

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

Total Marks

**Mathematics A**  
**Level 1/2**  
**Unit 2F**  
**(Calculator)**

**Tuesday 15 January 2019 – 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>					

**Y59018A**

**YOU MUST HAVE**

**Ruler, protractor, compasses, writing and drawing equipment. Calculator. Tracing paper may be used.**

**YOU WILL BE GIVEN**

**Diagram Book**

**Formulae Pages**

**Model for Question 9**

**Shape for Question 7**

**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.**

## **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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**Turn over**

**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. (a) Write  $\frac{23}{100}$  as a decimal.

(1 mark)

\_\_\_\_\_

- (b) Write  $0.7$  as a percentage.

(1 mark)

\_\_\_\_\_ %

(continued on the next page)

Turn over

**1. continued.**

**(c) Write  $\frac{1}{5}$  as a decimal.**

**(1 mark)**

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**(d) Look at the diagram for  
Question 1(d) in the  
Diagram Book.**

**Shade 75% of the diagram.**

**(1 mark)**

**(continued on the next page)**

**Turn over**

1. continued.

**21% of the people on a train are asleep.**

**(e) What percentage of the people on the train are not asleep?  
(1 mark)**

\_\_\_\_\_ %

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

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**Turn over**



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

**It shows a fair spinner.**

**Mikhail spins the arrow on the spinner once.**

**impossible    unlikely    evens**  
**likely    certain**

**(continued on the next page)**

**Turn over**

**2. continued.**

**(a) Write down the word from the list on the previous page that best describes the likelihood that the arrow will land on**

**(i) red,**

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**(ii) blue.**

**(2 marks)**

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**(continued on the next page)**

**Turn over**

**2. continued.**

**Look at the diagram for Question 2(b)  
in the Diagram Book.**

**It shows a probability scale.**

**10 balls are in a bag.**

**3 of these balls are green.**

**Jill takes at random a ball from the  
bag.**

**(b) On the probability scale, mark  
the probability that the ball is  
green.**

**(1 mark)**

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

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**Turn over**

**3. Mike buys 150 burger buns.**

**He buys the burger buns in packs of 6 burger buns.**

**Each pack of 6 burger buns costs £1.03**

**Work out how much Mike pays for the 150 burger buns.**

**(3 marks)**

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

**Turn over**

**3. continued.**

£ \_\_\_\_\_

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

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**Turn over**

4. (a) Simplify

$$4m + 2m - m$$

(1 mark)

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(b) Simplify

$$5p \times 7$$

(1 mark)

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(continued on the next page)

Turn over

**4. continued.**

**(c) Solve**

$$8g = 40$$

**(1 mark)**

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

**(continued on the next page)**

**Turn over**

**4. continued.**

**(d) Solve**

$$19 - k = 4$$

**(1 mark)**

$$k = \underline{\hspace{4cm}}$$

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

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**Turn over**



5. The table below shows the average monthly temperatures, in  $^{\circ}\text{C}$ , for four months in London and in Cairo.

	London ( $^{\circ}\text{C}$ )	Cairo ( $^{\circ}\text{C}$ )
January	5	14
April	11	21
July	19	28
October	13	23

Look at the diagram for Question 5 in the Diagram Book.

It shows a grid.

Show this information by drawing a suitable diagram on the grid.

(Total for Question 5 is 4 marks)

6. Steve throws a 6-sided dice.

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

He also spins a coin.

The coin can land on heads (H) or on tails (T)

List all the possible combinations he could get.

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(Total for Question 6 is 2 marks)

Turn over

- 7. Look at the diagram for Question 7 in the Diagram Book.**

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

**Reflect the shaded triangle in the line  $y = 1$**

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

**(Total for Question 7 is 2 marks)**

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8. (a) Write  $\frac{19}{5}$  as a mixed number.  
(1 mark)
- 

(continued on the next page)

**8. continued.**

**There are 84 animals in a field.**

**10 of the animals are horses.**

**45 of the animals are sheep.**

**The rest of the animals are cows.**

**(b) What fraction of the animals in  
the field are cows?**

**(2 marks)**

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**(continued on the next page)**

**Turn over**

8. continued.

(c) Write these four fractions in order of size.

