



NAME OF CANDIDATE: FORM:.....

ST MARY'S SECONDARY SCHOOL

2026 MALAWI SCHOOL CERTIFICATE OF EDUCATION 2ND MOCK EXAMINATIONS

MATHEMATICS

Subject Number: M131/II

Thursday, 7 May

Time allowed: 2 h 30 min
8:00 – 10:30 am

PAPER II

(100 marks)

Instructions:

1. This paper contains 16 printed pages. Please check.
2. Answer **all** the **six** questions in Section A and any **four** questions from 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 **Full name** at the top of question paper in the spaces provided.
7. In the table provided on this page, **tick** against the question number you have answered.
8. 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			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			



Section A (60 marks)Answer **all** the **six** questions in this section in the spaces provided.

1. a. Express $\frac{1}{y} - 1 - \frac{1}{y-2y}$ as a single fraction in its simplest form. (4 marks)

- b. Without using a calculator, simplify $\frac{\sqrt{2}+2\sqrt{5}}{\sqrt{5}-\sqrt{2}}$, leaving the answer with a rational denominator. (5 marks)



2. a. The n th term of a geometric progression is given by 2^{9-n} . Calculate the sum of the first 9 terms, giving the answer correct to two decimal places. (5 marks)

- b. A **parabola** has y -intercept 16 and a minimum turning point at $(3, -2)$. Find the equation of the parabola in the form of $y = ax^2 + bx + c$ (5 marks)



3. a. Prove the theorem which states that the angle which the chord in a circle makes with the tangent at the point of contact, is equal to the angle subtended chord in the alternate segment. (6

marks)

- b. Given that $\log 5 = 0.699$ and $\log 3 = 0.477$ find $\log 1.5$ (4 marks)



4. a. The points $P(-1, -4), Q(1, 2), R(4, 4) \wedge S(2, -2)$ form a quadrilateral, show by vector method that PQRS is a parallelogram. **(4 marks)**

- b. Using a pair of compasses and a ruler only, construct in the same diagram:

- A circle centre O of radius 3 cm
- A point T outside the circle such that $OT = 8 \text{ cm}$
- A tangent PT at P
- Measure and state the value of angle OTP. **(5 marks)**



5. a. The cost (C) of the mass-production of books is partly constant and partly varies as the number (n) of books produced. If the cost of making 40 books is K18 700 and that of making 100 books is K35 500, find the cost of making 200 books. (6 marks)

- b. The probability of Chisomo oversleeping is $\frac{2}{3}$. If she oversleeps, the probability that she does not eat breakfast is $\frac{3}{7}$. If she does not oversleep, the probability that she has breakfast is $\frac{1}{5}$. Using a tree diagram, find the probability that Chisomo shall not have breakfast. (5 marks)

6. a. **Figure 4** shows a prism of length 12 cm. The ends are equilateral triangles of sides 6 cm. X is the midpoint of side AD

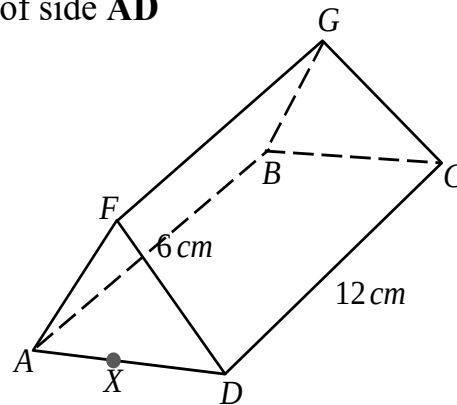


Figure 1

Calculate the value of the angle between FC and the plane $ABCD$, giving the answer correct to **three** significant figures. **(6 marks)**

- b. The **table** below shows class intervals of masses (g) of steel nails bought the laboratory assistant.

Mass (g)	5–9	10–14	15–19	20–24	25–29
Frequency	2	10	5	3	5

Using a scale of 2 cm to represent 2 units on the vertical axis and 2 cm to represent a class on the horizontal axis, draw a frequency polygon for the data on the graph paper below. (5

marks)

[illegible]

Section B (40 marks)

Answer any **four** questions from this section in the spaces provided.

7. At a Secondary school, students can speak at least one of the languages Chichewa, English or French. In a class of 41 students:
- 2 students can speak all the three languages
 - 4 students can speak English and Chichewa only
 - 1 student can speak English and French only
 - 3 students can speak Chichewa and French only
 - $2x$ students can speak Chichewa only



- $4x$ students can speak English only
- $(x-4)$ students speak French only.

i. Illustrate this information on a Venn diagram. (6 marks)

ii. Use the Venn diagram to calculate the number of students who speak English only. (4 marks)

8. Mr Lololo had K5 000 000 to buy bags of rice and bags of maize flour. A bag of rice cost K50 000 and a bag of flour costs K20 000. He decided to spend the money as follows:

- Buy at least 30 bags of rice and at least 50 bags of flour
- Spend more on rice than on flour by not more than K1 000 000.



- i. Taking x to represent the number of bags of rice and y to represent the number of bags of maize flour, write down **four** inequalities in x and y that satisfy the above information. (4

marks)

- ii. Using a scale of 2 cm to represent 20 units on the horizontal axis and 2 cm to represent 25 units on the vertical axis, draw graphs on the graph paper provided on **page 11** to show the region represented by the four inequalities; shade the unwanted region. (5

marks)

- iii. Use your graphs to find the maximum number of bags of maize flour that Mr Lololo could buy if 40 bags of rice have already been bought. (1

marks)



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[illegible]

9. A school **Q** is 15 km from a town **P** on a bearing of $N 45^\circ E$ from **P**. Another school, **R**, is 6 km from town **P** on a bearing of $S 20^\circ E$.

