STUDENT'S NAME:_____SCHOOL:_____

CENTRAL WEST EDUCATION DIVISION

2025 MALAWI SCHOOL CERTIFICATE OF EDUCATION MOCK EXAMINATION

MATHEMATICS

Subject Number: M131/I

Tuesday,8 April

Time Allowed: 2 hours
08:00 – 10:00 am

PAPER I

(100 marks)

Instructions

1. **This paper contains 13 printed pages. Please check.**
2. Answer all the twenty questions in this paper.
3. The maximum number of marks for each answer is indicated against each question.
4. Write your answers in the spaces provided on the question paper.
5. Scientific Calculators may be used
6. All working must be clearly shown
7. Write your **Name and School** at the top of each page of your question paper.
8. In the table provided on the page, tick against the question number you have answered

Question Number	Tick if answere	Do not write in these columns	
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
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20			

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

Factorize $12x - 10xy - 12xy^2$ completely. **(4 marks)**

2. Simplify $\frac{\sqrt{252}-\sqrt{28}}{\sqrt{45}+\sqrt{5}}$ leaving the answer with rational denominator. **(4 Marks)**

/Continue...

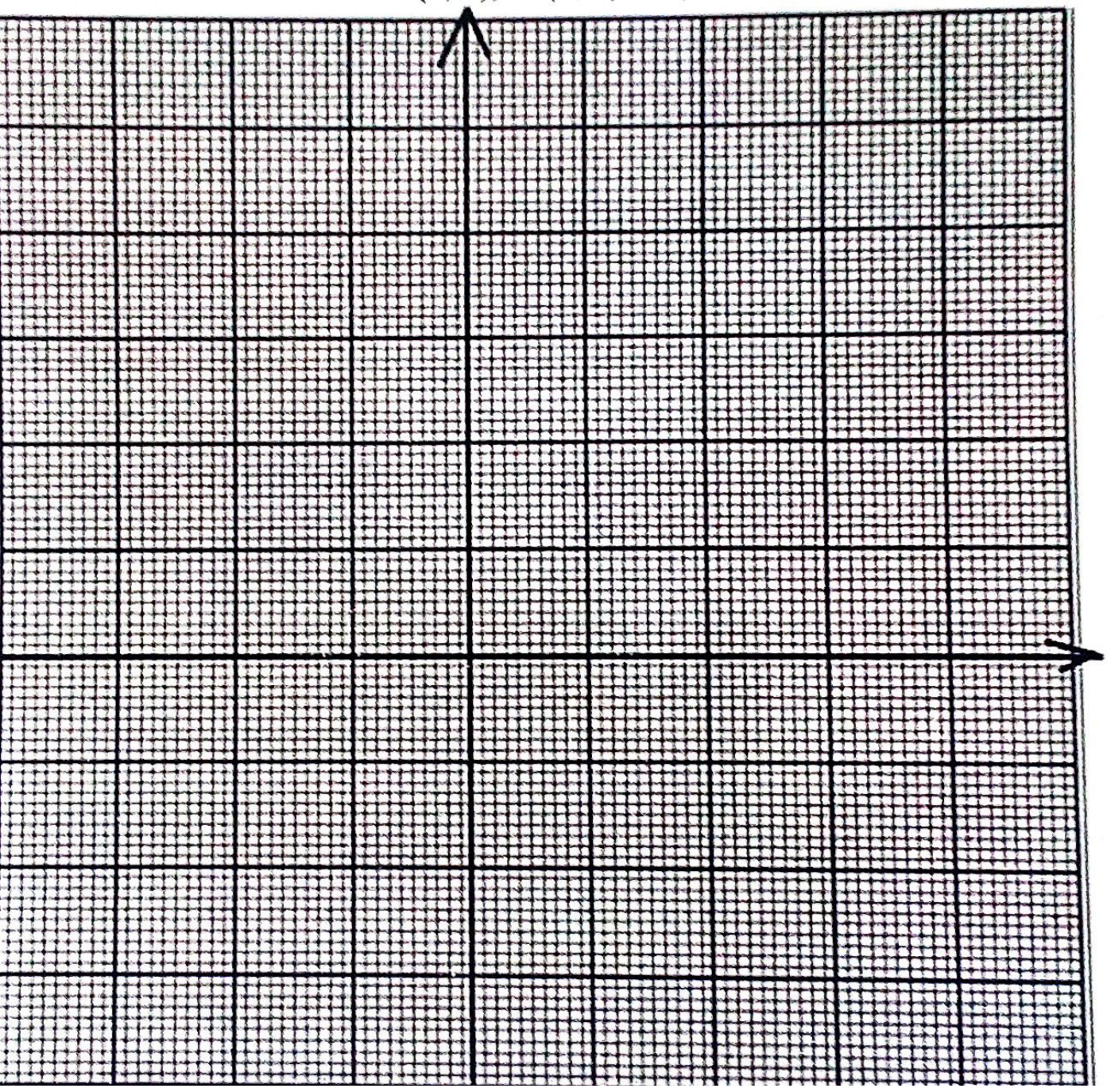
Given that $A = \begin{pmatrix} 3 & -1 \\ 1 & 0 \end{pmatrix}$, $B = \begin{pmatrix} 1 & 3 \\ 6 & 1 \end{pmatrix}$ and $C = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$, find $5(A - BC)$ **(5 marks)**

