UGANDA MUSLIM TEACHERS' ASSOCIATION

UMTA JOINT MOCK PRIMARY LEAVING EXAMINATIONS 2023

MATHEMATICS

2 HOURS 30 MINUTES

INDEX NUMBER	0	7	5	6	6	6	2	5	0	7

NAME TR BONNY ..... SIGN.....

SCHOOL..... DISTRICT.....

Instructions to candidates:

Do not open this Booklet until you are told to do so.

- The paper has two Sections A and B.
- Answer all questions in sections A and B in the spaces provided.
- All answers must be written in Blue or Black pen or Ink.
- Unnecessary changes (crossings) or alternation of answers may lead to loss of marks.
- Any handwriting that cannot easily be read may lead to loss of marks.
- The use of calculators or other mathematical tables is not allowed.
- Do not fill anything in the boxes indicated for "Examiners use only"

FOR EXAMINERS' USE ONLY

QN.	MARKS	INITIAL
SECA		
1 – 05		
06 – 10		
11 – 15		
16 – 20		
SEC B		
21 – 22		
23 – 24		
25 – 26		
27 – 28		
29 – 30		
31 – 32		
TOTAL		

SECTION A

1. Work out $28 \div 4$

$= \frac{28}{4}$

$= 7$

$28 \div 4 = 7$

2. Write 54,045 in words.

TTh	U
54	045

Fifty-four thousand, forty-five.