Calculate the:

- distance between school **Q** and **R**, giving the answer correct to nearest km.(5 marks)



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- b. compass bearing of school **Q** from school **R**, giving the answer correct to the nearest degree. (5 marks)

10. Solve the equation $2y^3 + 11y^2 = 8 - 10y$ (10 marks)

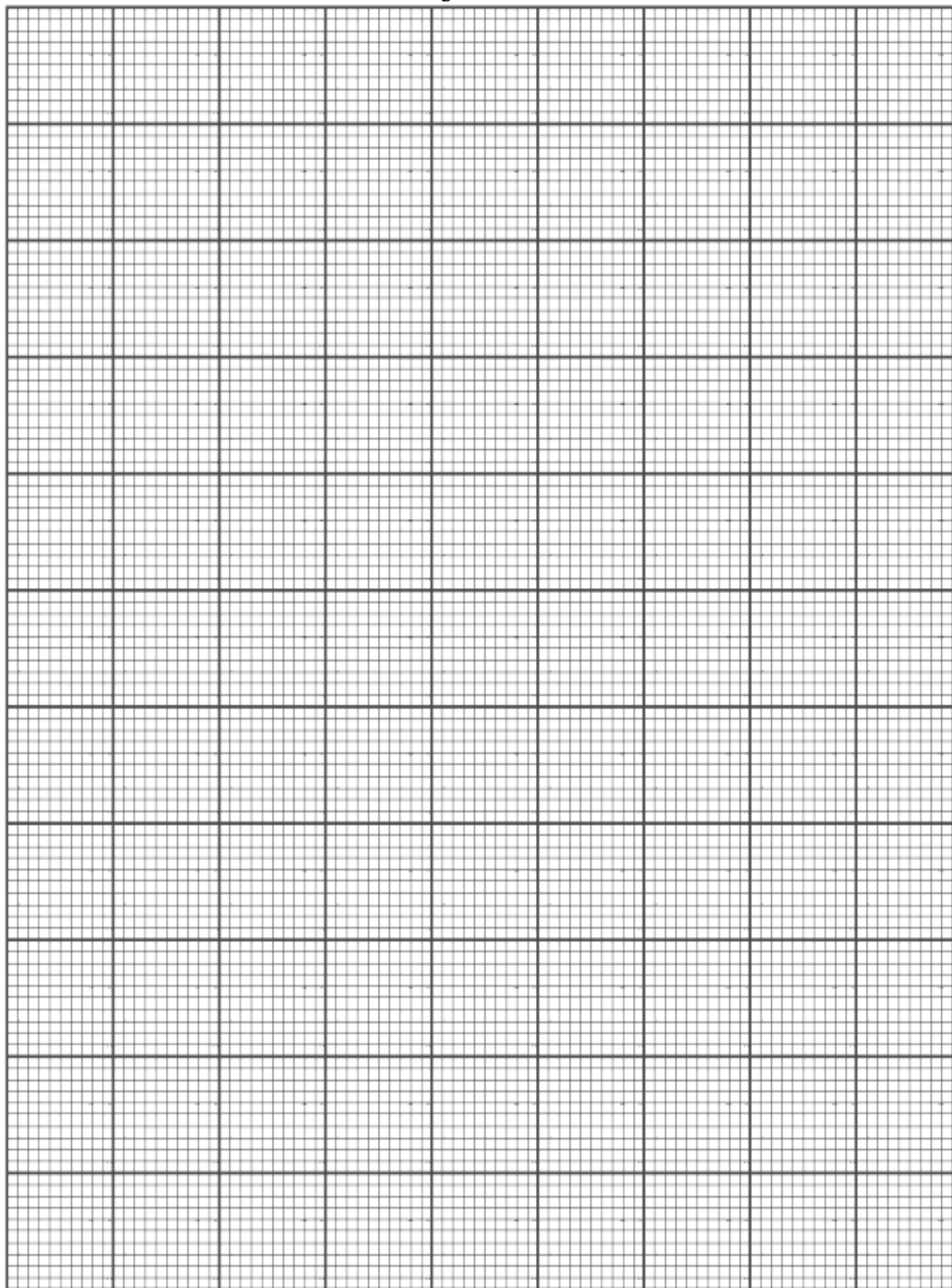
11. The **table below** shows some values of x and y of the function $y = x(x^2 - x - 6)$

x	-3	-2	-1	0	1	2	3	4
y	-18	0		0		-8	0	24

a). Complete the values of y in the table. **(2 marks)**

b). Using a scale of 2 cm to represent 1 unit on horizontal axis and 2 cm to represent 5 units on the vertical axis, draw a graph of $y = x(x^2 - x - 6)$ on the graph paper provided on **page 15**. **(5 marks)**

c). Use the graph drawn in (b) to solve the equation $x^3 - x^2 - 4x + 4 = 0$ **(3 marks)**



12. Solve the equation $2^{(2h+3)} - 9(2^h) + 1 = 0$

(10 marks)



END OF QUESTION PAPER.
NB: This paper contains 16 printed pages

