EXAMINATION NO.: _____

THE MALAWI NATIONAL EXAMINATIONS BOARD

2026 MALAWI SCHOOL CERTIFICATE OF EDUCATION EXAMINATION

MATHEMATICS

Subject Number: M131/I

Wednesday, 1 July

Time Allowed: 2 hours
8:00 – 10:00 am

PAPER I

(100 marks)

Instructions

1. **This paper contains 14 printed pages. Please check.**
2. Write your **Examination Number** at the top of each page of this question paper in the spaces provided.
3. Answer **all** the **20** questions in this paper.
4. The maximum number of marks for each answer is indicated against each question.
5. Scientific calculators may be used.
6. The graph paper and the blank answer sheet at the end of the question paper can be used if required. Do **not** tear them off.
7. **All working must be clearly shown.**
8. In the table provided on this page, **tick** against the question number you have answered.
9. At the end of the examination, hand in your paper to the invigilator.

Question Number	Tick if answered	Do not write in these columns	
1			
2			
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20			
Total			

Answer **all** the **twenty** questions in the spaces provided.

1. Factorise completely $2a^2u - 6au - 20u$. **(4 marks)**

2. Make y subject of the formula $m = \frac{by^2}{a + y^2}$. **(6 marks)**

Continued/

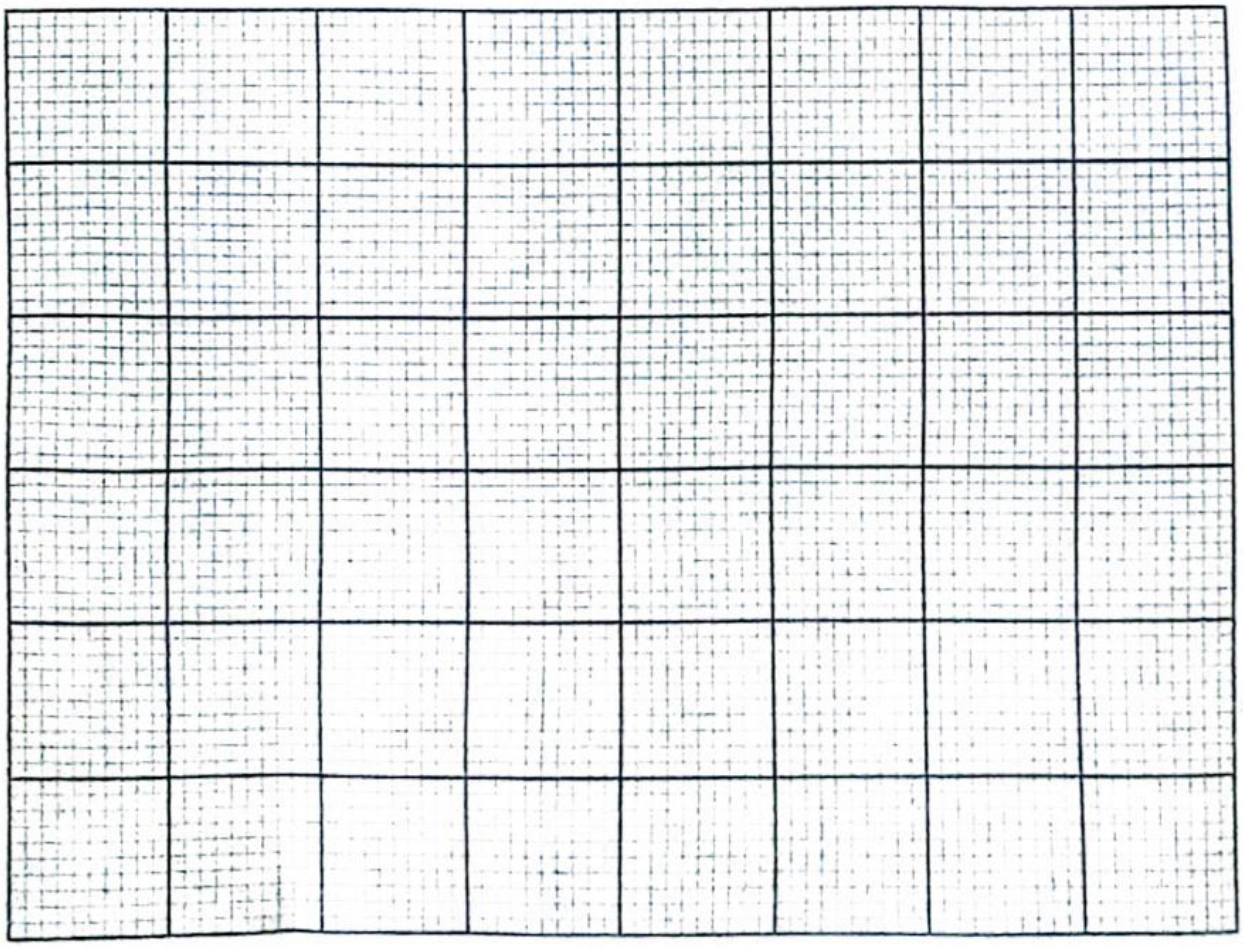
3. Without using a calculator, simplify $\frac{\sqrt{3}}{\sqrt{45}+\sqrt{5}}$, leaving the answer with a rational denominator. **(4 marks)**

