.

There are **12** eggs in a large box of eggs.

Alex buys **X** small boxes of eggs and  
**y** large boxes of eggs.

He buys a total of **T** eggs.

(c) Write down a formula for **T** in terms of **x** and **y**  
(3 marks)

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(Total for Question 9 is 7 marks)

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10. (a) Use your calculator to work out the value of

$$\frac{67 \cdot 8 + 4 \cdot 6^2}{\sqrt{56}}$$

Write down all the figures on your calculator display.

(2 marks)

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(continued on the next page)

10. continued.

(b) Give your answer to part (a) correct to  
**2 significant figures.**

**(1 mark)**

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

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11. A circle has radius 18 cm

Work out the circumference of the circle.

Give your answer correct to 3 significant figures.

\_\_\_\_\_ cm

(Total for Question 11 is 2 marks)

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12. Gavin bought 3 pairs of jeans in the USA.  
He paid a TOTAL of \$72

Gavin sold the 3 pairs of jeans in England.  
He sold each pair of jeans for £34.50

$$\text{£1} = \$1.34$$

Work out Gavin's percentage profit.

Give your answer correct to the nearest  
whole number.

(4 marks)

Answer space continues on the next two pages.

12. continued.

12. continued.

\_\_\_\_\_ %

(Total for Question 12 is 4 marks)

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**13. Look at the diagram for Question 13(a) in the Diagram Book.**

**It shows a triangle on a grid.**

**(a) On the grid, reflect the shaded triangle in the line with equation  $y = 2$**

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

**(2 marks)**

**(continued on the next page)**

13. continued.

Look at the diagram for Question 13(b) in the Diagram Book.

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

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

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

(3 marks)

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**(Total for Question 13 is 5 marks)**

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

It shows a Venn diagram.

The numbers from 1 to 14 are shown in the Venn diagram.

(a) List the members of the set  $A \cap B$   
(1 mark)

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(b) List the members of the set  $B'$   
(1 mark)

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(continued on the next page)

14. continued.

A number is picked at random from the numbers in the Venn diagram.

(c) Find the probability that this number is in set **A** but is **NOT** in set **B**

(2 marks)

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(Total for Question 14 is 4 marks)

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**15. Toy cars are made in a factory.**

**The toy cars are made for 15 hours each day.**

**5 toy cars are made every 12 seconds.**

**For the toy cars made each day, the probability of a toy car being faulty is 0.002**

**Work out an estimate of the number of faulty toy cars that are made each day.**

**(4 marks)**

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

15. continued.

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

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

**It shows a grid.**

**Draw the graph of**

**$y = 7 - 4x$  for values of  $x$  from  $-2$  to  $3$**

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

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17. Here is a list of six numbers written in order of size.

4      7      x      10      y      y

The numbers have

a median of 9

a mean of 11

Find the value of **x** and the value of **y**

(4 marks)

Answer space continues on the next page.

17. continued.

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

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

(Total for Question 17 is 4 marks)

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Turn over

18. (a) Write

$5.7 \times 10^{-3}$  as an ordinary number.

(1 mark)

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(b) Write

800 000 in standard form.

(1 mark)

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(continued on the next page)

18. continued.

(c) Work out

$$\frac{3 \times 10^5 - 2.7 \times 10^4}{6 \times 10^{-2}}$$

(2 marks)

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(Total for Question 18 is 4 marks)

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19. A rocket travelled 100 km at an average speed of 28 440 km/h

Work out how long it took the rocket to travel the 100 km

Give your answer in seconds, correct to the nearest second.

(3 marks)

Answer space continues on the next page.

19. continued.

\_\_\_\_\_ seconds

(Total for Question 19 is 3 marks)

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20. (a) Solve

$$5(4 - x) = 7 - 3x$$

Show clear algebraic working.

(3 marks)

**x** = \_\_\_\_\_

(continued on the next page)

Turn over

20. continued.

(b) Factorise fully

$$16m^3n^3 + 24m^2n^5$$

(2 marks)

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(continued on the next page)

20. continued.

(c) (i) Factorise

$$y^2 - 2y - 48$$

(2 marks)

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(continued on the next page)

20. (c) continued.

(ii) Hence, solve

$$y^2 - 2y - 48 = 0$$

(1 mark)

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(Total for Question 20 is 8 marks)

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

It is NOT accurately drawn.

It shows a 10-sided polygon.

Nine interior angles are labelled  $148^\circ$ ,  $150^\circ$ ,  $168^\circ$ ,  $134^\circ$ ,  $125^\circ$ ,  $125^\circ$ ,  $134^\circ$ ,  $168^\circ$ ,  $150^\circ$

One exterior angle is marked  $x^\circ$

Work out the value of  $x$

(4 marks)

Answer space continues on the next page.

21. continued.

**x** = \_\_\_\_\_

**(Total for Question 21 is 4 marks)**

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**22. In a sale, normal prices are reduced by 20%**

**A bag costs 1080 rupees in the sale.**

**Work out the normal price of the bag.**

**(3 marks)**

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

22. continued.

\_\_\_\_\_ rupees

(Total for Question 22 is 3 marks)

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23. Given that

$$P = 2 \times 3^{43}$$

$$Q = 16 \times 3^{37}$$

(a) Find the highest common factor (HCF) of

**P** and **Q**

(1 mark)

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(continued on the next page)

Turn over

**23. continued.**

**(b) Express the number  $P \times Q$  as a product of powers of its prime factors.**

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

**(2 marks)**

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

23. (b) continued.

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**(Total for Question 23 is 3 marks)**

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**TOTAL FOR PAPER IS 100 MARKS**

**END OF PAPER**

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