Please check the examination details below before entering your candidate information

Candidate surname	Other names

Centre Number | Candidate Number

Pearson Edexcel International GCSE

Time 2 hours

Paper reference **4MA1/1F**

Mathematics A

PAPER 1F

Foundation Tier

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.

Total Marks

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Without sufficient working, correct answers may be awarded no marks.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*
- **Calculators may be used.**
- You must **NOT** write anything on the formulae page.
  Anything you write on the formulae page 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.*

Advice

- Read each question carefully before you start to answer it.
- Check your answers if you have time at the end.

Turn over ▶

P69195A

L:1/1/1/

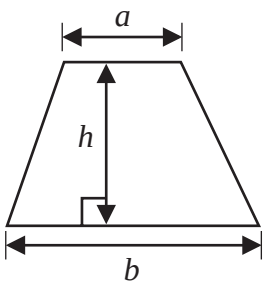
P 6 9 1 9 5 A 0 1 2 4

Pearson

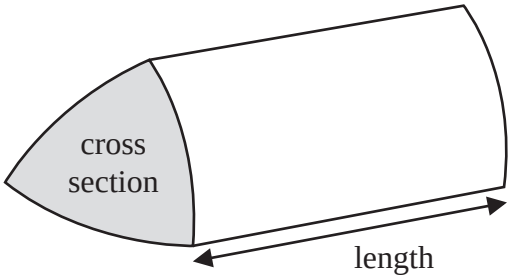
International GCSE Mathematics

Formulae sheet – Foundation Tier

Area of trapezium = $\frac{1}{2}(a + b)h$

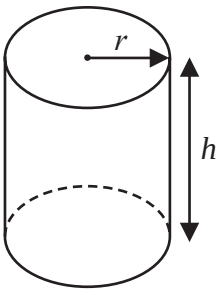


Volume of prism = area of cross section × length



Volume of cylinder = $\pi r^2 h$

Curved surface area of cylinder = $2\pi rh$



Answer ALL TWENTY FIVE questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1 The table shows the average annual rainfall, in mm, for each of five countries.

Country	Average annual rainfall (mm)
Colombia	3240
Jamaica	2051
Brazil	1761
Japan	1668
France	867

(a) Write the number 2051 in words.

Two thousand and fifty one (1)

.....

(1)

(b) Write the number 1668 correct to the nearest hundred.

1700 (1)

.....

(1)

The average annual rainfall for Colombia is more than the average annual rainfall for Brazil.

(c) How much more?

1479 (1)

..... mm

(1)

The average annual rainfall for Nigeria was 283 mm more than the average annual rainfall for France.

(d) Work out the average annual rainfall for Nigeria.

867 + 283 = 1150

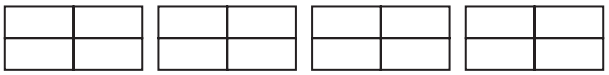
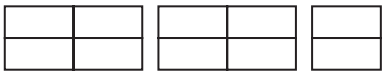
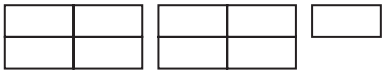
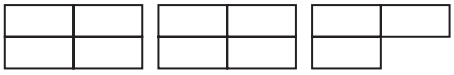
1150 (1)

..... mm

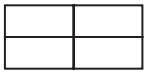
(1)

(Total for Question 1 is 4 marks)

2 The pictogram shows information about the number of text messages Colin sent on each of four days last week.

Monday	
Tuesday	
Wednesday	
Thursday	
Friday	 1

Key:

 represents 8 text messages

(a) How many text messages did Colin send on Tuesday?

2·5 × 8 = 20

20 1

.....

(1)

(b) Work out the total number of text messages that Colin sent on the four days from Monday to Thursday last week.

32 + 20 + 18 + 22 = 92

1 1

92

.....

(2)

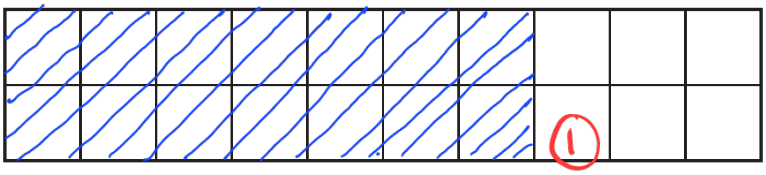
On Friday, Colin sent 26 text messages.

