KAMSSA

**KAMSSA LOWER SECONDARY LEVEL EXAMINATIONS**
**MATHMATICS**
**SENIOR ONE**
**END OF CYCLE ASSESSMENT 2023**
**2 Hours 30 Minutes**

SCHOOL: .....
NAME: .....

**Do not write in the boxes on this page. The examiner will use them to keep records of your marks**

**SECTION A**

| Question | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Marks scored | | | | | | | | | | | |

**SECTION B**

| Question | 11 | 12 | 13 | 14 | Total |
|---|---|---|---|---|---|
| Marks scored | | | | | |

**Instructions**
- Answer all questions in section A and **any three** from section B.
- Each question in section A carries 4 marks and each question in section B carries 20 marks.
- Show all the necessary workings and explanations on the answer sheet provided.

**SECTION A (40 Marks)**

1. In an examination, 300 students appeared. Out of those 28% got first division. 54% got second division and the remaining just passed. Assuming that no student failed. How many students just passed the examination? Justify your answer. (4 scores)

2. Musa was listing a set of prime numbers and included 99. Tom said to Musa that 99 is not a prime number but had no reason to back up his answer. As a senior one student help the two boys to settle the debate with clear justification and hence list the set of the first five prime numbers. (4 scores)
3. James was told that 0.363636.....of the students in Mbale Secondary School had reported by 25th September 2023. Help him to know the actual number of learners that had not reported if the school has a population of 2200 students. (4 scores)

4. Neema did y tests and scored a total of 120 marks. She did two more tests which she scored 14 and 13 marks. The mean score of the first y test was 3 marks more than the mean score for all the tests she did. Find the total number of tests that she did. (4 scores)

5. Livingstone is a senior one student. His teacher taught him number bases and at the end of the topic, he decided to evaluate him. He gave him a question and Livingstone wrote 21 as $10101_{two}$. Was he correct? Justify your answer. (4 scores)

6. Annette has some money in two denominations only. Fifty shillings notes and twenty shillings coins. She has three times as many fifty shillings notes as twenty shillings coins. If altogether she has sh. 3,400. Find the number of fifty shillings notes and 20 shillings coins. (4 scores)

7. Juma owns a doughnut making business. In his business, an employee is paid UGX 3,000 per day and the rent is UGX 6,000 per day. If he requires UGX 200 to make a doughnut, how many doughnuts does he have to produce to make a profit of UGX 18,000 if each doughnut is sold at UGX 500? (4 scores)

8. In a certain school two bells are sounded at intervals of 30 minutes and 45 minutes. If they were last heard at 10:15 am, find at what time they will he heard again together. (4 scores)

9. A number which is a multiple of 3 is chosen at random from a set of even numbers between 1 and 20. Express the number as a percentage of natural numbers between 1 and 20. (4 scores)

10. A rectangular garden has a short road passing through its diagonal. The garden is 3km long and 5km wide. What is the size of the road? (4 scores)

**SECTION B (60 marks)**

11. Mr Waguwenda would wish to design his bedroom ceiling inform of an equilateral triangle enclosed in a circle. If each side of the triangle is 6m, help him design a plan for the ceiling. If he would wish to paint the triangle with a red color and each tin of paint costs shs 15,000. How much would be spent on paint if each tin of paint paints $1m^2$ area. (20 scores)

12. Three business partners Bella, Joan and Trinity contributed UGX 112,000, UGX 128,000 and UGX 210,000 respectively to start business. They agreed to share their profit as follows.
30% to be shared equally
30% to be shared in the ratio of their contributions.
40% to be retained for running the business.
a) If at the end of the year the business realized a profit of UGX 1.35 million. How much money was retained for the running of the business at the end of the year?
b) What do you think is the difference between the amounts received by Trinity and Bella?
c) Express Joan's share as a percentage of the total amount shared between the three partners
(20 scores)

13. A route for safari rally has five sections AB, BC, CD, DE and EA. B is 200km on a bearing 050° from A. C is 500km from B. The bearing of C from B is 300°. D is 400km on a bearing 230° from C. E is 250km on a bearing 025° from D. Using the scale of 1cm for 50km, draw the diagram representing the route for the rally.
And hence use your diagram to determine the distance in km of A from E and the bearing of E from A
(20 scores)

