

NAME: _____ NO.: _____



NORTHERN EDUCATION DIVISION MOCK EXAMINATION

2026 MALAWI SCHOOL CERTIFICATE OF EDUCATION

MATHEMATICS

Subject Number: M131/I

Thursday, 19th March

Time Allowed: 2 hours

8:00 – 10:00 am

PAPER I

(100 marks)

Instructions

1. This paper contains 13 pages.
Please check
2. Answer all the 20 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. The graph paper and 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. Write your **Name** at the top of every page

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

Turn

over



1. Factorize completely: $3y^2 - 6y - 9$. (4 marks)

2. Simplify $\frac{1}{\sqrt{7}} - \frac{2}{5\sqrt{7}}$, giving the answer with a rational denominator. (5 marks)



3. Make p subject of the formula: $n = \frac{y}{p} \left(m^2 - \frac{p}{a} \right)$. (4 marks)

4. Given that $f(x) = \sqrt[3]{x^2 - 8}$ and $f(x-2) = 2$. Find the values of x . (5 marks)



5. Solve the equation $1 - 5x - 2x^2 = 0$, giving the answer to 2 significant figures.
(6 marks)

6. Given that $A = \begin{pmatrix} -1 & 3 \\ 2 & 0 \end{pmatrix}$ and $B = \begin{pmatrix} -2 & 0 \\ 1 & -3 \end{pmatrix}$. Evaluate $A^2 - AB$.

(5 marks)



7. **Figure 1** shows a circle ABCD centre O in which $AE = 32x$ cm and $EC = 18x$ cm.

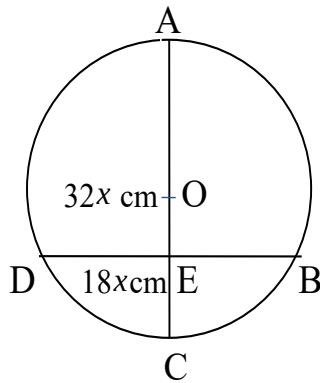


Figure 1.

Calculate the length of DB in terms of x .

(5 marks)



8. The end points of a 10 cm diameter are A (5, w) and B (-1,7) respectively.
Calculate the coordinates of the centre when w is negative. (5 marks)

9. A metallic sphere of volume 770 cm^3 is recast into a cylinder of length 5 cm,
calculate the surface area of a cylinder. Take $\pi = \frac{22}{7}$. (5 marks)