(c) Show this information on the pictogram.

(1)

(Total for Question 2 is 4 marks)

3 Here is a rectangle made from squares.



(a) Shade 0.7 of the rectangle. $\frac{7}{10} \times 20 = 14$ squares

(1)

(b) Write down the value of the 2 in the number 3.289

two tenths (1)

(1)

(c) Write $\frac{5}{8}$ as a decimal.

$5 \div 8 = 0.625$ (1)

0.625

(1)

(d) Write these numbers in order of size.
Start with the smallest number.

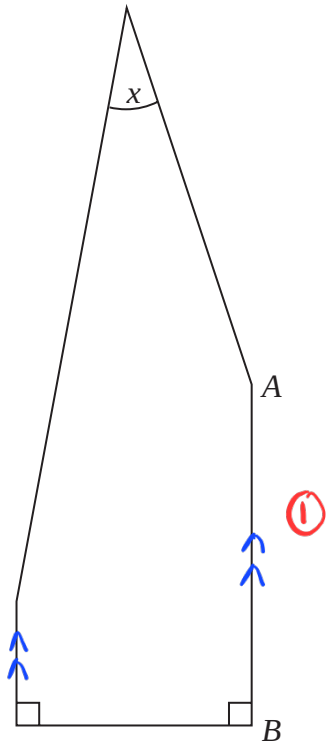
2.803 2.008 2.081 2.83 2.8

2.008, 2.081, 2.8, 2.803, 2.83 (2)

(2)

(Total for Question 3 is 5 marks)

4 The diagram shows a 5-sided polygon.



(a) Measure the length of the side AB
Give the units of your answer.

4.5 cm (2)

(2)

(b) Measure the size of the angle marked x

29 (1) °

(1)

(c) On the diagram, mark with arrows (≫) a pair of parallel sides.

(1)

(d) Write down the mathematical name of a 5-sided polygon.

pentagon (1)

(1)

(Total for Question 4 is 5 marks)

5 Angelina buys

3 packets of seeds at $2.45 each packet
2 bags of compost at $6.20 each bag
and 4 plant pots

Each plant pot costs the same amount of money.

Angelina paid a total of $34.35 for the seeds, compost and plant pots.

Work out the cost of each plant pot.

$3 \times 2.45 = 7.35$ (1)

$2 \times 6.20 = 12.40$

$7.35 + 12.40 = 19.75$

$34.35 - 19.75 = 14.60$ (1)

$14.60 \div 4 = 3.65$ (1)

(1)

$ 3.65

(Total for Question 5 is 4 marks)

6 Bohai works in a shop that sells mobile phones.
Last week he sold one mobile phone to each of 300 customers.

The incomplete two-way table shows some information about these mobile phones.

	32 GB	64 GB	128 GB	Total
type A	75	37	83	195
type B	52	29	24	105
Total	127	66	107	300

3

(a) Complete the two-way table.

(3)

Bohai selects at random one of these 300 customers.

(b) Write down the probability that this customer bought a type **B**, 64 GB mobile phone.

$\frac{29}{300}$

29/300 1

(1)

Bohai now selects at random one of the customers who bought a type **A** phone last week.

(c) Write down the probability that this customer bought a 128 GB mobile phone.

Type A = 195

$\frac{83}{195}$ 2

(2)

(Total for Question 6 is 6 marks)

7 (a) Solve $5x = 30$

$x = \frac{30}{5} = 6$

$x =$ 6 (1)

(1)

(b) Solve $y - 7 = 12$

$y = 12 + 7$

$= 19$

$y =$ 19 (1)

(1)

(c) Simplify $h + h + h + h + h$

5h (1)

(1)

(d) Simplify $5a + 7f - 2a + 4f$

$5a - 2a + 7f + 4f$

$3a + 11f$

$3a + 11f$ (2)

(2)

(Total for Question 7 is 5 marks)

8 Mairi has a 2 metre length of string.
She cuts from the string as many lengths of 35 centimetres as possible.

Work out the length of string that she has left.
Give your answer in centimetres.

