



Dr. Bbosa Science

UGANDA NATIONAL EXAMINATION BOARD

PRIMARY LEAVING EXAMINATION

1999

MATHEMATICS

Time allowed: 2 hours 15 minutes

Index No:

--	--	--	--	--	--	--	--	--

Candidate's Name.....

Candidate's signature.....

District Name.....

Read the following instructions carefully

1. This paper has two sections A and B.
2. Section A has 30 short answer question (30 mark)
3. All the working. For both section A and B must be shown in the spaces provided
4. All working must be done using a blue or black ball Point pen or fountain pen Diagram should be drawn in pencil
5. No calculators are allowed in the examination room.
6. Unnecessary change of work may lead to loss of marks
7. Any hand writing that cannot easily be read may lead to loss of marks
8. Do not fill anything in the boxes indicated:
"For examiners". And those inside the question paper

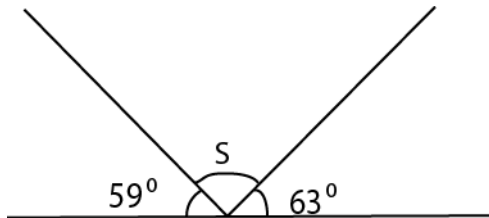
FOR EXAMINERS USE ONLY		
Qn.No	MARKS	EXR'S NO.
1-10		
11-20		
21-30		
31-32		
33-34		
35-36		
37-38		
39-40		
41-42		
Total		

SECTION A

1. Add: $254 + 46$

254
+ 46
—
300
—

2. Find the size of the angle marked S in the figure below:



$$59 + S + 63 = 180^\circ \text{ (angle sum of straight line)}$$

$$122 + S = 180^\circ$$

$$S = 58^\circ$$

3. Jogo walked 2.3 Km from his home to his daughter's house. Express this distance in metres.

$$1\text{km} = 1000\text{m}$$

$$2.3\text{km} = 2.3 \times 1000\text{m} = 2300\text{m}$$

4. Simplify: $3m - (2 + m)$

Removing brackets

$$3m - 2 - m$$

Collect like terms

$$2m - 2 = 2(m + 1)$$

5. Multiply 106×4

106
X 4
—
424
—

6. Solve $2p-8=16$

Collect like terms

$$2p = 16 + 8 = 24$$

Divide by 2 throughout

$$p = 12$$

7. Subtract $\frac{1}{2} - \frac{1}{4}$

$$\frac{1}{2} - \frac{1}{4} = \frac{2-1}{4} = \frac{1}{4}$$

8. Change 5 base ten to binary.

2	5	1
2	2	0
	1	

$$\therefore 5_{\text{ten}} = 101$$

9. What is the complement of 60° ?

Complementary angles add up to 90°

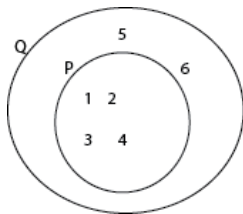
$$\therefore \text{complement of } 60^\circ = (90 - 60)^\circ$$