3. Simplify $3a - 2b - a + 5b$.

$= 3a - a - 2b + 5b$

$= 2a + 3b$

4. Find the sum of the first three rectangular numbers.

$1 \times 2 = 2$

$3 \times 2 = 6$

$6 \times 2 = 12$

$10 \times 2 = 20$

$= 12 + 6 + 2$

$= 20$

5. The time shown on the clock face below is in the afternoon, write it in 24 -hour clock.

Hrs	Mins
12	55
+ 00	00

12 55 hours

6. Given that set M = {Prime numbers less than 15}

N = {Odd numbers between 0 and 15}

Find $n(M \cap N)$

$M = [2, 3, 5, 7, 11]$

$N = [1, 3, 5, 7, 9, 11, 13]$

$M \cap N = [3, 5, 7, 11]$

$n(M \cap N) = 4$

7. Simplify $\frac{3}{5} \times \frac{6}{27}$

$= \frac{1}{\cancel{3}} \times \frac{\cancel{6}^{2}}{\cancel{27}_{3}}$

$= \frac{1 \times 2}{5 \times 3}$

$= \frac{2}{15}$

8. Use distribute property work out $(18 \times 19) + (19 \times 22)$

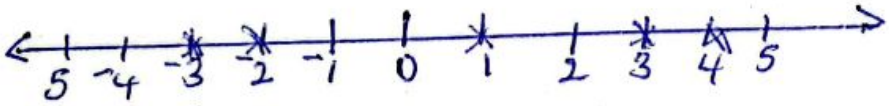
$= [18 \times 19] + [19 \times 22]$

$= 19[18 + 22]$

$= 19 \times 40$

$= 760$

9. Work out the median 1, -2, 3, -3, 4, and 3



$-\cancel{3}, -\cancel{2}, 1, 3, \cancel{3}, \cancel{4}$

$= \frac{1+3}{2}$

$= \frac{\cancel{4}^{2}}{\cancel{2}_{1}}$

$= 2$

10. Express $2\frac{1}{5}$ metres as centimeters.

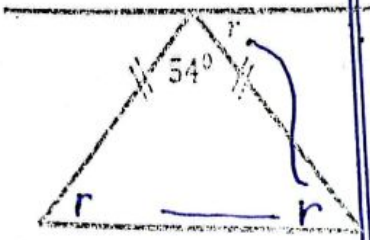
$1m \Rightarrow 100cm$

$2\frac{1}{5}m = \frac{11}{5} \times 100cm$

$= 11 \times 20cm$

$= 220cm$

11. Find the value of r in the diagram below.



$r + r + 54^\circ = 180^\circ$

$2r + 54^\circ - 54^\circ = 180^\circ - 54^\circ$

$\frac{2r}{2} = \frac{126^\circ}{2}$

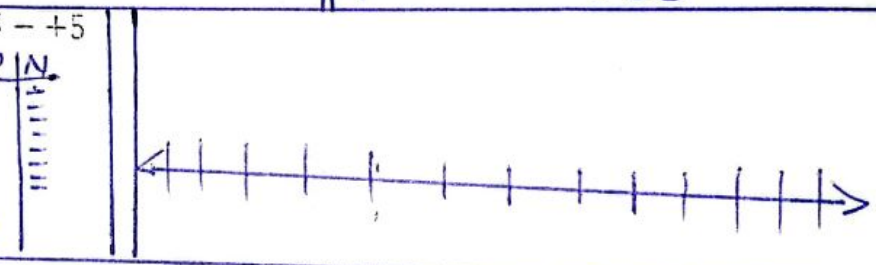
$r = 63^\circ$

12. Simplify $--3 - +5$

$-3 + (+5)$

$-3 - 5$

$-3 - +5 = -8$



13. Find the least number of pens that a teacher can give to pupils in her class among 5 girls and 6 boys and there is a remainder of 3 pens.

3(finite5) 3, 8, 13, 18, 23, 28, (33) 38

3(finite6) 3, 9, 15, 21, 27, (33) 39

= 33 pens

14. Solve $5 - 3r \leq 17$

$5 - 5 - 3r \leq 17 - 5$

$-3r \leq 12$

$\frac{-3r}{-3} \geq \frac{12}{-3}$ (+4)

$r \geq -4$

15. Ten men take 12 days to dig a garden. Find the number of more men working at the same rate needed to dig the same garden in 8 days.

12days ⇒ 10men

1day = 12 × 10 men

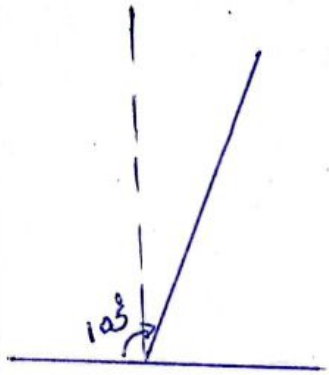
8days = $\frac{120}{8}$ men

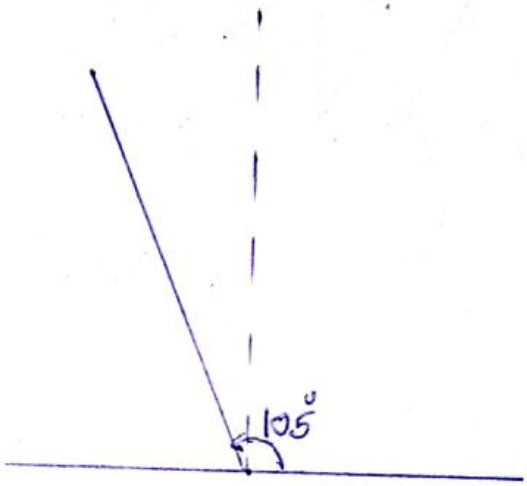
= 15men

= 15men − 10men

= 5men

16. Using a pair of compasses, a ruler and a pencil only, construct an angle of 105°.





17. A shopkeeper bought $3\frac{1}{3}$ dozen of books and sold each book at sh.900. Find the total amount of money the shopkeeper got after selling all the books.

1dozen = 12

$3\frac{1}{3}$ dozen = $\frac{10}{3} \times \frac{4}{12}$

= 40

1book = sh 9000

40books × 4

sh 36,000

18. Find the radius of a circle whose circumference is 3080 metres (use $\pi = \frac{22}{7}$)

$2\pi r = C$

$2 \times \frac{22}{7} \times r = 3080m$

$\frac{44r}{7} \times 7 = 3080m \times 7$

$\frac{44r}{44} = \frac{3080m \times 7}{44}$

Radius = 490 metres

19. Express 18 Kilometres per hour as metres per second.

1Km = 1000m

18Km = $\frac{18 \times 1000m}{1hr}$ = $\frac{5}{3600s}$ = 5 metres per second.