$2\text{m} \times \frac{100\text{ cm}}{1\text{ m}} = 200\text{ cm}$ (1)

$\frac{200\text{ cm}}{35\text{ cm}} = 5.714\ldots$

$= 5$ strings

$5 \times 35 = 175$ cm (1)

$200 - 175 = 25$ (1)

25 cm

(Total for Question 8 is 3 marks)

9 (a) Write $\frac{39}{150}$ as a percentage.

26 (1)

..... %

(1)

There are 30 dogs staying in some boarding kennels.
12 of the dogs are brown.

(b) What fraction of the dogs in the boarding kennels are **not** brown?
Give your fraction in its simplest form.

$\frac{30-12}{30} = \frac{18 \div 6}{30 \div 6} = \frac{3}{5}$ (1) (1)

$\frac{3}{5}$

.....

(2)

(c) Show that $\frac{4}{9} + \frac{1}{6} = \frac{11}{18}$

$\frac{8}{18} + \frac{3}{18} = \frac{11}{18}$ (1) (1)

(2)

(Total for Question 9 is 5 marks)

10 A circle has a **diameter** of 14 cm.

Calculate the area of the circle.
Give your answer correct to 3 significant figures.

radius $= \frac{14}{2} = 7$ cm

Area $= \pi \times 7^2$ (1)

$= 49\pi$

$= 154$ (1)

154

..... cm^2

(Total for Question 10 is 2 marks)

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

$$\frac{7.45}{4.3^2 - 2.9}$$

Give your answer as a decimal.
Write down all the figures on your calculator display.

$\frac{7.45}{18.49 - 2.9} = \frac{7.45}{15.59}$ (1)

$= 0.47787042\,98$ (1)

0.47787042 98

(2)

(b) Write your answer to part (a) correct to 3 decimal places.

0.478 (1)

(1)

(Total for Question 11 is 3 marks)

12 Alisa, Jena and Mikael each pick cucumbers.

Alisa picks C cucumbers.
Jena picks 5 fewer cucumbers than Alisa.
Mikael picks twice as many cucumbers as Alisa.

The total number of cucumbers picked by Alisa, Jena and Mikael is T

Find a formula for T in terms of C
Give your formula in its simplest form.

Alisa : C

Jena : $C - 5$ (1)

Mikael : $2C$

$T = C + C - 5 + 2C$ (1)

$T = 4C - 5$ (1)

$T = 4C - 5$

(Total for Question 12 is 3 marks)

13 The diagram shows a classroom wall in the shape of a trapezium.

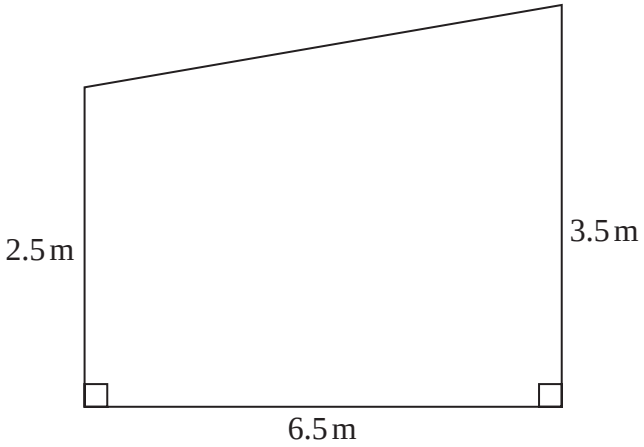


Diagram **NOT** accurately drawn

Dion wants to paint the classroom wall completely twice.
He knows that each tin of paint will cover $12\,m^2$

He is going to have to buy all the paint he needs.

Work out the least number of tins of paint that Dion will need to buy.
Show your working clearly.

