

**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.

Surname					
Other names					
Centre Number					
Candidate Number					

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

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.

Answer ALL TWENTY FOUR questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

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

(1 mark)

(b) Write 0.7 as a percentage.

(1 mark)

_____ %

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

(1 mark)

(continued on the next page)

Turn over

1. continued.

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

Shade 75% of the diagram.

(1 mark)

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)

Turn over

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

It shows a fair spinner.

Mikail spins the arrow on the spinner once.

impossible unlikely evens likely certain

(a) Write down the word that best describes the likelihood that the arrow will land on

(i) red,

(ii) blue.

(2 marks)

(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)

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.

£ _____

(Total for Question 3 is 3 marks)

Turn over

4. (a) Simplify

$$4m + 2m - m$$

(1 mark)

(b) Simplify

$$5p \times 7$$

(1 mark)

(continued on the next page)

Turn over

4. continued.

(c) Solve

$$8g = 40$$

(1 mark)

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

(d) Solve

$$19 - k = 4$$

(1 mark)

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

(Total for Question 4 is 4 marks)

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)

Turn over

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.

(Total for Question 6 is 2 marks)

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)

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

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)
-

(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)

(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)

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.

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.

(Total for Question 9 is 4 marks)

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.

- (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)

(continued on the next page)

Turn over

10. continued.

Jerry saw 8 lions.

(b) How many giraffes did Jerry see?
(2 marks)

(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.

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)

(Total for Question 10 is 5 marks)

Turn over

11. (a) Solve

$$5m + 7 = 24$$

(2 marks)

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

(continued on the next page)

Turn over

11. continued.

(b) Make t the subject of

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

(2 marks)

(continued on the next page)

Turn over

11. continued.

(c) Simplify

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

(1 mark)

(d) Simplify

$$n^0$$

(1 mark)

(continued on the next page)

Turn over

11. continued.

- (e) Simplify
 $(3x^2y^5)^3$
(2 marks)

(Total for Question 11 is 8 marks)

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 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)

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°

Angle **BCE** = 68°

Reflex angle **ADC** = 243°

Angle **DBC** = y

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.

13. continued.

_____ ◦

(Total for Question 13 is 5 marks)

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 continues on the next page.

14. continued.

(Total for Question 14 is 4 marks)

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)

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)**

(continued on the next page)

16. continued.

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

(4 marks)

(Total for Question 16 is 5 marks)

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 $\frac{1}{3}$

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.

17. continued.

Turn over

17. continued.

(Total for Question 17 is 4 marks)

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)

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 page.

19. continued.

_____ cm^2

(Total for Question 19 is 5 marks)

Turn over

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



(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)
-

(Total for Question 20 is 4 marks)

Turn over

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

She gets **2.3%** 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.

\$ _____

(Total for Question 21 is 3 marks)

Turn over

22. A block of wood has a mass of 3.5 kg
The wood has density 0.65 kg/m^3

- (a) Work out the volume of the block of wood.
Give your answer correct to 3 significant figures.
(3 marks)

_____ m^3

(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)

_____ m/s

(Total for Question 22 is 6 marks)

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)

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

(Total for Question 24 is 3 marks)

TOTAL FOR PAPER IS 100 MARKS

END OF PAPER