14. The table below shows the malaria cases discovered in divisions of Kampala Uganda in June 2023.

| Division | Kawempe | Makindye | Kiira | Lubaga | Central |
|---|---|---|---|---|---|
| Active cases | 24 | 350 | 150 | 120 | 56 |

The ministry of health was asked to represent the information above on a statistical pie chart. As a senior one learner help the ministry to solve the challenge and hence guide the ministry about the control measures it can apply to prevent malaria in your area. (20 scores)

**END**

KAMPALA INTEGRATED SECONDARY SCHOOLS EXAMINATIONS BUREAU

KAMSSA

# S.1 MATHEMATICS MARKING GUIDE
## END OF YEAR 2023

**No.1**

1st grade $= \frac{28}{100} \times 300 = 84$ B1

2nd grade $= \frac{54}{100} \times 300 = 162$ B1

Just passed $= 300 - (246) = 54$ students $M_1$ $B_1$

Or

Those who passed $28\% + 54\%$
$= 82\%$

Just passed $= 100\% - 82\%$ $B_1$
$= 18\%$ $A_1$

$\frac{18}{100} \times 300 = 54$ students

**No.2**

99 is not a prime number because it has more than two factors $B_1B_1$

First five prime numbers

{2,3,5,7,11} $M_1A_1$

3. Let $m = 0.3636$-------(i)

$100m = 363636$ ------(ii) $M_1$

eqn(ii) – eqn(i)

$100m = 36.3636$

$-m = 0.3636$

$99m = 36$ $B_1$

$m = \frac{36}{99}$ $B_1$

$m = \frac{4}{11}$

Those who reported $\frac{4}{11} \times 2200 = 800$

Those who didn't report $= 2200 - 800$
$= 1400$ $A_1$

**No.4**

Overall mean $= \frac{120+14+13}{y+2}$

$\bar{x} = \frac{147}{y+2}$ ----------(i) $M_1$

First $y = \bar{x} + 3 = \frac{120}{y}$

$\bar{x} = \frac{120-3y}{y}$

$\frac{147}{y+2} = \frac{120-3y}{y}$ $B_1$

$147y = (y+2)(120-3y)$

$147y + 6y - 12y = 240 - 3y^2$

$3y^2 + 33y - 240 = 0$
$y^2 + 33y - 240 = 0$
$y^2 + 11y - 80 = 0$
$(y-5)(y+16) = 0$
$y=5,\ y=-16$
$y=5$ $A_1$

No.5 21 as $10101_{two}$ ?

21 to base two

| | | |
|---|---|---|
| 2 | 21 | 1 |
| 2 | 10 | 0 |
| 2 | 5 | 1 |
| 2 | 2 | 0 |
| | 1 | |

$M_1M_1B_1$

$10101_{two}$ He was correct $A_1$

Or

Alternatively

$10101_{two}$ to base ten

$(1x2^4) + (0x2^3) + (1x2)^2 + (0x2^1) + (1x2^0)$
$(1x2x2x2x2) + 0$
$16 + 0 + 4 + 0 + 1$
$20+1$
$= 21$ He was correct

No.6

Let the 20 thousand coins be x

| 20 | 50 | Total |
|---|---|---|
| x | 3x | 3400 |
| | | |

$B_1$

$x + 3x = 3400$
$4x = 3400$
$x = \frac{3400}{4}$ $B_1$
$x = 850$
850 shillings for 20 thousand $B_1$
3 x 850 = 2550 shillings for 50 thousand notes $B_1$

No. 7

Let the number of doughnut be x
Cost price = 3000+6000+200x
Selling price = 500x
Profit = 18000

Profit = S.p - C.p
18000 = 500x - (3000+6000+200x) $M_1$
18000 = 500x - (9000+200x) $M_1$
18000+9000 = 500x - 200x $B_1$

$\frac{300x}{300} = \frac{27000}{300}$
$x = 90$ A1
∴ He has to produce 90 doughnuts.

$\frac{}{300} = \frac{}{300}$

$x = 90$

He has to produce 90 doughnuts $A_1$

**No.8**

| | | | |
|---|---|---|---|
| 2 | 30 | 45 | |
| 3 | 15 | 45 | |
| 5 | 5 | 15 | |
| 3 | 1 | 3 | |
| | 1 | 1 | |

$M_1M_1$

L.c.m = 2x3x5x3

= 90

= 90minutes = 1hour and 30 min $B_1$

10:15a.m

+1: 30 minutes

11: 45a.m

They will be heard again at 11:45a.m $A_1$

**No.9**

Let $M_3$ be the multiples of three from a set of even numbers between 1 and 20.