20. Find the next number in the sequence.

11, 14, 17, 19, 21, 24, 27

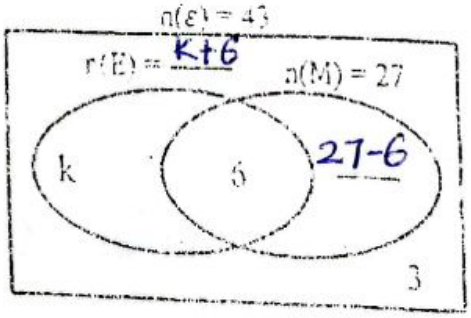
+3 +3 +2 +2 +3 +3

SECTION B

(60 MARKS)

21. 43 pupils attended lessons in a P.7 Class.27 pupils like Mathematics(M), K pupils like English(E),only.6 pupils like both subjects while 3 pupils did not like any of the two subjects.

(a) Use the information given above to complete the venn diagram below. (02 marks)



(b) Find the probability of picking a pupil who likes English. (03 marks)

K+6+21+3 = 43

K+31-31 = 43-31

K = 12

P = $\frac{n(E)}{n(S.S.)}$

= $\frac{18}{43}$

22.(a) State the place value of 3 in the number.

342_{six}

SS	S	0
3	4	2

Six · Sixes

(01 mark)

(b) Expand 1101_{two} in base two using exponents. (02 marks)

1	1	0	1
2^3	2^2	2^1	2^0

$(1\times10^3)_{two} + (1\times10^2)_{two} + (0\times10^1)_{two} + (1\times10^0)_{two}$

(c) Express 344_{five} as base ten. (02 marks)

5^2	5^1	5^0
3	4	4

$= 3\times5\times5 + 4\times5 + 4\times5^0$

$= 75 + 20 + 4\times1$

$= 99$ ten

23. Study and complete Matovu's shopping bill table below (06 marks)

Item	Quantity	Unit cost	Amount
Rice	30kg	Sh 4800 per kg	Sh. 144,000
Posho	$\frac{1}{2}$ kg	Sh. 4,000 per kg	Sh. 2000
Cooking oil	2500ml	Sh. 15,000 per half litre	Sh 75000
Flasks	10 flasks	Sh 12000 per flask	Sh 120,000
Total expenditure			Sh. 341,000

Sh 144000
Sh 75000
+ Sh 2000
Sh 221000

Sh 341000
Sh 221000
Sh 120000

Rice | Cooking oil | Flasks

Sh 4800 | Sh 15000 × 2 = Sh 30,000 | Sh 12000 × 10 = Sh 120000

Posho: Sh 2000 × 2 = Sh 4000; Sh 4000 × $\frac{1}{2}$ = Sh 2000

Sh 4800 + Sh 2000 = Sh 6800

Sh 30,000 + Sh 25000 + Sh 120000 = Sh 175000

24. (a) Express $\frac{5}{11}$ as a recurring decimal

$11\overline{)50}$ → $0.4545\ldots$

$11\times0 = 0$, $50 - 0 = 50$

$11\times4 = 44$, $50 - 44 = 6$

$11\times5 = 55$, $60 - 55 = 5$

$11\times4 = 44$, $50 - 44 = 6$

(b) Change 0.2777... into a vulgar fraction (02 marks)

$0.2777 = \frac{27-2}{100-10}$

$= \frac{25}{90}$

$= \frac{5}{18}$

(c) Express 0.05 as a simplified fraction. (01 mark)

$0.05 = \frac{5}{100}$

$= \frac{1}{20}$

25. A box containing 2 dozens of books weighs 9.6kg, If the box when empty weighs 2.4kg. Find the weight of each book in grammes. (04 marks)

