

EXAMINATION NO: _____

MARANATHA HIGH SCHOOL ACADEMY

2026 MALAWI SCHOOL CERTIFICATE OF EDUCATION SECOND MOCK EXAMINATIONS

MATHEMATICS

Subject Number: M131/II

February

Time Allowed: 2 h 30 mins

8: 30 - 10:30 am

PAPER II (100 Marks)

Instructions:

1. This paper has 14 printed questions. Please check.
2. Answer all six questions in section A and any four questions in section B.
3. The maximum number of marks for each answer is indicated against each question.
4. Scientific calculators may be used.
5. All working must be clearly shown.
6. Write your Name on top of each page of your question paper in the spaces provided.
7. In the table provided on this page, tick against the question number you have answered.

Question Number	Tick if answered	Do not write in these columns	
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
Total			



NAME OF STUDENT: _____

2026

Page 2 of 15

M131/II

Section A (60 marks)

Answer **all** the **six** questions in this section.

1. a. Simplify $\frac{\sqrt{8}-2}{4-\sqrt{2}}$ leaving the answer with a rational denominator. **(5 marks)**

- b. Express $\frac{1}{y^2-y-2} - \frac{1}{y+1}$ as a single fraction. **(5 marks)**



2. a. The average of the first three terms of an Arithmetic Progression is 56 and the sum of the first two terms is 96. Find the first term and the common difference. (6 marks)
- b. A ball selected at random from a bag containing 3 red balls and 4 black balls. The first ball is not replaced and a second ball is selected. Find the probability of selecting two different balls. (4 marks)

NAME OF STUDENT: _____

2026

Page 4 of 15

M131/II

3. a. Given that $\log_x 2\frac{1}{4} = 2$, calculate the value of x . (4 marks)

b. Prove that exterior angle of a cyclic quadrilateral is equal to interior opposite angle of the cyclic quadrilateral. (4 marks)



4. a. From a universal set $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12\}$, sets A, B and C are subsets such that

$$A = \{x: x \text{ is divisible by } 3\}$$

$$B = \{x: x \text{ is a factor of } 18\}$$

$$C = \{x: x \text{ is even and not divisible by } 5\}$$

Find $n[A \cap (B \cup C)]$.

(6 marks)

- b. Solve the equation $3^{2y} - 4 \times 3^y + 3 = 0$.

(6 marks)

5. a. using a ruler and a pair of compasses only, construct in the same diagram
- a circle centre O of radius 4 cm
 - a diameter PT and a tangent to the circle at T.
 - a point R on the tangent such that $TR = 9 \text{ cm}$.
 - measure and state PR

(5 marks)

- b. Factorise $x^3 + 4x^2 + x - 6$.

(6 marks)

6. a. **Figure 1** shows points WXY and Z on the circle.

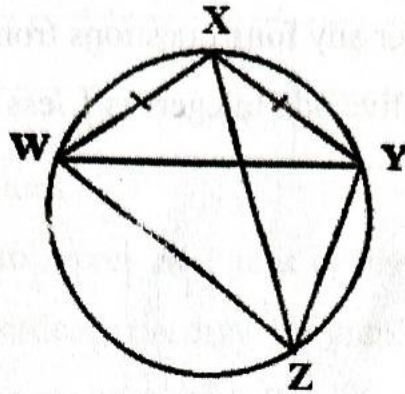


Figure 1

Given that $WX=XY$, prove that XZ bisect angle WZY .

(5 marks)

- b. Find the standard deviation of the following data; 2, 7, 5, 6, 9.

(6 marks)

Section B (60 marks)

Answer any **four** questions from this section

7. The product of two consecutive odd integers is 1 less than four times their sum. Find the integers. **(10 marks)**

8. Table 2 shows some values of x and y for the equation $y = x^3 - 4x$.

x	-3	-2	-1	0	1	2	3
y	-15	0		0	-3		15

- a. Complete the table of values. (1 mark)
- b. 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 the graph of $y = x^3 - 4x$. (5 marks)
- c. Use the graph to solve the equation $x^3 - 7x - 6 = 0$. (4 marks)