4. Given that $f(x) = \frac{2-x}{2x}$, calculate the value of x if $f(x) = \frac{1}{2}$. **(3 marks)**

Continued/...

5. A quantity x varies directly as y and inversely as the square of z. When $y = 6$ and $z = 2$, $x = 3$. Find the value of z when $x = 2$ and $y = 4$. **(5 marks)**

6. An object starts from rest and accelerates 5 m/s for a second. It maintains the same speed for 4 seconds and then accelerates uniformly to 15 m for the next 2 seconds. It then comes to rest for 1 second. Using a scale of 2 cm to represent 1 unit on the horizontal axis and 2 cm to represent 5 units on the vertical axis, draw a speed – time graph to represent the motion of the object. **(5 marks)**



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7. A circle centre **O** with diameter 26 cm has a chord **GH** which is 12 cm away from the centre of the circle. Calculate the length of the chord **GH**. **(6 marks)**

8. Learners in a class conducted an experiment on the behaviour of a millipede after three consecutive touches. The time taken for the millipede to uncoil after the first touch was 192 seconds, 96 seconds after the second touch and 48 seconds after the third. Calculate the number of seconds the millipede would take to uncoil after the sixth touch. **(5 marks)**

9. A cone of radius 7 cm has a volume of 770 cm^3. Calculate the height of the cone. **(4 marks)**

Continued/...

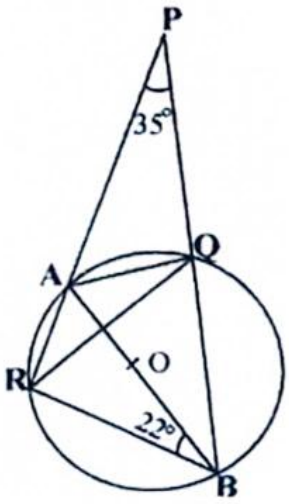
10. Given that the coordinates for points **O** = (0, 0), **A** = (5, 0) and **B** = (-1, 4), find $\overrightarrow{OA} + \overrightarrow{OB}$. **(4 marks)**

11. The ratio of corresponding radii of two similar circles is 3:2. If the area of the smaller circle is 32 cm^2, calculate the area of the bigger circle. **(4 marks)**

Continued/...

12. A point P(4, -2) is translated into P'(7, 5). Calculate the translation vector that translates P into P' **(6 marks)**

13. The **figure below** shows a circle **AQBR** with centre **O**. **RA** and **BQ** produced meet at **P**, angle **APQ** = 35° and angle **ABR** = 22°.



Calculate the value of angle **QRA**. **(5 marks)**

Continued/...

14. Solve the equation $4m^2 = m^2 - 14m - 5$, giving the answer correct to two decimal places. **(7 marks)**

15. Given that $5y - 3x + 25 = 0$ and $3x = ky + 2$ are parallel lines, find the value of k. **(5 marks)**

Continued/...

16. The **table below** shows the number of bags of maize distributed to people in a village.

Number of maize bags	2	3	4	5	6	7
Number of people	11	4	6	9	5	5

Find the mean number of bags that were distributed. **(5 marks)**

Continued/...

17. Given that matrices $\mathbf{J} = \begin{pmatrix} 0 & 2 \\ -1 & 3 \end{pmatrix}$ and $\mathbf{K} = \begin{pmatrix} 2 & 0 \\ 2 & 4 \end{pmatrix}$, find matrix **L**, if $\mathbf{K}^2 - \mathbf{L} = 3\mathbf{J}$.