Start with the smallest fraction.

$$\frac{3}{4} \quad \frac{11}{12} \quad \frac{5}{8} \quad \frac{9}{20}$$

(2 marks)

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(continued on the next page)

Turn over

8. continued.

(d) Show that

$$\frac{23}{24} - \frac{3}{8} = \frac{7}{12}$$

(2 marks)

(Total for Question 8 is 7 marks)

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Turn over

9. Look at the model or at the diagram for Question 9 in the Diagram Book. They are NOT accurate.

Sahil has a fish tank in the shape of a cuboid, as shown in the diagram and on the model.

The tank is

55 cm long

28 cm wide

33 cm high

The surface of the water in the tank is 3 cm below the top of the tank.

(continued on the next page)

Turn over



**9. continued.**

**Sahil is going to put some neon tetra fish in his tank.**

**He must allow 4 litres of water for each of the neon tetra fish he puts in the tank.**

**What is the greatest number of neon tetra fish Sahil can put in his tank?**

**(4 marks)**

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

**Turn over**

**9. continued.**

**Turn over**

**9. continued.**

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

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**Turn over**

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

**It shows a pie chart.**

**Jerry went on holiday to a game reserve.**

**He recorded the number of each of five different types of animal he saw.**

**The pie chart gives information about his results.**

**(continued on the next page)**

**10. continued.**

**(a) Write down the ratio of the number of elephants Jerry saw to the number of giraffes he saw.**

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

**(2 marks)**

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**(continued on the next page)**

**Turn over**

**10. continued.**

**Jerry saw 8 lions.**

**(b) How many giraffes did Jerry see?**

**(2 marks)**

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**(continued on the next page)**

**Turn over**

**10. continued.**

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

**It shows a pie chart.**

**Lesley went on holiday to the same  
game reserve.**

**She also recorded the number of  
each of five different types of animal  
she saw.**

**The pie chart gives information about  
her results.**

**(continued on the next page)**

**Turn over**

**10. continued.**

**Lesley says,**

**“The pie charts show that I saw more elephants than Jerry saw.”**

**(c) Is Lesley correct?**

**You must give a reason for your answer.**

**(1 mark)**

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**(Total for Question 10 is 5 marks)**

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**Turn over**



11. (a) Solve

$$5m + 7 = 24$$

(2 marks)

$m =$  \_\_\_\_\_

(continued on the next page)

Turn over

11. continued.

(b) Make  $t$  the subject of

$$k = \frac{t - e}{2}$$

(2 marks)

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(continued on the next page)

Turn over

**11. continued.**

**(c) Simplify**

$$p^8 \div p^3$$

**(1 mark)**

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**(continued on the next page)**

**Turn over**

11. continued.

(d) Simplify

$$n^0$$

(1 mark)

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(continued on the next page)

Turn over

**11. continued.**

**(e) Simplify**

$$(3x^2y^5)^3$$

**(2 marks)**

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**(Total for Question 11 is 8 marks)**

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**Turn over**

**12. A circle has radius 9 cm**

**(a) Work out the circumference of the circle.**

**Give your answer correct to 1 decimal place.**

**(2 marks)**

\_\_\_\_\_ **cm**

**(continued on the next page)**

**Turn over**

**12. continued.**

**Look at the diagram for Question 12(b)  
in the Diagram Book.**

**It is NOT accurately drawn.**

**It shows the pentagon  $ABCDE$**

**$ABE$  is an equilateral triangle.**

**$BCDE$  is a square with area  $169 \text{ cm}^2$**

**(b) Work out the perimeter of  
 $ABCDE$**

**(3 marks)**

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

**Turn over**

12. (b) continued.

\_\_\_\_\_ cm

(Total for Question 12 is 5 marks)

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Turn over



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

**It is NOT accurately drawn.**

**ABD is an isosceles triangle with  
 $AB = DB$**

**DCE is a straight line.**

**Angle ABD =  $48^\circ$**

**Angle BCE =  $68^\circ$**

**Reflex angle ADC =  $243^\circ$**

**Angle DBC =  $y$**

**(continued on the next page)**

**Turn over**

**13. continued.**

**Work out the size of the angle  
marked  $y$**

**Give a reason for each stage in your  
working.**

**(5 marks)**

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

**Turn over**

13. continued.

