Please check the examination details below before entering your candidate information

Candidate surname	Other names

Centre Number | Candidate Number

FIRST FACTOR

GCSE (9-1)

Predicted Paper 2026

Morning (Time: 1 hour 30 minutes)

Paper reference **1MA1/1H**

Mathematics
PAPER 1 (Non-Calculator)
Higher Tier

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, Formulae Sheet (enclosed). 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.
- Answer the questions in the spaces provided
  – *there may be more space than you need.*
- You must **show all your working**.
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- **Calculators may not be used**.

Information

- The total mark for this paper is 80
- 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.
- Try to answer every question.
- Check your answers if you have time at the end.

Disclaimer

This paper has been carefully created to support students preparing for their exams by focusing on commonly tested topics. However, the content in this document is intended solely for educational purposes and does not guarantee coverage of all possible exam material.

While every effort has been made to ensure the accuracy of the questions, this document should not be considered as a substitute for official resources or professional guidance. It is important to note that the topics in this paper may or may not align with actual exam content, as variations often occur between exam cycles.

Students are encouraged to use this paper as a supplementary tool and to revise all topics outlined in their curriculum for comprehensive preparation. Regular practise with a variety of resources is key to building confidence and achieving success in exams.

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1

Simplify the following expression:

$$\frac{2}{5} + \frac{3}{10}$$

……

(Total for Question 1 is 2 marks)

2

Solve for x:

$$3x - 7 = 14$$

……

(Total for Question 2 is 3 marks)

3

A triangle has sides of lengths $5\,\text{cm}$, $12\,\text{cm}$, and $13\,\text{cm}$.

a) Show that the triangle is a right-angled triangle.

.....

(2)

b) Find its area.

.....

(1)

(Total for Question 3 is 3 marks)

4

A recipe uses a ratio of $3 : 4$ for sugar to flour. If you have $120\,\text{g}$ of flour, how much sugar is required?

.....

(Total for Question 4 is 2 marks)

5

a) Expand and simplify:

$$(3x + 2)(2x - 5)$$

.....

(2)

b) Solve for x when the expression equals zero:

$$(3x + 2)(2x - 5) = 0$$

.....

(2)

(Total for Question 5 is 4 marks)

6

The mean of five numbers is 12. Four of the numbers are 10, 14, 15, and 8. Find the fifth number.

.....

(Total for Question 6 is 2 marks)

7

The value of a car decreases by 15% in a year. After the decrease, the car is worth £17,000.

a) Work out the value of the car before the decrease.

.....

(2)

b) If the car's value decreases by another 10% in the next year, calculate its new value.

.....

(1)

(Total for Question 7 is 3 marks)

8

Calculate:

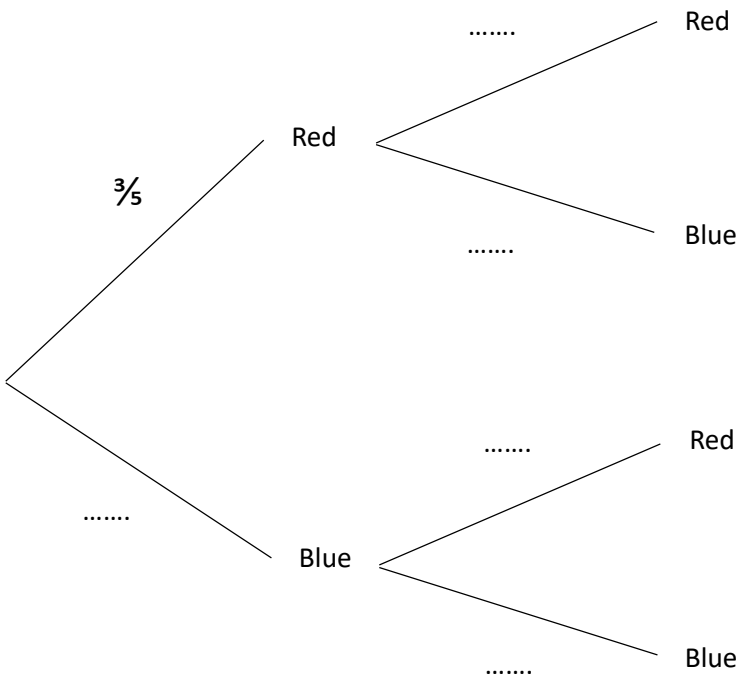
$$\frac{4}{3} \div \frac{2}{5} \times 6$$

(Total for Question 8 is 2 marks)

9

A bag contains 3 red balls and 2 blue balls. A ball is selected at random, **not replaced**, and then a second ball is selected.

a) Complete the tree diagram below by filling in the missing probabilities.



(2)

b) Calculate the probability of picking two balls of the same color

.....

(2)

(Total for Question 9 is 4 marks)

10

A quadratic function is given by:

$$y = x^2 - 4x - 5$$

a) Factorize the quadratic expression.

.....

(2)

b) Find the roots of the equation $x^2 - 4x - 5 = 0$.

.....

(1)

c) Sketch the graph of the quadratic function.

.....