Let N be the Natural numbers between 1 and 20

$M_3 = \{6,12,18\}$ $M_1$

$n(M_3) = 3$

$N = \{2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19\}$ $M_1$

$n(N) = 18$

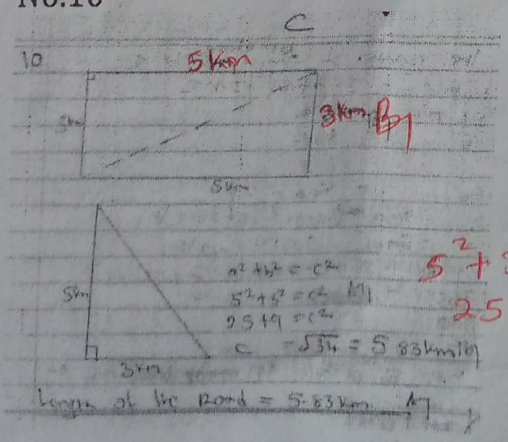
Express as a percentage $= \frac{n(M_3)}{n(N)} \times 100$

$= \frac{3}{18} \times 100$ $B_1$

$= 16.67\%$ $A_1$

NOTE: (1 and 20 are not inclusive because they have said between)

**No.10**




$5^2 + 3^2 = l^2$

$25 + 9 = l^2$

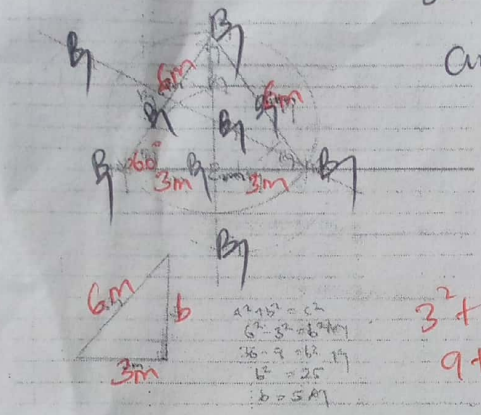
$34 = l^2$

$l = \sqrt{34}$

$l = 5.83km$

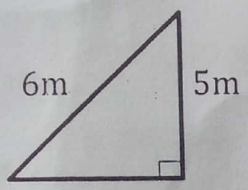
∴The Lengthy of the Road = 5.83km

No.11



sketch B1
Circle touching three corners B3.

$3^2+b^2=6^2$ M1
$9+b^2=36$
$b^2=25$
$b=5m$ B1




$a^2+b^2=c^2$
$6^2-3^2=b^2$ $A_1$
$36-9=b^2$
$b^2=25$ $B_1$
$b=5$ $A_1$

Area $=\frac{1}{2}\times 3\times 5=7.5\times 2$ M1M1
$=15m^2$ A1
Cost $15\times 15000=225000$ B1
He would spend Sh 225000 A1

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No.12

a) Profit earned $=1.35\times 1{,}000{,}000$
$=$ Shs 1,350,000 B1

Amount retained $=\frac{40}{100}x1{,}350{,}000$ $M_1$
$=$ Shs 540,000 $A_1$

b) Amount received by Trinity and Bella
30% to be shared equally
$\frac{30}{100}x1{,}350{,}000$ $M_1$
$=$ shs 405,000 $A_1$
Each obtained / earned $=\frac{405{,}000}{3}$ M1
$=135{,}000$ $A_1$

According to contribution, total contribution Shs 450,000
Bella $=$ shs $\frac{112{,}000}{450{,}000}x405{,}000$ $M_1$
$=$ shs 100,8000 $A_1$