(6 marks)

Continued/

18. The angle of depression of a car from the top of a tree is 37°. If the tree is 20 m high, calculate the distance of the car from the foot of the tree, giving the answer to the nearest whole number. **(5 marks)**

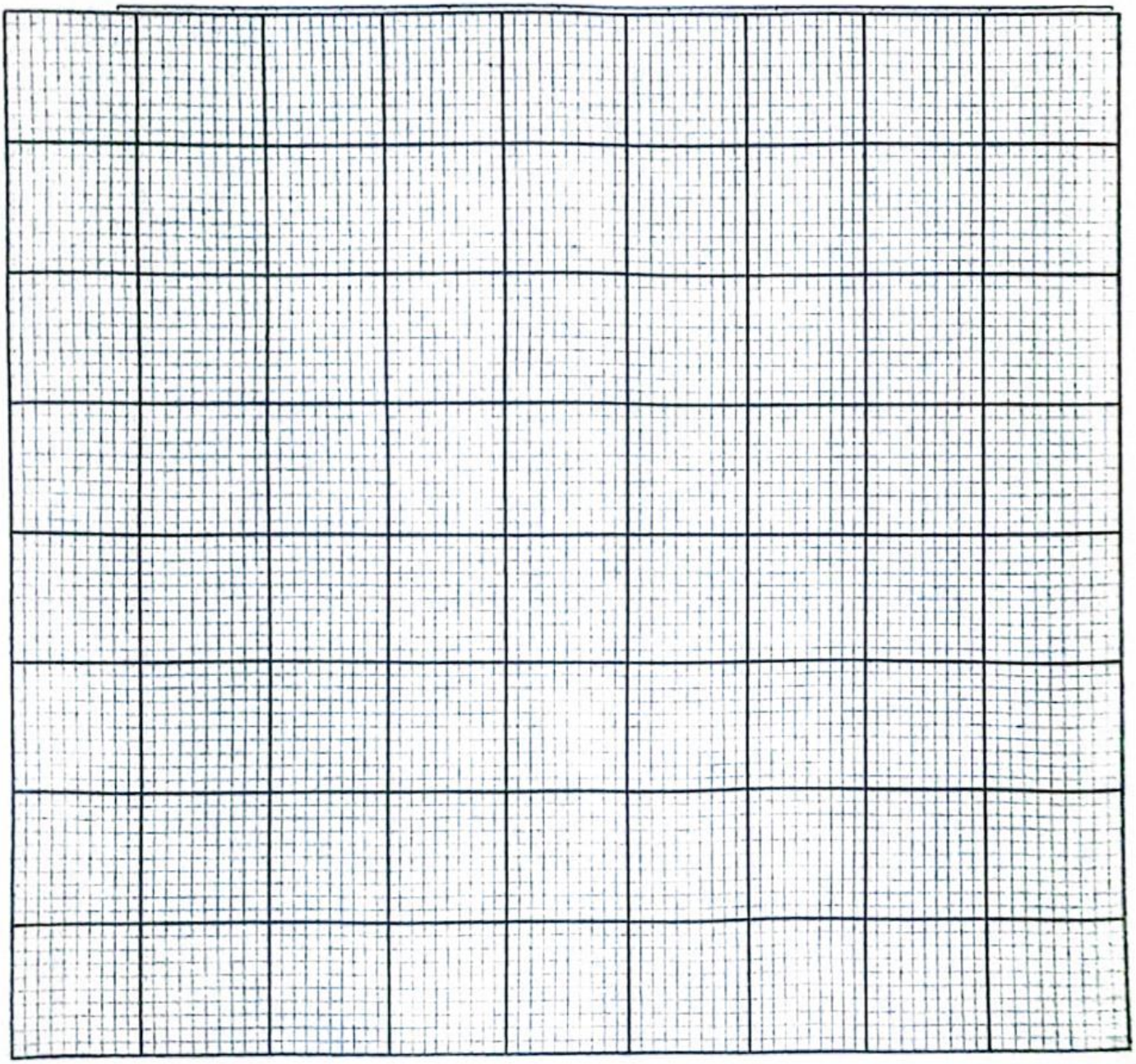
19. Find the values of **P** and **Q** given that $(2x^2 + Px - 3)(x - Q)$ is identical to $2x^3 + x^2 - 13x + 6$. **(5 marks)**

Continued/...

20. On the same axes, draw the graphs to show the region bounded by the following inequalities on the graph **paper below**. Shade the unwanted region.

$$x \geq 1$$
$$2y \geq -1$$
$$x - 2y < 4$$
$$5x + 6y \leq 30.$$

(6 marks)



END OF QUESTION PAPER

NB: This paper contains 14 printed pages.

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