Area : $\frac{1}{2} \times 6.5 \times (2.5 + 3.5)$ (2)

: 19.5

$19.5 \times 2 = 39$

$39 \div 12 = 3.25$ (1)

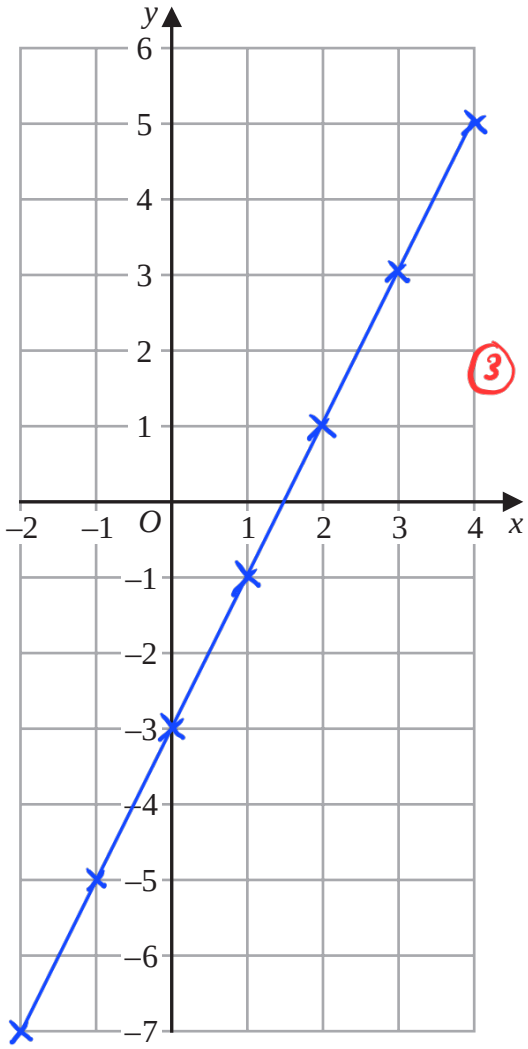
≈ She needs 4 tins of paint (1)

4

(Total for Question 13 is 4 marks)

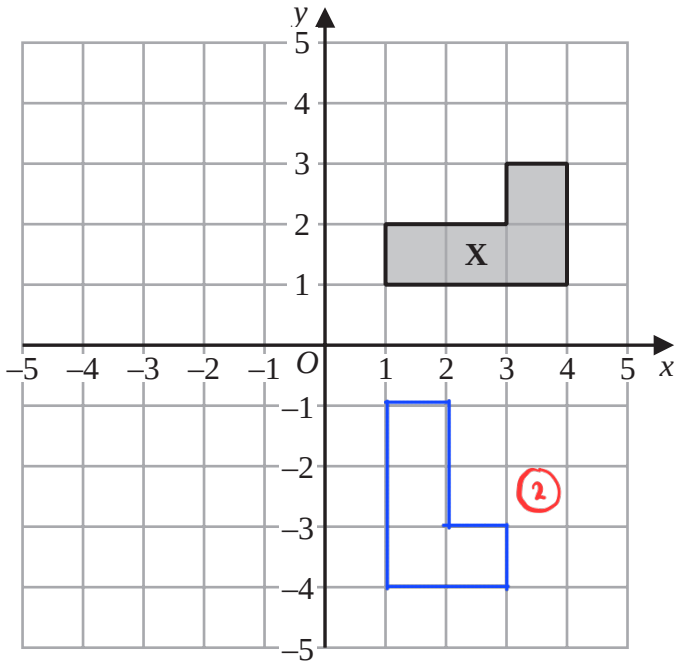
14 On the grid, draw the graph of $y = 2x - 3$ for values of x from –2 to 4

x	–2	–1	0	1	2	3	4
y	–7	–5	–3	–1	1	3	5



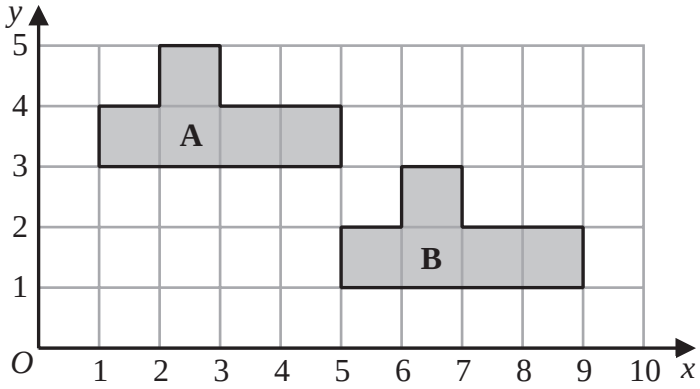
(Total for Question 14 is 3 marks)