$$= 30^\circ$$

10. In a class of 60 pupils, 12 are girls. Express the number of girls as a percentage of the whole class.

$$\text{Percentage of girls} = \frac{12}{60} \times 100 = 20\%$$

11. If set $P = \{1, 2, 3, 4\}$ and $P \cup Q = \{1, 2, 3, 4, 5, 6\}$. Find the number of set Q.



$$Q = \{1, 2, 3, 4, 5 \text{ and } 6\}$$

12. If $\frac{1}{6}x = 1\frac{1}{6}$, find the value of x.

$$\frac{1}{6}x = 1\frac{1}{6} = \frac{7}{6}$$

By comparison

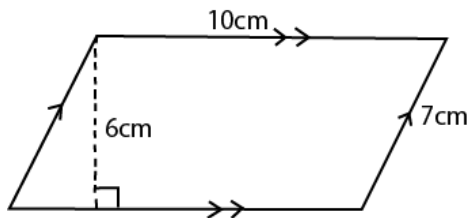
$$x = 7$$

13. Find the Greatest common Factor of 8 and 20.

	8	20
2	4	10
2	2	5

$$\text{GCF} = 2 \times 2 = 4$$

14. Find the area of the parallelogram drawn below:



Area of parallelogram = $L \times h$

$$= 10 \times 6$$

$$= 60\text{cm}^2$$

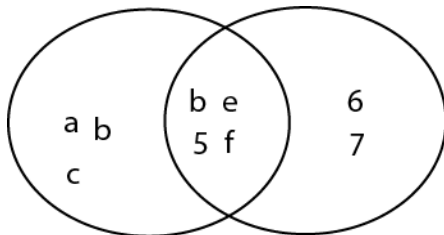
15. Mapeera bought 4 exercise books at shs.800. How much would he pay for 8 similar exercise books?

4 books cost 800

By cross multiplication

$$8 \text{ books cost } \frac{800 \times 8}{4} = 1600$$

16. Use the Venn diagram below to find: $n(\text{CUD})$



$$(\text{CUD}) = \{a, b, c, b, e, 5, f, 6, 7\}$$

$$n(\text{CUD}) = 9$$

17. Express $\frac{3}{5}$ as a decimal fraction.

$$\frac{3}{5} = \frac{30}{50} = \frac{6}{10} = 0.6$$

18. Write 24, 086 in words.

Twenty four thousand eighty six

19. Opondo buys a bicycle at Shs, 95,000 then sells it 109,000. What is his profit?

Profit = selling price – cost price

$$= 109000$$

$$- 95000$$

$$\text{shs} \quad 14000$$

20. The average age of 3 girls is 12 years. If one of them is 10 years old, what is the average of the other two girls?

$$\text{Total age of three girls} = 3 \times 12 = 36$$

$$\text{Age of two girls} = 36 - 10 = 26$$

$$\text{Average age of two girls} = \frac{26}{2} = 13 \text{ years}$$

21. John Akii-Bua ran 100 metres in 10 seconds. Express his speed in kilometres per hour.

$$100\text{m} = \frac{100}{1000} \text{ km}; \quad 10 \text{ seconds} = \frac{10}{3600} \text{ hrs}$$

Speed = distance $\div$ time

$$= \frac{100}{1000} \text{ km} \div \frac{10}{3600} \text{ hrs}$$

$$= \frac{100}{1000} \times \frac{3600}{10} \text{ km/hr}$$

22. A dice whose faces are numbered 1 to 6 is rolled once by Chandiru. What is the probability that an even number will show up?

$$n\{\text{Sample space } (1, 2, 3, 4, 5, 6)\} = 6$$

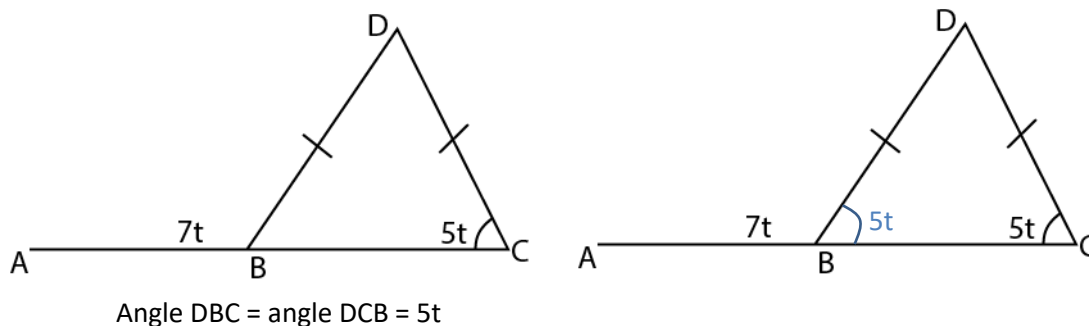
$$n\{\text{even numbers } (2, 4, 6)\} = 3$$

$$\text{probability of even number} = \frac{3}{6} = \frac{1}{2}$$

23. Juliet, Edwin, Sylvia and Joan are 11, 9, 15, 16 years respectively. Find the range of their ages. Range = highest value – lowest value

$$= 16 - 9 = 7 \text{ years}$$

24. In the figure below, BCD is a triangle and ABC is a straight line; Find the value of t.



$$7t + 5t = 180^\circ \text{ (angle sum of a straight line)}$$

$$12t = 180^\circ$$

$$t = 15^\circ$$

25. A shopkeeper increased the price of a pencil by 20%. What is the cost of the pencil if its original price was shs.50?