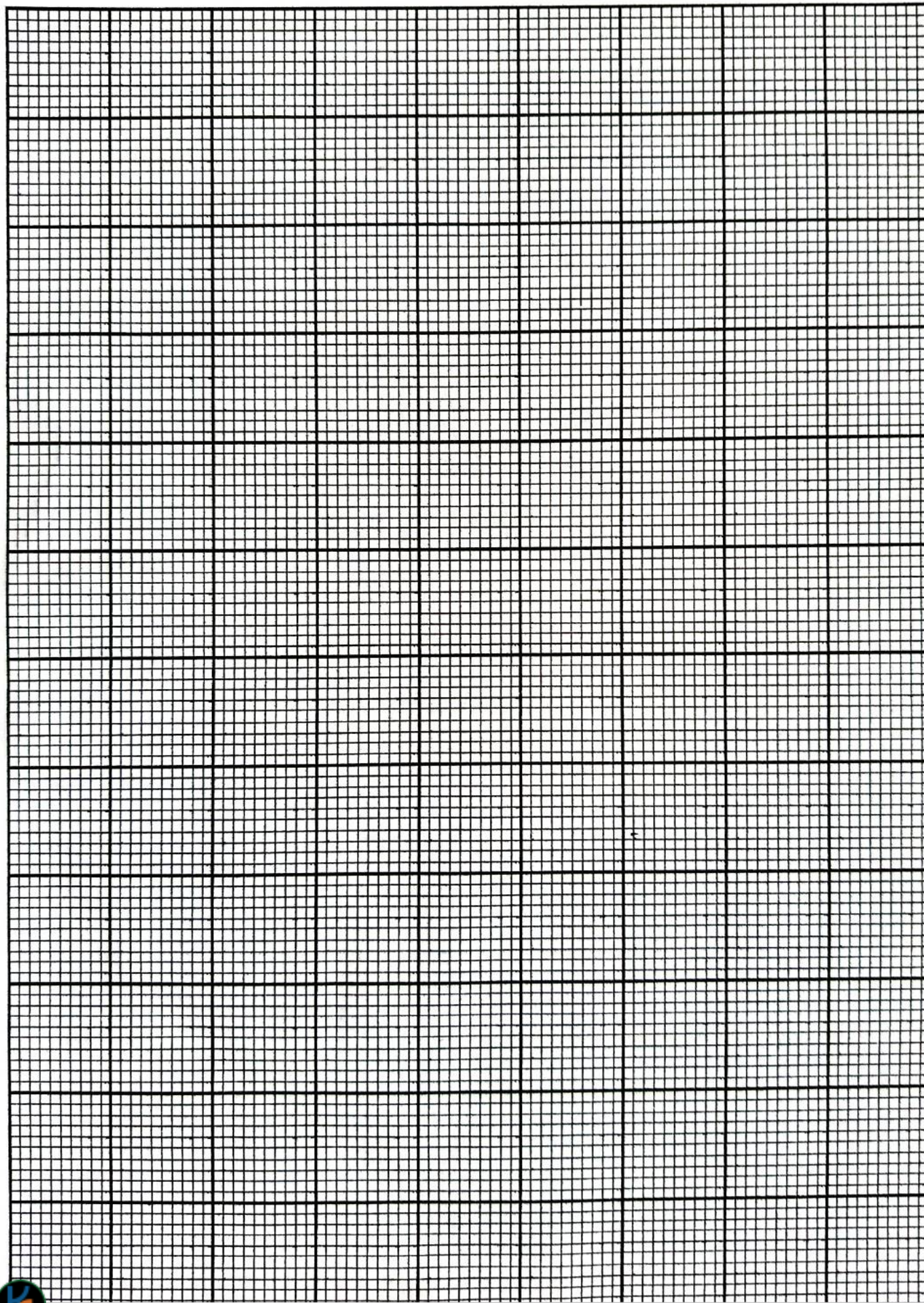
NAME OF STUDENT: _____

2026

Page 10 of 15

M131/II





9. Figure 2 is a wedge, PQRS is perpendicular to ABRQ. PQRS and ABRQ are rectangles with $AB = QR = 6\text{ cm}$, $BR = 4\text{ cm}$ and $RS = 2\text{ cm}$.

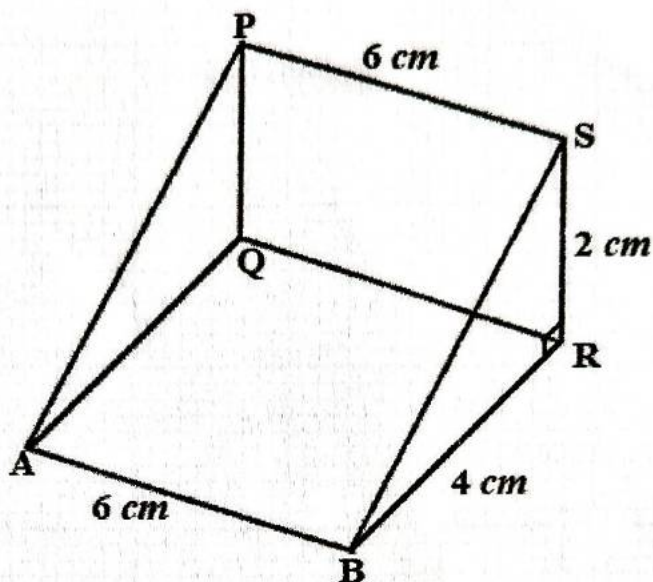


Figure 2

- a. Find AS.

(5 marks)

- b. Find the angle that AS makes with plane ABRQ.

(5 marks)

NAME OF STUDENT: _____

2026

Page 13 of 15

M131/II

10. The cost C of plating articles of a given shape is the sum of two parts. One is constant and the other partly varies as the square of height h of the article. It cost K370,000 to plate a 10 m high article and K1,120,000 to plate a 20 m high article. Find the height of the article that will cost K480,000. (10 marks)



NAME OF STUDENT: _____

2026

Page 14 of 15

M131/II

11. Solve the simultaneous equations

$$2x + y = 5$$

$$x^2 + y^2 = 25$$

(10 marks)



NAME OF STUDENT: _____

2026

Page 15 of 15

M131/II

12. Two ships leave port P at the same time. Ship X goes at 24 km/h in the direction of 045° and Y goes at 32 km/h in the direction 075° . Calculate the distance between the ships after 3 hours of travel. Leave the answer correct to 2 decimal places.

(10 marks)

END OF QUESTION PAPER.



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