4. Given $Q = \left[\frac{4-2T}{T+1}\right]^{\frac{1}{x}}$. Make T the subject of the formula. **(5 marks)**

5. Simplify $\frac{2}{x^2+x} - \frac{1}{x^2+3x+2}$ **(4 Marks)**

/Continue…

graph paper below, use a scale of 2 cm to represent 2 unit on both axes, draw inal triangle **XYZ** whose vertices are **X**(2, 6), **Y**(-6, -2), **Z**(-2, -2) and its **X'Y'Z'** whose vertices are **X'**(4, 0), **Y'**(6, 4), **Z'**(4, 4).



...the two spheres are 729cm...

...area is 36cm². calculate the volu...

A chord 26 cm long is 12 cm from the centre of the circle. Calculate the length of the cord placed 7 cm from the centre of the same circle, correct your answer to 2 significant figures.

10. **Figure 2** shows a circle **BPQR** in which **ABC** is a tangent at **B** and **BQ** is a diameter.
Angle **BAR** $= 110^0$.

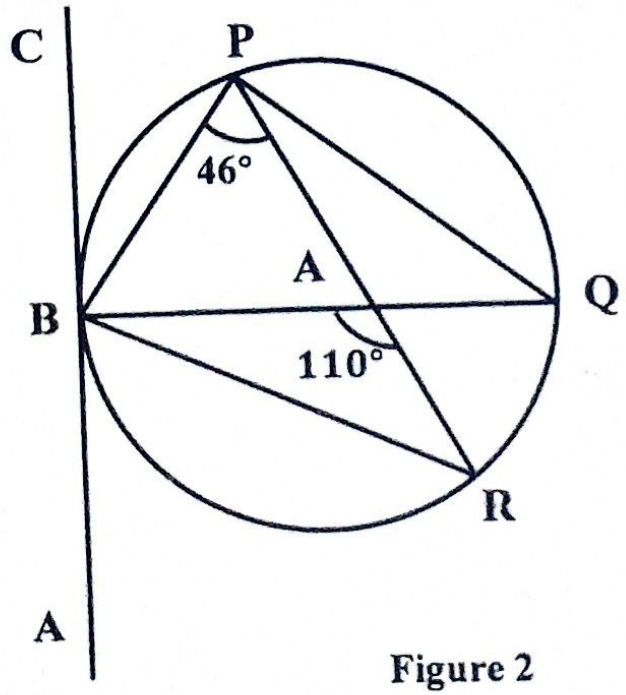


Figure 2

STUDENT'S NAME:_____

2025 *I*

10.(Continue)