$$\text{New price} = \frac{120}{100} \times 50 = \text{shs } 60$$

26. In an hour, a watch losses 5 seconds. In how many hours will it lose 2 minutes?

5 second are lost per hour

$$2 \text{ minutes} = 60 \times 2 = 120 \text{ seconds are lost in } \frac{120}{5} = 24 \text{ hours}$$

27. List all the integers which are member of the solution set x such that: $8 \leq x < 12$

$$x = 8, 9, 10, 11$$

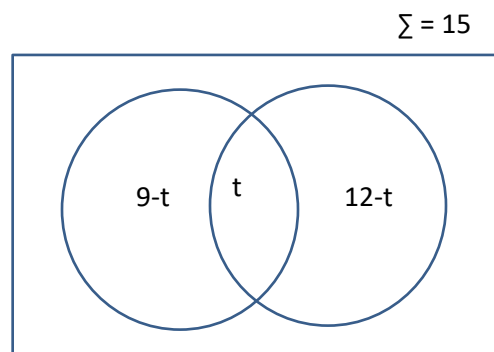
28. Using a pair of compasses and a ruler bisect the angle given below:



29. A tank contains 3000 litres of water. A tap is opened and releases water at a rate of 10 litres per minute. How long will it take for the tank to become completely empty?

$$\text{Time taken} = \frac{\text{volume of water}}{\text{rate of out flow}} = \frac{3000}{10} = 300 \text{ minutes or } 5 \text{ hrs}$$

30. In a family of 15 children, 9 eat matooke (M), 12 eat potatoes (P) and t eat both. Draw a Venn diagram to show this information.



SECTION B

31. In a P.7 class, there are 120 pupils, 40% of them are boys

a) Find the number of girls in the class.

$$\text{Percentage of girls} = 100 - 40 = 60\%$$

$$\text{Number of girls} = \frac{60}{100} \times 120 = 72$$

b) How many more girls are there than boys?

$$\text{Number of boys} = 120 - 72 = 48$$

$$\text{Number of girls more than boys} = 72 - 48 = 24$$

c) If a class prefect is chosen at random, what is the probability that the prefect chosen is a girl?

$$\text{Probability of girls} = \frac{\text{number of girls}}{\text{total number of pupils}} = \frac{72}{120} = \frac{6}{10} = 0.6$$

32. (a) Kirya is 3 times as old as his daughter. The difference between their ages is 36 years. How old is the daughter.

Let the age of the daughter be x

Age of Kirya = $3x$

$$\text{But } 3x - x = 36$$

$$2x = 36$$

$$x = 18$$

$\therefore$ daughter's age = 18 year

b) Solve $2(3a-5)-3(1-a)=14$

Remove brackets

$$6a - 10 - 3 + 3a = 14$$

Collect like terms

$$9a = 27$$

$$a = 3$$

33. A Gaso bus travelling from Kampala to Lyantonde at an average speed of 60 km per hour broke down after $2\frac{1}{2}$ hours' drive. The repairs took 30 minutes. The bus continued with the journey at an average speed of 50 km per hour for an hour.

- a) Find the distance covered by the bus.

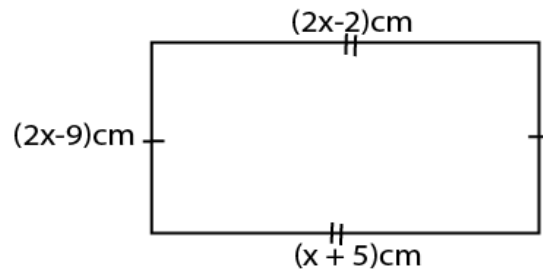
$$\text{Distance} = \text{speed} \times \text{time} = 2\frac{1}{2} \times 60 + 50 \times 1 = 200\text{km}$$

- b) Find the average speed of the bus over the whole journey.

$$\text{Total time} = 2\frac{1}{2} + \frac{1}{2} + 1 = 4\text{hour}$$

$$\text{Speed} = \frac{\text{distance}}{\text{time}} = \frac{200}{4} = 50\text{km/hour}$$

34. The figure below is a rectangle. Use the information given to answer the questions that follow:



- a) What is the perimeter of the rectangle?