15



(a) On the grid above, rotate shape **X** 90° clockwise about *O*

(2)



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

Translation with vector $\begin{pmatrix} 4 \\ -2 \end{pmatrix}$

1 1

(2)

(Total for Question 15 is 4 marks)

16 (a) Simplify $a^7 \times a^4$

$a^{7+4} = a^{11}$

a^{11} (1)

(1)

(b) Simplify $w^{15} \div w^3$

$w^{15-3} = w^{12}$

w^{12} (1)

(1)

(c) Simplify $(8x^5y^3)^2$

$8^2 \times x^{5\times2} \times y^{3\times2}$

$= 64x^{10}y^6$ (2)

$64x^{10}y^6$

(2)

(d) Make t the subject of $c = t^3 - 8v$

$t^3 = c + 8v$ (1)

$t = \sqrt[3]{c+8v}$ (1)

$t = \sqrt[3]{c+8v}$

(2)

(Total for Question 16 is 6 marks)

17 Danil, Gabriel and Hadley share some money in the ratios 3 : 5 : 9
The difference between the amount of money that Gabriel receives and the amount of money that Hadley receives is 196 euros.

Work out the amount of money that Danil receives.

$\frac{196}{(9-5)} = 49$ (1)

$49 \times 3 = 147$ (1) (1)

147 ..... euros

(Total for Question 17 is 3 marks)

18 The diagram shows triangle *ABC*

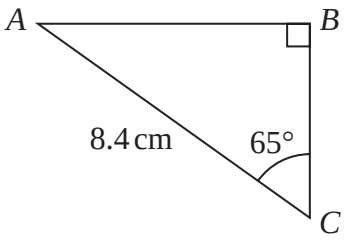


Diagram **NOT** accurately drawn

Work out the length of the side *AB*
Give your answer correct to 3 significant figures.

$\frac{AB}{\sin 65^\circ} = \frac{8.4}{\sin 90^\circ}$ (1)

$AB = \frac{8.4}{\sin 90^\circ} \times \sin 65^\circ$ (1)

$= 7.61$ (1)

7.61 ..... cm

(Total for Question 18 is 3 marks)

19 Sarah makes and sells mugs.

One day she makes 150 mugs.
Her total cost for making these mugs is £1140

Of these mugs

$\frac{2}{5}$ are small mugs

32% are medium mugs

and the rest are large mugs

Here is Sarah's price list for selling each mug.

MUGS	
Small	**£8.50**
Medium	**£11.20**
Large	**£14.20**

Sarah sells all 150 mugs.

Work out her percentage profit.
Give your answer correct to the nearest whole number.

$\frac{2}{5} \times 150 = 60$ small

$0.32 \times 150 = 48$ medium (1)

large $= 150 - 60 - 48 = 42$ (1)

$60 \times 8.50 + 48 \times 11.20 + 42 \times 14.20$

$= 510 + 537.6 + 596.4$ (1)

$= 1644$

$\frac{1644 - 1140}{1140}$ (1) $\times 100 = 44$ (1)

44 %

(Total for Question 19 is 5 marks)

20 Jenny has six cards.

Each card has a whole number written on it so that

the smallest number is 5
the largest number is 24
the median of the six numbers is 14
the mode of the six numbers is 8

Jenny arranges her cards so that the numbers are in order of size.

5	8	8	20	21	24

(3)

(a) For the remaining four cards, write on each dotted line a number that could be on the card.

Median, $14 = \frac{8 + m}{2}$

$m = 20$

(3)

A basketball team plays 6 games.
After playing 5 games, the team has a mean score of 21 points per game.
After playing 6 games, the team has a mean score of 23 points per game.

(b) Work out the number of points the team scored in its 6th game.