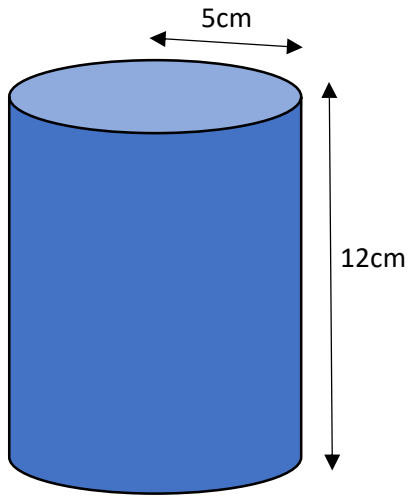
(2)

(Total for Question 10 is 5 marks)

11

A cylinder has a radius of $5\,\text{cm}$ and a height of $12\,\text{cm}$.

a) Calculate the volume of the cylinder. Give your answer in terms of π.



.....

(3)

b) The cylinder is cut horizontally at half its height to form two smaller cylinders. Calculate the volume of one of these smaller cylinders in terms of π.

.....

(1)

(Total for Question 11 is 4 marks)

12

A map has a scale of $1 : 50,000$.

a) On the map, a road measures $12\,\text{cm}$. Find its actual length in kilometers.

.....

(2)

b) A park has an actual area of $2\,\text{km}^2$. What will its area be on the map in cm^2?

.....

(2)

(Total for Question 12 is 4 marks)

13

A coffee shop sells two types of drinks: lattes and cappuccinos.

- On Monday, the shop sold 3 lattes and 4 cappuccinos for a total of £15.
- On Tuesday, the shop sold 2 lattes and 5 cappuccinos for a total of £14.

a) Write down two simultaneous equations to represent the situation.

.....

(2)

b) Solve the equations to find the cost of one latte and one cappuccino.

.....

(3)

(Total for Question 13 is 5 marks)

14

a) Express $\frac{1}{64}$ in the form 2^n, where n is an integer.

.....

(2)

b) Simplify the expression:

$$8^{2/3} \times 4^{-1}$$

.....

(2)

(Total for Question 14 is 4 marks)

15

A straight line L_1 has the equation $y = 3x - 4$.

Another line L_2 passes through the origin and is perpendicular to L_1.

Find the equation of L_2.

.....

(Total for Question 15 is 3 marks)

16

The surface area of a sphere is given as $100\pi \text{ cm}^2$.

a) Find the radius of the sphere

.....

(2)

b) Calculate the volume of the sphere in terms of π. Use $\text{Volume} = \frac{4}{3}\pi r^3$.

.....

(2)

(Total for Question 16 is 4 marks)

17

Rearrange the formula to make x the subject:

$$y = \frac{2x + 5}{3x - 4}$$

(Total for Question 17 is 4 marks)

18

A shopkeeper mixes two types of nuts.

- Type A costs £4 per kg.
- Type B costs £6 per kg.

He creates a $15\,\text{kg}$ mixture costing £5.20 per kg.

How much of each type of nut did he use?

(Total for Question 18 is 4 marks)

19

The functions $f(x)$ and $g(x)$ are defined as

$$f(x) = 2x + 3 \quad \text{and} \quad g(x) = \frac{x-1}{2}$$

a) Find $g^{-1}(x)$

.....

(2)

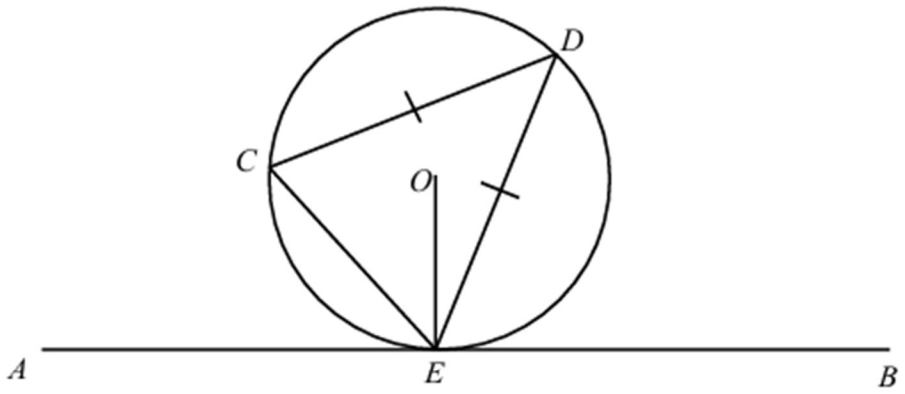
b) Solve $fg(x) = 7$ for x

.....

(3)

(Total for Question 19 is 5 marks)

20



C, D and E are points on a circle, centre O.
AEB is a tangent to the circle at E.

$CD = DE$
Angle $AEC = x°$

Find the size of angle OED, in terms of x.
Give reasons for each stage of your working.

(Total for Question 20 is 5 marks)

21

Find the set of possible values of x that satisfy both inequalities:

$$x^2 - 4x - 5 \leq 0$$

$$2x^2 - 3x - 2 > 0$$

(Total for Question 21 is 4 marks)

22

Simplify the following expression fully into the form $a\sqrt{b} + c\sqrt{d}$

$$\frac{8\sqrt{50} - 5\sqrt{72} + 6\sqrt{108}}{\sqrt{6}} - \frac{3\sqrt{96}}{\sqrt{3}}$$

(Total for Question 21 is 4 marks)

END OF PAPER