Value of x

$$2x - 2 = x + 5$$

$$x = 7$$

$$\text{Length} = (x + 5) = 7 + 2 = 12$$

$$\text{Width} = 2x - 9 = 2 \times 7 - 9 = 5$$

$$\text{Perimeter} = 2(L + W) = 2(12 + 5) = 2 \times 17 = 34\text{ cm}$$

b) Find the area of the rectangle.

$$\begin{aligned}\text{Area} &= L \times W \\ &= 12 \times 5 = 60\text{cm}^2\end{aligned}$$

c) Find the length of the diagonal of the rectangle.

$$\text{Diagonal} = \sqrt{12^2 + 5^2} = \sqrt{(144 + 25)} = \sqrt{169} = 13\text{cm}$$

33. In Moshi Primary School $\frac{3}{4}$ of the pupils who sat for the Primary Leaving Examination passed.

a) If those who failed were 30, find the number of pupils who passed.

$$\text{Fraction of pupils that failed} = 1 - \frac{3}{4} = \frac{1}{4}$$

Let total number of pupil be x

$$\Rightarrow \frac{1}{4}x = 30$$

$$\Rightarrow x = 120$$

$$\text{The number of pupils that passed} = 120 - 30 = 90$$

b) What percentage of pupils failed the examination?

$$\text{Percentage failed} = \frac{1}{4} \times 100 = 25\%$$

34. The table below shows some of the items Mrs. Okurut bought for Christmas. Use it to answer the questions that follow.

ITEMS	QUANTITY	COST PER KG	TOTAL
Rice	1	3 ½	Shs. 900
Meat	3	Shs. 2000	Shs. 6000
Sugar	2 ½	Shs. 1000	Shs. 2500
Tomatoes		Shs. 400	Shs-1000
Onions	2 ½	Shs.600	Shs. 1200
Total			Shs13850

a)Complete the table.

b) If she had shs. 15,000 and she was given a discount of 10%, what was her balance?

$$\text{Money paid} = \frac{90}{100} \times 13850 = 12465$$

$$\text{Balance } 15000 - 12465 = \text{shs. } 2535$$

37. A parent gave exercise books to two sons and a daughter (James, Peter and Jane) in the ratio 3:5:4 respectively. If Jane got 16 exercise books, how many exercise books did the parent give altogether?

$$\text{Total ration} = 3 + 5 + 4 = 12$$

Let the total number of books be y

$$\Rightarrow \frac{4}{12}x = 16$$

$$x = 16 \times \frac{12}{4} = 48 \text{ books}$$

38. The table below shows marks scored by the pupils in a mathematics test. Use it to answer questions that follow:

Marks scored	70	40	30	50
Number of pupils	3	4	2	1

(a) How many pupils did the test?

$$\text{Total number of student} = 3 + 4 + 2 + 1 = 10$$

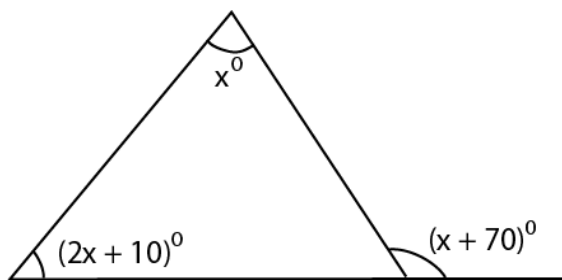
(b) Find the modal mark (mode).

$$\text{Modal mark is the mark got by very many students} = 40$$

(c) Find the mean mark.

$$\text{Mean} = \frac{70 \times 3 + 40 \times 4 + 30 \times 2 + 50 \times 1}{10} = \frac{210 + 160 + 60 + 50}{10} = \frac{480}{10} = 48$$

39. Find the value of the angle marked $(2x + 10)^\circ$ in the figure below:



Sum of two opposite interior angles
 $(2x + 10) + x = x + 70$
 Remove brackets
 $2x + 10 + x = x + 70$
 Collect like terms