P.O.N

9.6 kg

− 2.4 kg

7.2 kg

1kg ⇒ 1000g

7.2kg = $\frac{72}{10} \times 1000$ g

= 7200g

Items

1 dozen

= 12

× 2

24 books

300

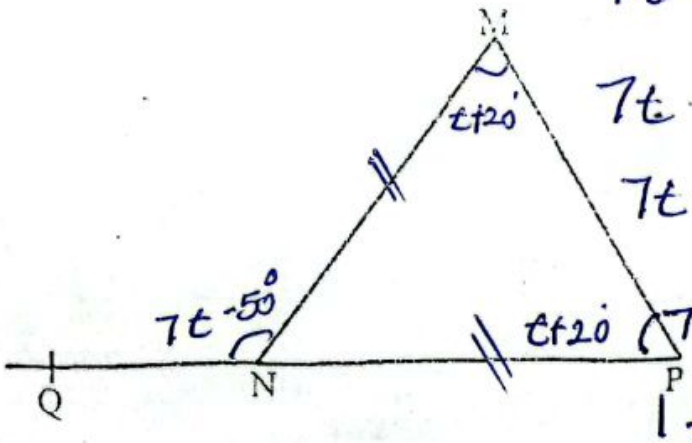
24 | 7200 g

1

= 300 grames

26. Given that MN=PN, angle MNQ= (7t-50)° and angle MPN=(t+20)°

(a) Find the value of t. (02 marks)



$7t - 50^\circ = t + 20^\circ + t + 20$

$7t - 50^\circ = t + t + 20^\circ + 20^\circ$

$7t - 5^\circ = 2t + 40^\circ$

$7t - 2t = 40^\circ + 50^\circ$

$\frac{15t}{5} = \frac{90^\circ}{5}$

$t = 18^\circ$

(b) Find the size of the angle marked MNP. (02 marks)

$\angle MNP = 180^\circ - (18^\circ + 20^\circ + 18^\circ + 20^\circ)$

$= 180^\circ - (38^\circ + 38^\circ)$

$= 180^\circ - 76^\circ$

$= 104^\circ$

27. A taxi reached Mbale from Iganga at 3:20pm, If the journey took 100 minutes.

(a) At what time did the taxi leave Iganga? (03 marks)

A·Speed = D ÷ T

$= [150 \div 1\frac{2}{3}]$ kmlh

$= \frac{150 \times 3}{5}$ kmlh

A·Speed = 90kmlh

1km = 1000m

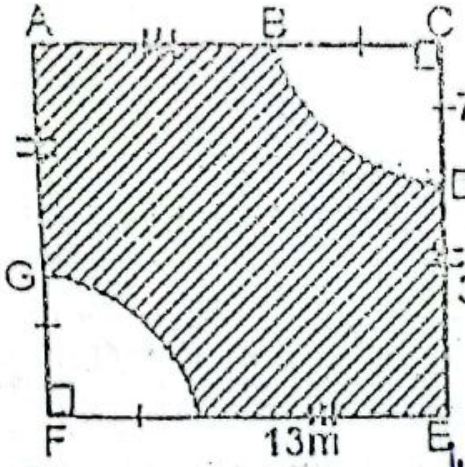
90km = 90000m

1hr = 3600s

$= 25$ m/s

(b) If the distance from Iganga to Mbale is 150km, find the average speed of the taxi in metres per second. (03 marks)

28. Find the perimeter of the shaded part (Use $\pi = \frac{22}{7}$) (04 marks)



$P = S + S + (\frac{1}{4} \times 2\pi r) \times 2$

$= 13m + 13m + [\frac{1}{4} \times 2 \times \frac{22}{7} \times 7] \times 2$

$= 26m + 11m \times 2$

$= 26m + 22m$

$= 48m$

29. A school Bursar has a four digit number for her ATM "pin". The first digit is half of the second digit, the sum of the second and third digit is 10, the fourth digit is equal to the second digit plus one. If the sum of the four digits is 23. Find the digits: Let the second digit be h (05 marks)