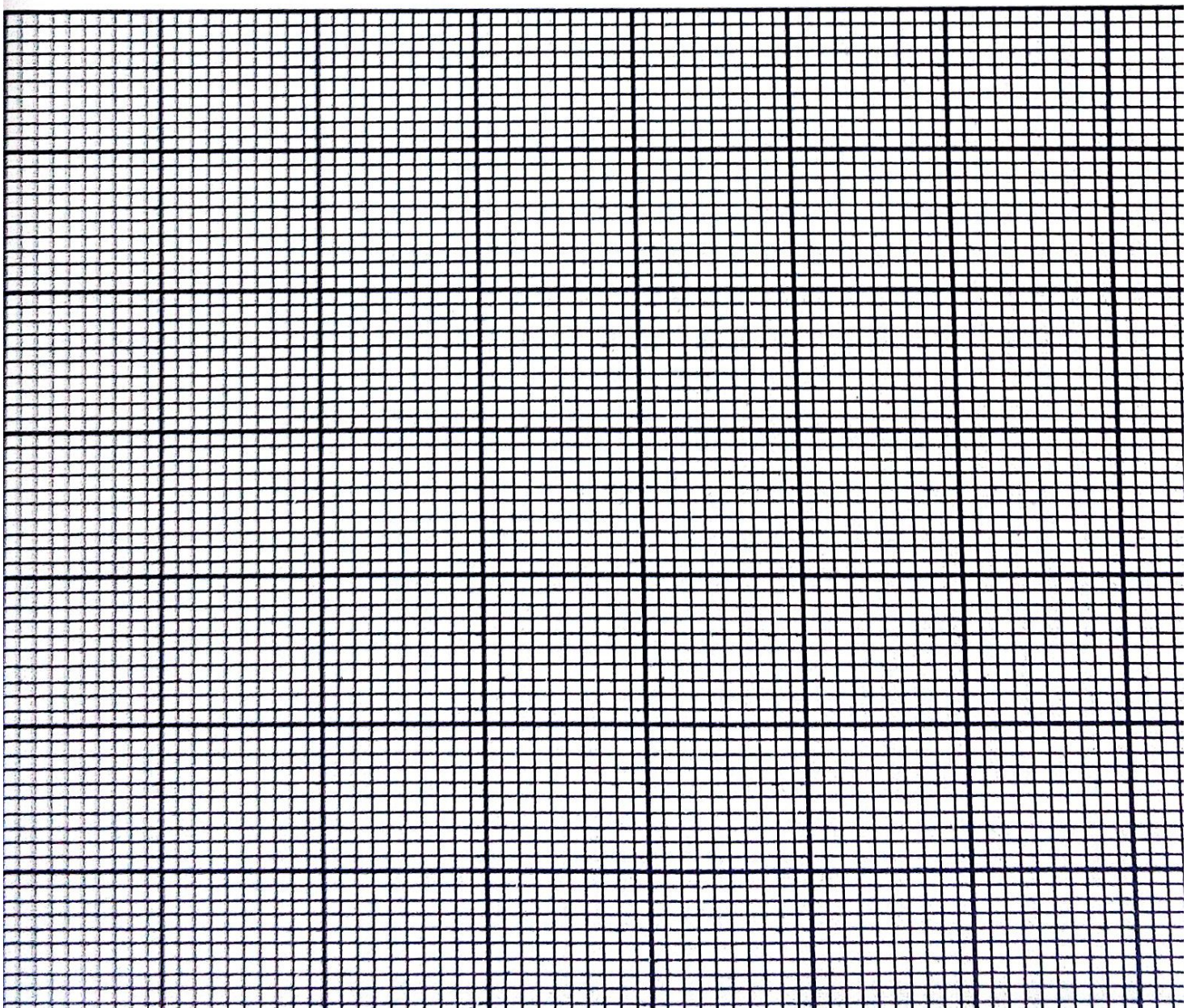
If angle **BPR** = 46^0, *calculate angle RBI*

11. The first three terms of a *G.P* are $\frac{1}{64}, \frac{1}{32}, \frac{1}{16}, \ldots$ *F*

the nth term.

12. A straight line l passes through $(a, 4)$ and $(3a, 3)$ with an equation $x + 6y - c = 0$. Find the values of a and c.

13. A car starts from rest and accelerates to 8m/s in 2 seconds. It then maintains this speed for 2 seconds before accelerating at $5m/s^2$ in the next 3 seconds.
i. Using a scale of 2cm to represent 2 units on the graph paper provided **below**, draw the velocity time graph to represent this information.



STUDENT'S NAME:_____

2025 *Page 9 of*

3. (Continue)

