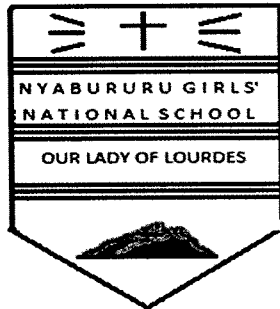


NAME.....CLASS.....C/NO.....ADM/NO.....
 SIGNATURE.....DATE.....



REVISED.....
 DATE DONE.....
 INVIGILATOR.....
 DATE RETURNED.....

NYABURURU GIRLS NATIONAL SCHOOL,

FORM TWO MATHEMATICS CAT 1

TERM TWO 2016

TIME: 2½ HOURS

INSTRUCTIONS TO STUDENTS:

1. Write your name, and class in the spaces provided above.
2. Sign and Write the date of examination in the spaces provided above.
3. This paper consists of two Sections; Section I and Section II.
4. Answer all the questions in the space provided.
5. All answers and working must be written on the question paper in the spaces provided below each question.
7. KNEC Mathematical tables may be used unless stated otherwise

FOR EXAMINER'S USE ONLY:

SECTION A

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	TOTAL

SECTION II

17	18	19	20	21	TOTAL

GRAND TOTAL

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SECTION I (50MKS)

1. Evaluate

$$\frac{-2(5+3)-9 \div 3+5}{-3 \times -5 + -2 \times 4}$$

(3mks)

2. A line L_3 is parallel and midway to lines L_1 and L_2 whose equations are $y = 2x + 5$ and $2y - 4x + 2 = 0$ respectively. Find the equation of L_3 (4mks)

3. When a certain number is divided by 30, 45 or 54 there is always a remainder of 21. Find the number. (3mks)

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4. The sides of a triangle are in the ratio 3: 5: 2. If the shortest side in the triangle is 8cm, find the longest side in the triangle. (3mks)

5. Simplify $\sqrt{\frac{12x^4 y^{-1} z^5}{3x^{-2} y^{-3} z^3}}$ (2 mks)

6. The difference between the interior and exterior at each vertex of a regular polygon is 162° . Find the sum of interior angles of the polygon. (3mks)

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7. John spends $\frac{1}{8}$ of his salary on food and $\frac{1}{4}$ of the remainder on transport. He is left with sh 6300 for other expenses. Find how much does he earn. (3mks)

8. A wholesaler sold a cell phone to a retailer making a profit of 20%. The retailer later sold the cell phone for Ksh.3120 making a profit of 30% calculate the amount of money the wholesaler had paid for the cell phone. (3 mks)

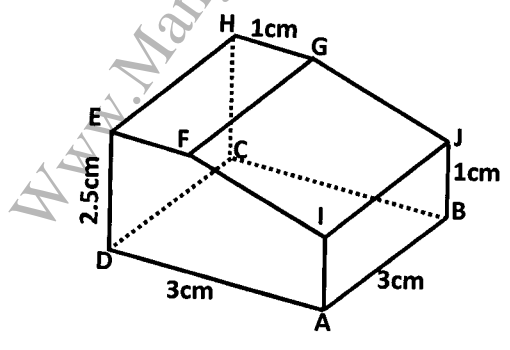
9. A square toilet is covered by a number of whole rectangular tiles of sides 60cm by 48cm. Calculate the least possible area of the room in square metres (3 mks)

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10. Use reciprocal, squares and square root tables only to evaluate the expression.

$$\frac{3}{\sqrt{0.003448}} - 18.79^2 \quad (4\text{mks})$$

11. Draw the net of the solid below. (3 mks)



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12. The sum of digits formed in a two digit number is 16. When the number is subtracted from the number formed by reversing the digits, the difference is 18. Find the number
(3 mks)

13. A farmer has enough feed to last 45 cows for 30 days. If he buys 10 more cows, find how long will the feed last
(3 mks)

14. A Kenyan bank buys and sells foreign currency as shown below.

	Buying	Selling
	Kenya shillings	Kenya shillings
1 Euro	84.15	84.26
1 US Dollar	80.12	80.43

A tourist travelling from Britain arrives in Kenya with 5000 Euros. He converts all the Euros to Kenya shillings at the bank. While in Kenya he spends a total of KSh. 289,850 and then converts the remaining Kenya shillings to US dollars at the bank. Calculate (to nearest dollar) the amount he receives.

(3mks)

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15. Using a ruler, a pair of compasses only and (proportional) a set square, construct line $BC = 7\text{cm}$ on the upper side of line BC , construct line BD such that $\angle DBC = 37.5^\circ$. Use the line BD to divide BC into 4 equal portions and measure the length of one division . (3mks)

16. Use logarithms in all steps to evaluate. (4mks)

$$\frac{2.53^2 \times 83.45}{\sqrt{0.4562}}$$

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SECTION II (50MKS)

17. A saleswoman receives a basic salary of K£ 2,800 p.a together with a commission of 8% of the value of goods sold and a car allowance of sh.2.00 per km.
- a) Find the total amount in K£ she receives in a year in which she sells goods worth K£32,600 and travels 9,000km (4mks)

- b) The next year she travels 11,000km and receives a total of K£ 7,200. Calculate the percentage increase in the value of the goods sold. (6mks)

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18. A carpenter constructed a closed wooden box with internal measurements 1.5m long 0.8m wide and 0.4m high. The wood used in constructing the box was 1.0cm thick and had a density of 0.6g/cm^3

a) Determine the

i) Volume in cm^3 of the wood used in constructing the box. (4mks)

ii) Mass of the box in kg, correct to 1d.p (2mks)

b) Identical cylindrical tins of diameter 10cm height 20cm with a mass of 120g each were packed in the box. Calculate the

i) Maximum number of tins that were packed. (2mks)

ii) Total mass of the box with the tins. (2mks)

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19. The boundaries PQ, QR, RS and SP of a ranch are straight lines such that:
Q is 16km on a bearing of 040° from P, R is directly south of Q and east of P and S is 12km
on a bearing of 120° from R.

a) Using a scale of 1cm to represent 2km show the above information in a scale
drawing. (3mks)

b) From the scale drawing determine;
i) The distance, in km of P from S (2mks)

ii) The bearing of P from S. (2mks)

iii) The area of the ranch in km^2 (3mks)

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20. A business lady bought 100 quails and 80 rabbits for Sh. 25,600. If she had bought twice as many rabbits and half as many quails she would have paid Sh. 7,400 less. She sold each quail at a profit of 10% and each rabbit at a profit of 20%.

(a) Form two equations to show how much she bought the quails and the rabbits
(2 mks)

(b) Find the cost of each
(3 mks)

(c) Calculate the profit she made from the sale of the 100 quails and 80 rabbits(3mks)

(d) find the percentage profit did she make from the sale of the 100 quails and 80 rabbits.
(2 mks)

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21. Three people; A, B and C work together to make a certain number of tins. If person C was to work alone he will take $4\frac{4}{9}$ hours to complete the job. If all working together they will take 1hr 40min to complete the job. They all started working together however person B left after first 40min, while person C left 20min later. Person A took a further 1hr 46min. Calculate how long it would take if all the tins were made by;
- a) Person A alone (6mks)

- b) Person B alone (2mks)

- c) Person A and C alone (2mks)