Trinity $= \frac{210,000}{450,000} x450,000$

$= \text{shs } 189,000$ $A_1$

Total amount received by Bella $= 100,800 + 135,000$

$= \text{shs } 235,800$ $A_1$

Trinity $= 189,000 + 135,000$

$= \text{shs } 324,000$ $A_1$

**Difference** $= 324,000 - 235,800$ $M_1$

$= \text{shs } 88,200$ $A_1$

**c)** Joan's share as a percentage

Her share $= \frac{128}{450,000} x450,000$ $M_1$

$= \text{shs } 115,000$ $A_1$

Total $= 115,200 + 135,000$

$= \text{shs } 250,200$ $A_1$

**Amount shared** $= 1,350,000 - 540,000$

$= \text{shs } 810,000$ $A_1$

%age $= \frac{250,200}{810,000} x100$ $M_1$

$= 30.38\%$ A1

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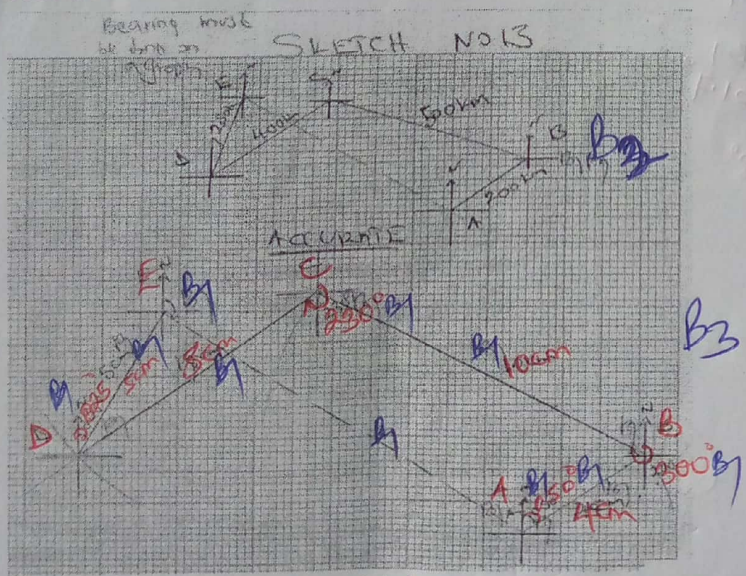
**No. 13**




Distance of A from E $= 11.9\text{cm or } 12\text{cm}$ $B_1$

$= 11.9 \times 50 \text{ or } 12 \times 50$

$= 59.5\text{km or } 600\text{km}$ $B_1$

Accept from 550 – 600 $A_1$

Bearing of A from E $= 127°$ or $128°$ $B_1$

Accept from 156° - 129° $A_1$

No.14

$24 + 350 + 150 + 120 + 56 = 700$ $B_1$

$M_1$

Kawempe $= \frac{24}{700} x360°$

$= 12.3°$ $A_1$

Makindye $= \frac{350}{700} x360°$ $M_1$

$= 180°$ $A_1$

Kiira $= \frac{150}{700} x360°$ $M_1$

$= 77.2°$

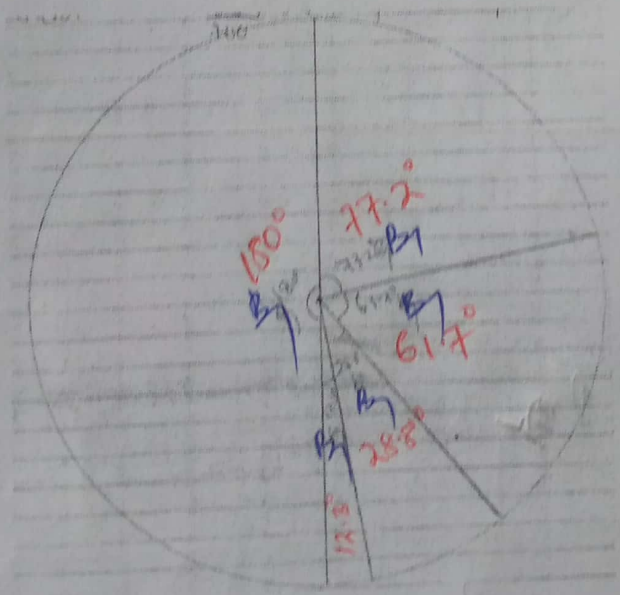
$A_1$

Luboga $= \frac{120}{700} x360°$ $M_1$

$= 61.7°$ $A_1$

Central $= \frac{56}{700} 360°$ $M_1$

$= 28.8°$ $A_1$




Control measures of malaria (4scores for the four solutions given)

Sleeping in mosquito nets

Keeping in a clean environment

04

20scores