ii. Use your graph to find the maximum velocity rea

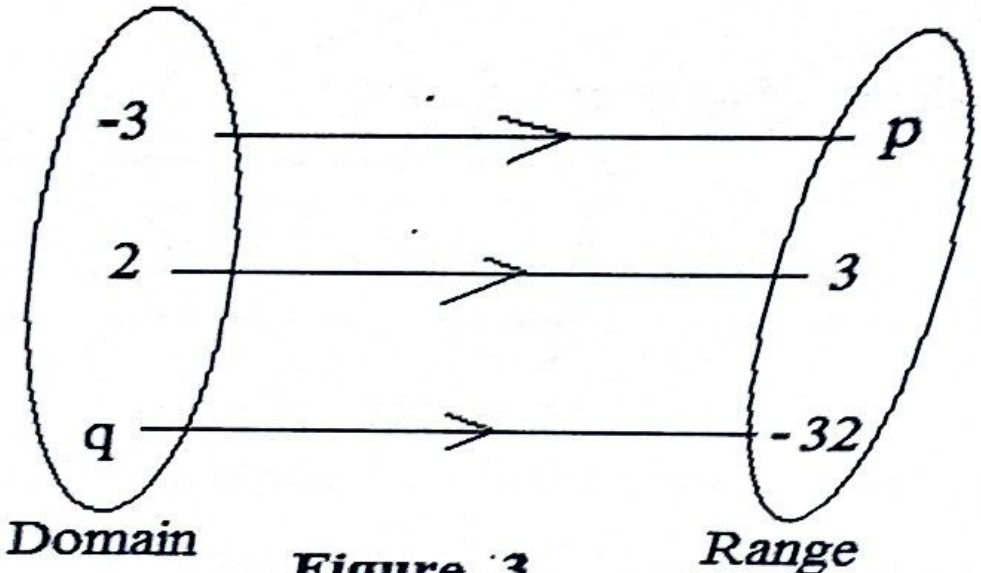


Figure 3

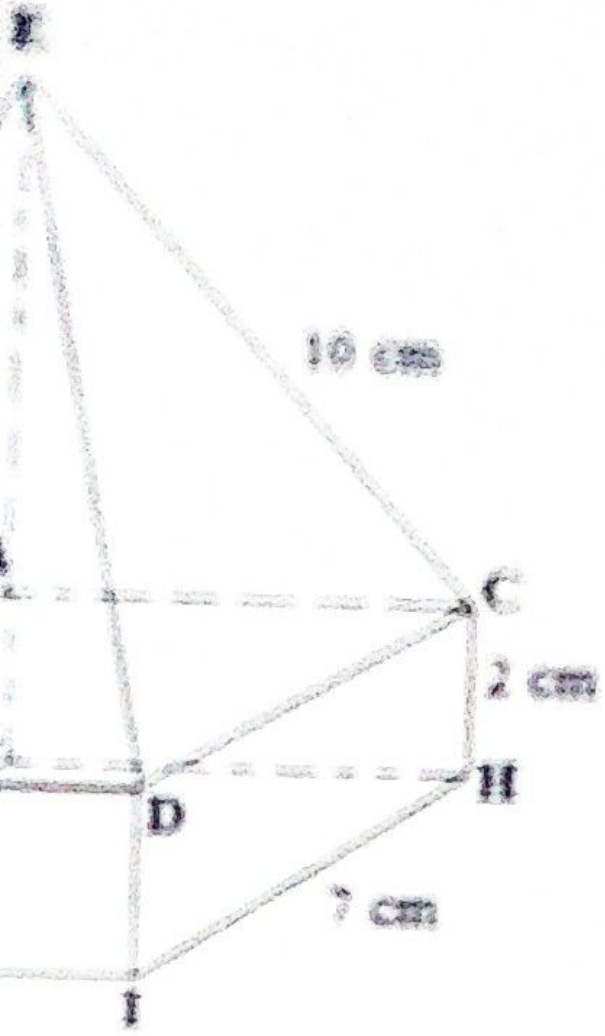


Figure 4

on top of a square based cuboid.

and CH = 2 cm, calculate the total surface area of the

(6 marks)

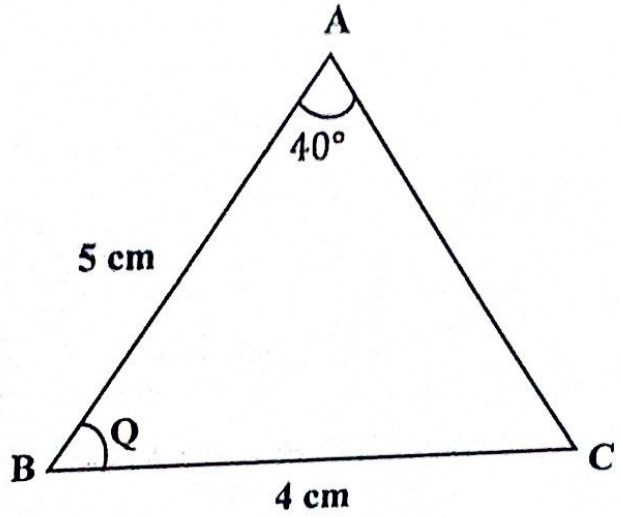
17. The mean of the numbers **5, 7, *p*, 13,** and **16** is **10.**
If the standard deviation of this data is **6**, calculate the possible values of **p** **(6 Marks)**

18. *Using a scale of 2 cm to represent 2 units on both axes, show the region* **W** represented by

9. The variable P varies jointly as the cube of x and inversely as the square root of the product of yz. $P = 54$, when $x = 6, y = 4$ and $z = 16$. Find the product of yz when x = 3 and P is maintained its value. **(6 Marks)**

STUDENT'S NAME:_____ SCHOOL:_____

The figure below is a triangle ABC. AB = 5cm, BC = 4 cm and $< BAC = 40^{o}$.



Find the value of the Q (Write your answer to the nearest degree) **(5 marks)**

END OF QUESTION PAPER

This question paper contains 13 printed pages.