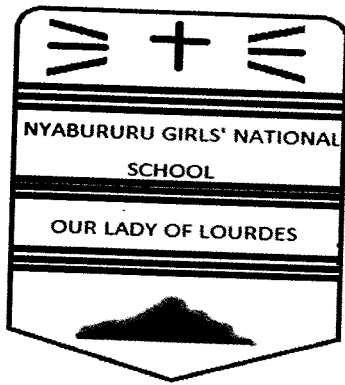


NAME.....ADM.....C/NO.....ST.....



Date done	
Invigilator	
Date returned	
Date revised	

**FORM ONE MATHEMATICS
CAT 3 TERM 2 2016
TIME: 2½ HOURS**

INSTRUCTIONS

- Write your name, stream and class number in the spaces provided at the top of this page.
- The paper contains two sections i.e. **I** and **II**.
- Answer **ALL** the questions in Section I and section **II**.
- All answers and working must be written on the question paper in the spaces provided below each question.
- Marks may be awarded for correct workings even if the answer is wrong.

FOR EXAMINER'S USE ONLY.

SECTION I

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 (50 MARKS)

Answer all questions

1. Evaluate: $\frac{44 - -28}{12 \times -2} - \frac{8^2 \times -12 - 24}{96 \div -12 \times 9}$ (3mks)

2. A farmer has a piece of land measuring 840m by 396m. He divides it into square plots of equal sizes. Find the maximum area of one plot. (3 mks)

3. A map has a scale of 1:25000. On this map; a square piece of land is represented by an area of 2cm². Calculate the actual area, in hectares of the plot (3mks)

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4. A liquid spray of 384g is packed in a cylindrical container of internal radius 3.2cm. Given that the density of the liquid is 0.6g/cm^3 , calculate to 2 decimal places the height of the liquid in the container. (3mks)
5. Mr Omwange bought 2 trousers and 3 shirts for ksh 5700. Mr. Mochere bought one trouser and six shirts and paid ksh6000. Find the cost of each item. (3mks)
6. A watch which loses a half-minute every hour was set to read the correct time at 0545h on Tuesday. Determine the time in the 12 hour system the watch will show on the following Saturday at 1945h (3mks)

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7. A girl cycles a certain distance from X to Y at 10km/h, she returns at 12km/h. The total time taken is 1hr 50min. find the distance XY. (3mks)

8. Simplify:- $\frac{2y+8}{4x+xy-12-3y}$ (3mks)

9. Find the product of the largest and the smallest number among the following numbers.

0.5, -30, $\frac{5}{8}$, $-\frac{1}{20}$, -0.25 (3 mks)

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

11. Evaluate without using Mathematical tables or the calculator.

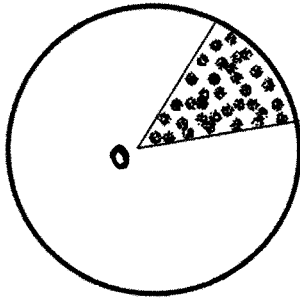
$$\sqrt{\frac{153 \times 0.18}{0.68 \times 0.32}}$$

(3mks)

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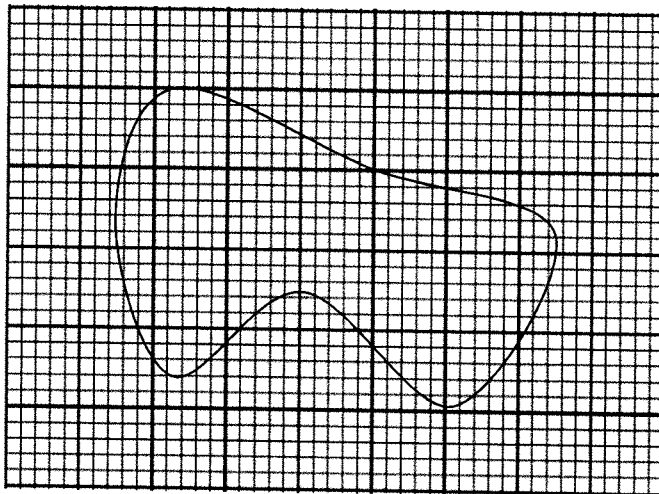
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12. The circumference of the circle centre o below is 110cm and the shaded region occupies 20% of the circle. Find the area of the shaded region. (3mks)