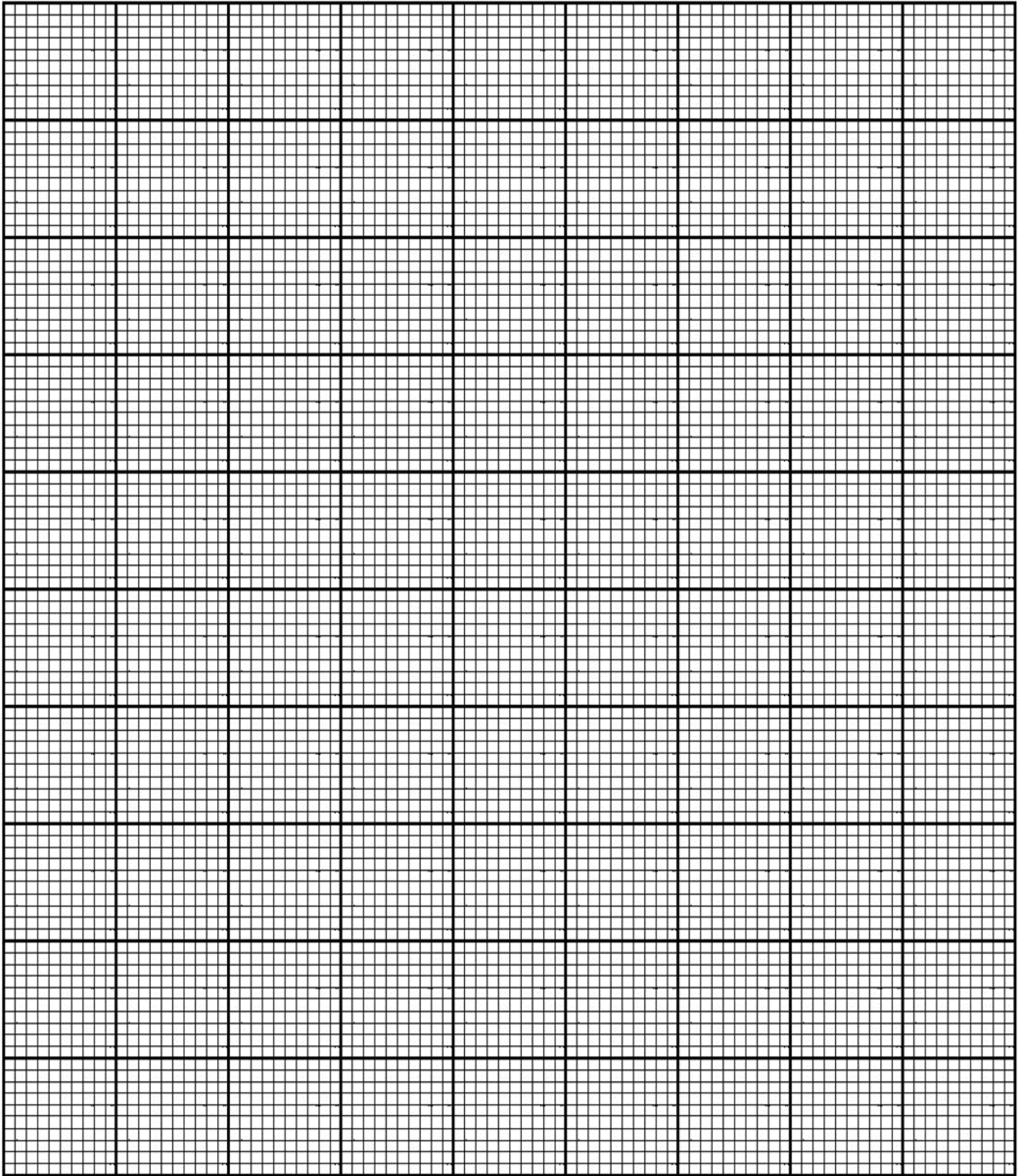


10. Given that $\vec{OC}$ is parallel to $\begin{pmatrix} 3 \\ 4 \end{pmatrix}$ and $|\vec{OC}| = 30$. Find $\vec{OC}$. (6 marks)

11. If $x-3$ is a factor of $x^3 + p^2x^2 - 11x - 30$, find the values of p . (4 marks)



12. A body starts with a speed of 10 m/s and accelerates uniformly to a speed of 30 m/s for 5 seconds. It then further accelerates at 5 m/s^2 in the next 10 seconds



before going to rest in another 15 seconds. Sketch the graph for the journey.
(5 marks)

13. If $x+1$, $2x-1$ and $x+5$ are three consecutive terms of the arithmetic progression (A.P), calculate the sum of the first 10 terms.
(5 marks)

14. Given that p varies directly as the cube of x and inversely as the square root of y . When $p=32$, $x=2$ and $y=9$. Find y when $p=8$ and $x=\frac{1}{2}$.

(6 marks)



15. **Figure 2** shows two isosceles triangles YXZ and YMN . N and M are points on YZ and YX respectively such that NM is parallel to ZX . $YO = 2\text{cm}$, $OW = 4\text{cm}$ and $ZX = 15\text{ cm}$.

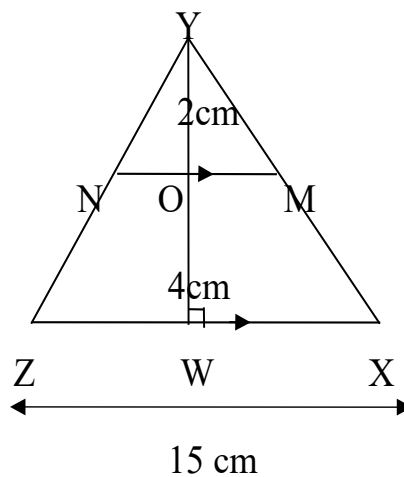


Figure 2.

Calculate the area of trapezium $NMXZ$.

(5 marks)



16. The variance of the data: $2x$, $3x-4$, $3x+4$ and $4x$ is 16. Find the values of x .
(5 marks)

17. The angles of elevation and depression of the top and bottom of the tower from the top of a 50 m tall building are 70° and 25° respectively. Calculate the height of a tower, giving the answer to the nearest meter. (6 marks)



18. **Figure 3** shows a circle QXNT. PQR is a tangent at Q, PXT is a straight line, such that angle QNT = 66° and angle XPQ = 32° .

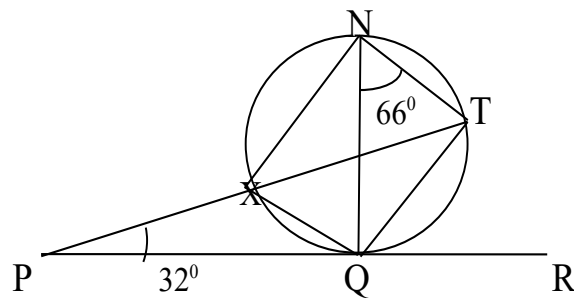


Figure 3.

Calculate angle XQT.

(5 marks)



19. Figure 4 below shows a region **M** bounded by three inequalities.

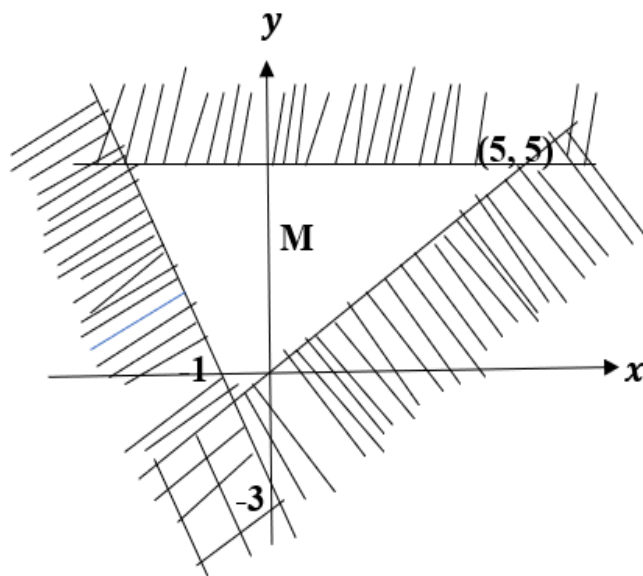


Figure 4.

Write down the three inequalities bounded by region **M**. (4 marks)



20. Point $x(-3, 2)$ is translated to x' by translation vector $K = \begin{pmatrix} -1 \\ 4 \end{pmatrix}$ followed by translation $Y = \begin{pmatrix} a \\ b \end{pmatrix}$. If $x'(6, 8)$ find translation vector Y . (5 marks)



END OF QUESTION PAPER
NB: This paper contains 14 printed pages.