Divide by 2 throughout

$$\begin{aligned} \Rightarrow x &= 30^\circ \\ \Rightarrow 2x + 10 &= 2 \times 30 + 10 \\ &= 70^\circ \end{aligned}$$

40. Matembe drove at 60 km per hour for $2 \frac{1}{2}$ hrs from A to B.

a) If Matembe left town A at 1:50 p.m at what time did he reach town B?

$$\begin{array}{r} \text{Time of arrival} = 1:50 \\ + 2:30 \\ \hline 4:20 \text{ pm} \end{array}$$

b) If the cost of petrol was Shs. 1190 per litre and Matembe's car used one litre to cover 10 kilometres, find the cost of petrol for the journey.

$$\begin{aligned} \text{Distance covered} &= \text{speed} \times \text{time} \\ &= 60 \times 2 \frac{1}{2} = 150 \text{ km} \end{aligned}$$

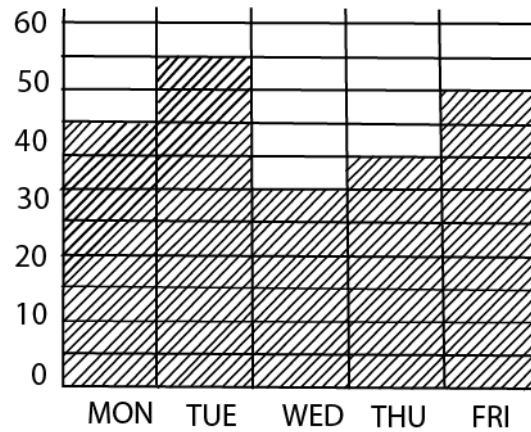
But 10km require 1liter of petrol

$$150 \text{ km require } \frac{150}{10} \times 15 \text{ liters}$$

1liter costs 1190

$$15 \text{ liters cost } 1190 \times 15 = \text{shs } 177,850$$

41. The graph below shows the attendance of P.7 pupils last week in Zam-Zam Primary School. Study the graph and use it to answer the questions that follow:



a) How many pupils were present on Thursday?

35

b) Find the difference between the highest and lowest attendance in the week.

$$55 - 30 = 25$$

c) How many pupils attended that week altogether?

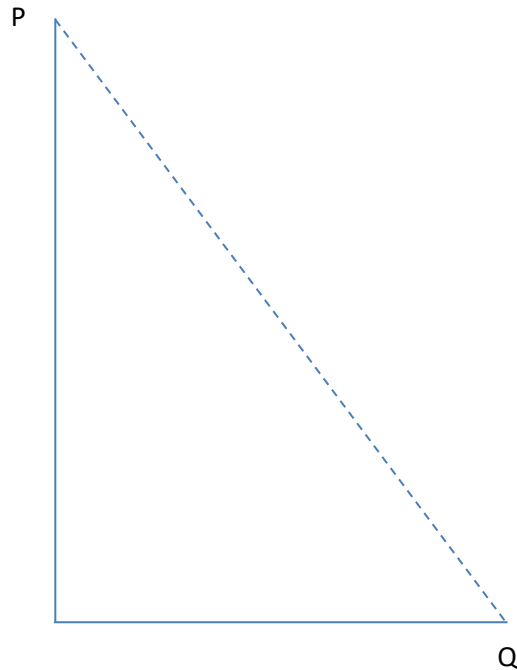
$$\begin{aligned} \text{Total number of students} &= 45 + 55 + 30 + 35 + 50 \\ &= 215 \end{aligned}$$

d) What was the average attendance for the week?

$$\text{Average} = \frac{\text{total number of pupil}}{\text{number of days}} = \frac{215}{5} = 43$$

42. Mukwana drove 40km southwards from Town P to Town K. He then drove 30 km eastwards to Town Q and returned directly from Q to P.

- a) Using a scale of 1 cm to represent 5 km, draw an accurate diagram to show Mukwana's journey.



- b) What is the shortest distance from P to Q in kilometres?

The shortest distance PQ = 10cm

Thank U