1st	2nd	3rd	4th	Sum
$\frac{1}{2}h$	h	$10-h$	$h+1$	23
4	8	2	9	

$\frac{1}{2}h \times 2 + h \times 2 + 2(10-h) + 2(h+1) = 23 \times 2$

$h + 2h + 20 - h + 2h + 2 = 46$

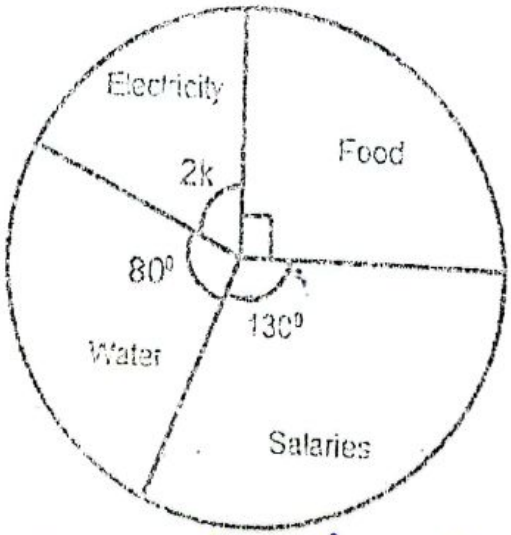
$h + 2h + 2h - h + 20 + 2 = 46$

$5h - 2h + 22 - 22 = 46 - 22$

$\frac{13h}{3} = \frac{24}{3}$

$h = 8$

30. The pie-chart below shows how a school spends money on various items.



(a) Find the value of K. (02 marks).

$2K + 80^\circ + 90^\circ + 130^\circ = 360^\circ$

$2K + 300^\circ - 300^\circ = 360^\circ - 300^\circ$

$\frac{2K}{2} = \frac{60^\circ}{2}$

$K = 30^\circ$

(c) If a school spends sh. 240,000 on electricity, how much more money does the school spend on salaries than food? (04 marks)

Electricity

$= 2 \times 30$

$= 60°$

Sh 240000 ÷ $\frac{60}{360}$ (1, 6)

= Sh 240000 × 6

Sh 1440,000

Salaries − food

$\frac{360}{360}$

$= \frac{130 - 90}{360}$

$= \frac{40}{360} \times$ Sh 1440,000 (40,000)

Sh 40,000 × 4

Sh 160000

31. In a school of 3600 pupils, the ratio of boys to girls is 2:4. One day 20% of the boys and 25% of the girls were absent. If 7 books were given to each pupil present, find the number of books given out altogether on that day. (05 marks)

B G T

2 4 6

Boys 600

$\frac{2}{6} \times 3600$

1200 boys

Girls 600

$\frac{4}{6} \times 3600$

2400 Girls

Of the boys Absent

$= \frac{20}{100} \times 1200$

240 Absent

1200 − 240

960 present

Girls Absent

$\frac{25}{100} \times 2400$

600 Absent

Present girls

2400 − 600

1800

Total present

1800 + 960

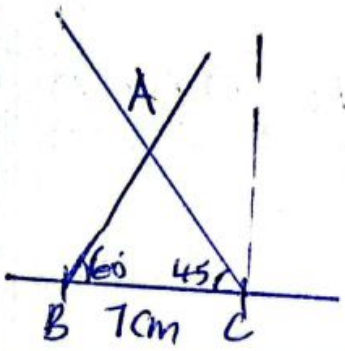
2760

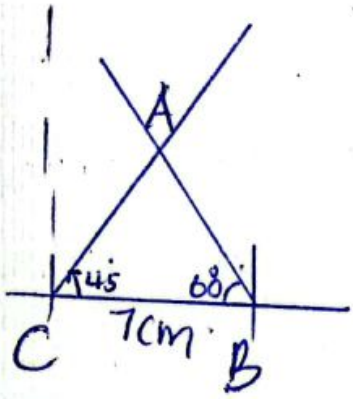
Total No of books

2760 × 7

19320 books

32. (a) Using a pair of compasses, a ruler and a pencil only construct a triangle ABC in which BC=7cm ,angle BCA=45° and angle ABC=60°,drop a perpendicular bisector from point A to meet line BC at E. (04 marks)





(b) Measure the length of line AE. (01 mark)

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