○

(Total for Question 13 is 5 marks)

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Turn over

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

**300 cars per hour are made in the factory.**

**Cars are made in the factory for  $9\frac{1}{2}$  hours each day.**

**8% of the cars made in the factory are faulty.**

**The rest of the cars made in the factory are NOT faulty.**

**Work out how many of the cars made each day are NOT faulty.**

**(4 marks)**

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

**Turn over**

14. continued.

Turn over

**14. continued.**

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**(Total for Question 14 is 4 marks)**

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**Turn over**

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

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

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

**(Total for Question 15 is 2 marks)**

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

**It shows information about the number of birds each of 40 people counted in their garden one morning.**

**(a) Write down the modal class.**  
**(1 mark)**

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**(continued on the next page)**

**Turn over**



**16. continued.**

**(b) Work out an estimate for the mean number of birds.**

**(4 marks)**

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

**Turn over**

**50**

**16. (b) continued.**

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**(Total for Question 16 is 5 marks)**

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**Turn over**

**17. There are 90 counters in a bag.**

**Each counter in the bag is either red or blue so that**

**the number of red counters : the  
number of blue counters = 2 : 13**

**Li is going to put some more  
red counters in the bag so that**

**the probability of taking at random a  
red counter from the bag is  $\frac{1}{3}$**

**(continued on the next page)**

**17. continued.**

**Work out the number of red counters  
that Li is going to put in the bag.**

**(4 marks)**

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

**Turn over**

**17. continued.**

**Turn over**

**17. continued.**

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

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**Turn over**

**18. Look at the diagram for Question 18 in the Diagram Book.**

**It shows an incomplete Venn diagram.**

$$\mathcal{E} = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\}$$

$$A = \{\text{odd numbers}\}$$

$$A \cap B = \{1, 3\}$$

$$A \cup B = \{1, 2, 3, 4, 5, 6, 7, 9, 11, 12\}$$

**Complete the Venn diagram to show this information.**

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

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**Turn over**

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

**It is NOT accurately drawn.**

**Calvin has 12 identical rectangular tiles.**

**He arranges the tiles to fit exactly round the edge of a shaded rectangle, as shown in the diagram.**

**Work out the area of the shaded rectangle.**

**(5 marks)**

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



**19. continued.**

**Turn over**

**19. continued.**

\_\_\_\_\_  $\text{cm}^2$

**(Total for Question 19 is 5 marks)**

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**Turn over**

- 20. (a) Find the highest common factor  
(HCF) of 96 and 120  
(2 marks)**

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**(continued on the next page)**

**Turn over**

20. continued.

$$A = 2^3 \times 5 \times 7^2 \times 11$$

$$B = 2^4 \times 7 \times 11$$

$$C = 3 \times 5^2$$

- (b) Find the lowest common multiple  
(LCM) of **A**, **B** and **C**  
(2 marks)

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(Total for Question 20 is 4 marks)

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Turn over

**21. Jenny invests \$8500 for 3 years in a savings account.**

**She gets  $2 \cdot 3\%$  per year compound interest.**

**How much money will Jenny have in her savings account at the end of 3 years?**

**Give your answer correct to the nearest dollar.**

**(3 marks)**

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

**Turn over**

**21. continued.**

\$ \_\_\_\_\_

**(Total for Question 21 is 3 marks)**

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**Turn over**

**22. A block of wood has a mass of  
3.5 kg**

**The wood has density 0.65 kg/m<sup>3</sup>**

**(a) Work out the volume of the block  
of wood.**

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

**(3 marks)**

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

22. (a) continued.

\_\_\_\_\_ m<sup>3</sup>

(continued on the next page)

Turn over



**22. continued.**

**(b) Change a speed of  
630 kilometres per hour to a  
speed in metres per second.**

**(3 marks)**

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

**Turn over**

**22. (b) continued.**

\_\_\_\_\_ m/s

**(Total for Question 22 is 6 marks)**

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**Turn over**

**23. Solve the simultaneous equations**

$$4x + 5y = 4$$

$$2x - y = 9$$

**Show clear algebraic working.**

**(3 marks)**

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

**Turn over**

**23. continued.**

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

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

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

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**Turn over**

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

**It shows the line L drawn on a grid.**

**Find an equation for L**

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**(Total for Question 24 is 3 marks)**

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**Turn over**

70

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**TOTAL FOR PAPER IS 100 MARKS**

**END OF PAPER**

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