NAME _____

NEW VISION PVT SECONDARY SCHOOL

END OF TERM ONE EXAMINATION

MATHEMATICS

FORM 4

(100 MARKS)

TIME ALLOWED _____ **DATE** _____

INSTRUCTIONS:

- Answer all questions using the provided space.
- Calculators may be used?

1.

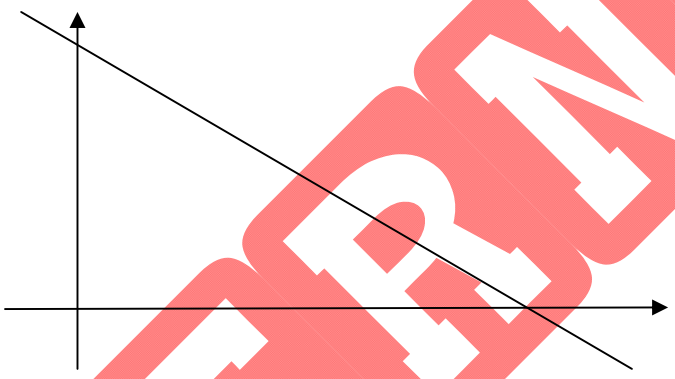
a) Simplify $(\sqrt{2}+\sqrt{3})\,(\sqrt{8}-\sqrt{12})$ without using a calculator and four-figure table

b) Give that $f(x) = x + 3$ and $f(2) = 2 + x + g(x)$, $g(x)$

2.

a) Evaluate $2\log a^{a} + 3\log a^{1} + \log 2^{\sqrt{2}}$

b) Figure shows a straight line graph



Find the equation of line AB and write in form of $y = mx + c$

3.

a) A person running at a speed of Y meter per second passes a stationary train 50 meters long. If the person takes $\frac{25}{y-1}$ second to pass the train, calculate the value of y?

b) Blouses and shirts for school uniform were selling at K500 and K250 respectively. Phiri family bought two blouses and four shirts, while Mwale family bought three blouses and six shirts for children.

i. Present this information in two matrices

ii. Using amount of money each family spent on the clothes

4.

a) The area of two similar triangles are $64cm^2$ and 36cm^2. The base of the bigger triangle is 16cm. calculate the corresponding height of the smaller triangle

b) Solve the equation $2x^3 - 5x^2 + x + 2 = 0$

5.

NAME _____

a) Make y the subject of the formula $Y_2^1 = \frac{W+W(XY)^{\frac{1}{2}}}{X^{\frac{1}{2}}}$

b) An aeroplane leaves airport A on a bearing of $N23^0E$ and flies for 340km to another airport B. it then leaves airport B and flies on a bearing $N60^0E$ to another airport C. if the airport A and C are 680km part calculate the bearing of airport A from airport C

6.

a) A church congregation has a youth group and music group. There are 400 people in the congregation out of which 40 people belong to both youth group and music group. There are 60 members who belong to the youth group only, while 220 belong to neither the youth group nor the music group.

i. Draw a Venn diagram illustrating this information

ii. Calculate the number of people who belong to the music group only

b) Table below tallies of students marks in test.

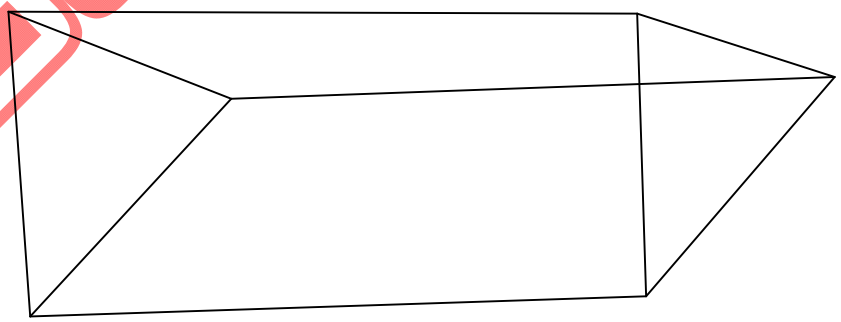
Marks (m)	Tally
$0 \leq M \leq 10$	
$10 < M \leq 10$	
$20 < M \leq 20$	
$30 < M \leq 40$	
$40 < M \leq 50$	
$50 < M \leq 70$	
$60 < M \leq 70$	
$70 < M \leq 80$	
$80 < M \leq 90$	
$90 < M \leq 100$	

i. Find the model class

ii. If 50% of the students were to pass, find the passing mark for the test.

7.

a) Figure shows a wooden prism with triangular cross-section A, B C. BE=20cm, AB=BC=AC=6cm, ACFD, BCFC and ADEB are rectangles



Calculate angle BCE

b) A quantity P varies directly aq and inversely as $(q^2 + 1)$. When P=1, q=2. Express P in terms of q only.

NAME _____

8.

a) The sum of the first n terms of geometric progression GP is $2^{n+1} - 1$. Calculate
   i. The first term of the G.P.
   ii. The common ration of the G.P.

b) Solve the equation $2 = x^2 + 10x + 21$. Giving your answer correct to 2 decimal places.

END OF QUESTION PAPER