13. Three years ago Judith was three times as old as Alice. In two years' time the sum of their ages will be 62. Determine their present ages. (3 mks)

14. Determine the area of the irregular shape below drawn on a grid of squares of side 1 cm (3mks)



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15. A school is sponsoring 35 students for a mathematics contest; the ratio of boys to girls is 5:2. Find the number of girls required to join the 35 students so that the ratio of boys to girls becomes 5:4. (3mks)

16. To fence one side of her farm, a farmer requires 16 posts placed 4 m apart.
a) How many posts would she require if the posts were 3 m apart? (2 mks)

- b) If the farm is a square, determine the size of the farm in hectares. (2 mks)

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SECTION II (50 MARKS)

17. A cylindrical water tank is of diameter 7 metres and height 2.8 metres

(a) Find the capacity of the water tank in litres.

(3mks)

(b) Six members of a family use 15 litres each per day. Each day 80 litres are used for cooking and washing and a further 60 litres are wasted. Find the number of complete days a full tank would last the family

(4mks)

(c) Two members of the family were absent for 90 days. During the 90 days, wastage was reduced by 20% but cooking and washing remained the same. Calculate the number of days a full tank would now last the family

(3mks)

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18. Four farmers took their goats to the market. Bob had two more goats than Amos. Charles had 3 times as many goats as Bob. Whereas David had 10 goats less than both Bob and Charles.

(i) Write a simplified algebraic expression with one variable representing the total number of goats (6 mks)

(ii) Three butchers bought all the goats and shared them equally. If each butcher got 17 goats. How many did David sell to the butchers? (4mks)

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19. (a) Use square and square root tables to evaluate $\sqrt{136.5} - 0.2947^2$ (3 mks)

(b) By selling an item at Ksh 2400, a trader made a loss of ksh 600. Calculate:-

(i) The percentage loss (2 mks)

(i) The price at which the trader would have sold the item so as to make a profit of 25% (2 mks)

(c) The sum of digits 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. (3mks)

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20. Samatha and Meshi entered into a business partnership in which they contributed Kshs. 120,000 and Kshs. 150,000 every year respectively. After one year, Fuki joined the business and contributed Kshs. 90,000

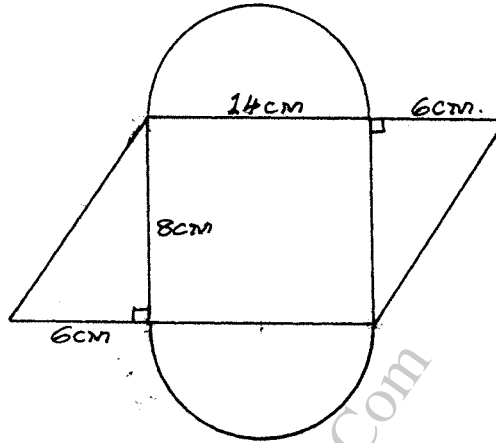
(a) Calculate the ratio of their investment after 3 years of business (3mks)

(b) It was agreed that 30% of the profits after 3 years be used to cater for the cost of running the business, while the remaining would be shared proportionally. Calculate each person's share if the profit made after three years was Kshs, 187,000. (4mks)

(c) If each of them invested their shares in the business, find their new individual investments at the beginning of the fourth year. (3mks)

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21. (a) Find the distance round the figure below. Take $\pi = \frac{22}{7}$ (3mks)



(b) Calculate the total area of the figure (4mks)

(c) Two thirds of a number exceeds three fifths of a number by 40. Find the number. (3 mks)