$5 \times 21 = 105$

$6 \times 23 = 138$ (1)

$138 - 105 = 33$ (1)

(1)

33

(3)

(Total for Question 20 is 6 marks)

21 (a) Solve the inequality $5x - 7 \leqslant 2$

$5x \leq 2 + 7$ (1)

$5x \leq 9$

$x \leq \frac{9}{5}$

$x \leq 1.8$ (1)

$x \leq 1.8$

(2)

(b) (i) Factorise $y^2 - 2y - 35$

$(y - 7)(y + 5)$ (2)

$(y-7)(y+5)$

(2)

(ii) Hence, solve $y^2 - 2y - 35 = 0$

$7, -5$ (1)

(1)

(Total for Question 21 is 5 marks)

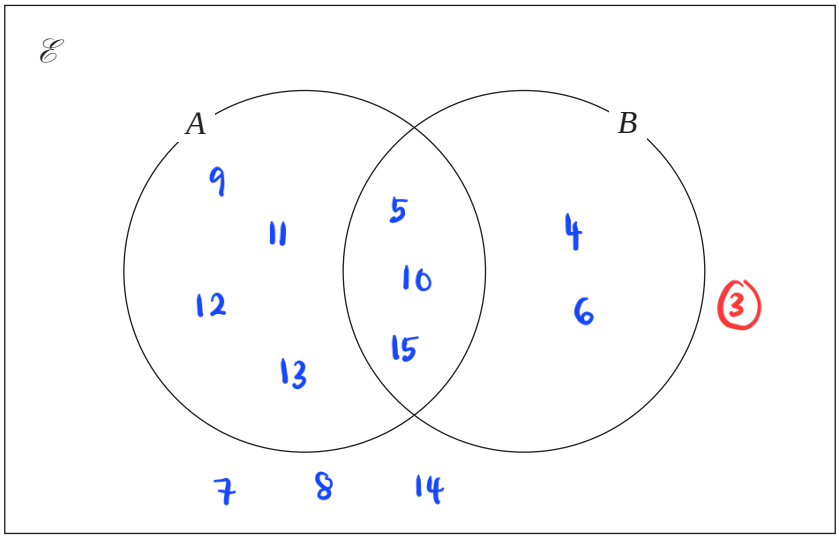
22 $\mathscr{E} = \{4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15\}$

$A \cap B = \{5, 10, 15\}$

$B' = \{7, 8, 9, 11, 12, 13, 14\}$

$A' = \{4, 6, 7, 8, 14\}$

Complete the Venn diagram for this information.



(Total for Question 22 is 3 marks)

23 $a = 4.2 \times 10^{-24}$ $b = 3 \times 10^{145}$

Work out the value of $a \times b$
Give your answer in standard form.

$(4.2 \times 3) \times 10^{-24+145}$ (1)

$= 12.6 \times 10^{121}$

$= 1.26 \times 10^{122}$ (1)

1.26×10^{122}

(Total for Question 23 is 2 marks)

24 The diagram shows isosceles triangle *ABC*

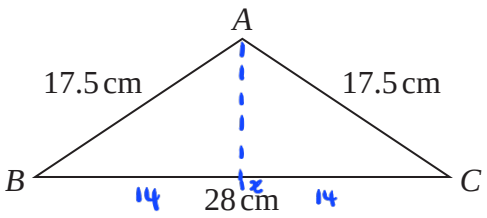


Diagram **NOT** accurately drawn

AB = *AC* = 17.5 cm *BC* = 28 cm

Calculate the area of triangle *ABC*

$Ax = \sqrt{17.5^2 - 14^2}$ (1)

$= \sqrt{110.25}$

$= 10.5$ (1)

Area ABC $= 2 \times \frac{1}{2} \times 10.5 \times 14$ (1)

$= 147 \text{ cm}^2$

(1)

147 ..... cm^2

(Total for Question 24 is 4 marks)

25 The straight line **L** has equation $2y + 7x = 10$

(a) Find the gradient of **L**

$2y = -7x + 10$ (1)

$y = -\frac{7}{2}x + 5$

-3.5 (1)

.....

(2)

(b) Find the coordinates of the point where **L** crosses the y-axis.

$x = 0$

$y = -\frac{7}{2}(0) + 5$

$y = 5$

$(0, 5)$

(1)

(0 , 5) (1)

(1)

(Total for Question 25 is 3 marks)

TOTAL FOR PAPER IS 100 MARKS

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