Dr. Bbosa Science

UGANDA NATIONAL EXAMINATION BOARD

PRIMARY LEAVING EXAMINATION

2002

MATHEMATICS

Time allowed: 2hours 15 minutes

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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		

Turnover

SECTION A

1. Work out: 461 + 23

461

+23

484

2. Write XLV Fin Arabic numbers.

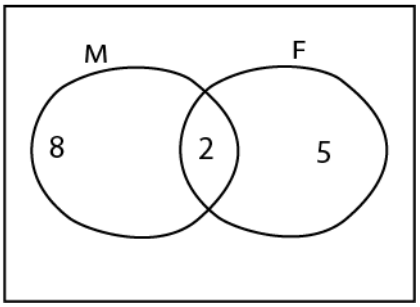
XLV = XL + V = 40 + 5 = 45

3. Express 40cm as a percentage of one metre

1m = 100cm

Percentage = $\frac{40}{100}\ x\ 100\% = 40\%$

4. The Venn diagram below shows the number of children who eat meat (M) and fish (F). Find number of all the children who eat meat.



n(M) = 8 +2 = 10

5. Write; Eighty four thousand forty eight, in figures.

84,048

6. David picks 15 mangoes every day. How many mangoes will he have picked in four days?

Mangoes picked in four days = 15 x 4 = 60

7. Mugisha scored the following marks in science tests: 5, 6, 7, 9, 8, 6, 4. What was his modal mark?

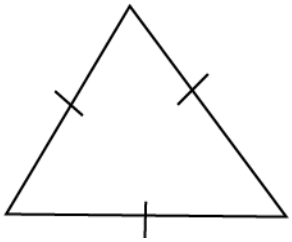
The modal mark is the most common mark = 6

8. Change 3 to binary system.

2	3	r
	1	1

∴ $3_{ten} = 11_{two}$

9. How many lines of folding symmetry has the figure below?



There are 3 folding symmetry

10. List the prime factors of 24 (and leave them in power form)

2 **24**

2 **12**

2 **6**

3 **3**

1

Prime factors of 24 = 2 x 2 x 2 x3

$= 2^3x3$

11. What number has been expanded to get $\{4 \times 10^2) + (4x\ 10°) + (7xl0^{-3})$

		H	T	O		TH	HH	TH		
4×10^2	=	4	0	0	.	0	0	0		
4x 10°	=			4	.	0	0	0		
$7xl0^{-3}$	=					0	0	7		
Total		4	0	0	.	0	0	7		

∴ the number expanded = 400.007

12. Round off 5.985 to the nearest tenths.

5.985 = 6.0 (to the nearest tenths)

13. If $\frac{2}{5}$ of a number is 10. Find the number.

Let the number be X

$\frac{2}{5}$ of x = 10

$\frac{2}{5}\ x = 0$

X = 10 x $\frac{5}{2}$ = 25

14. The diagram below shows the number of pupils present in a P.6 class in three streams on a certain day at Kanzu primary school.

Class	Present
P6A	
P6B	
P6C	

Key:  = 8 pupils

 = 4 pupils

How many pupils attended that day?

P6A	**4 x 8**	**32**
P6B	2 ½ x 8	20
P6C	2 ½ x 8	20
Total		72

∴ pupils that attended that day = 72

15 Solve 5y-4=16

Collect like terms

5y = 16 + 4 = 20

Divide by 5 on either side

$\frac{5y}{5} = \frac{20}{5}$

Y = 4

16 Work out 705÷15

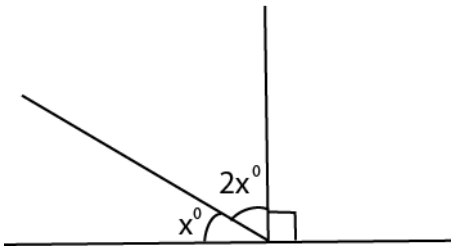
$\frac{705}{15} = \frac{141}{3} = 47$

17 Given that a = 2, b = 4 and c = -3. work out: b (a +c).

Substituting for a, b and c

4(2-3) = 4 x -1 = -4

17. Find the value of x in the figure below.

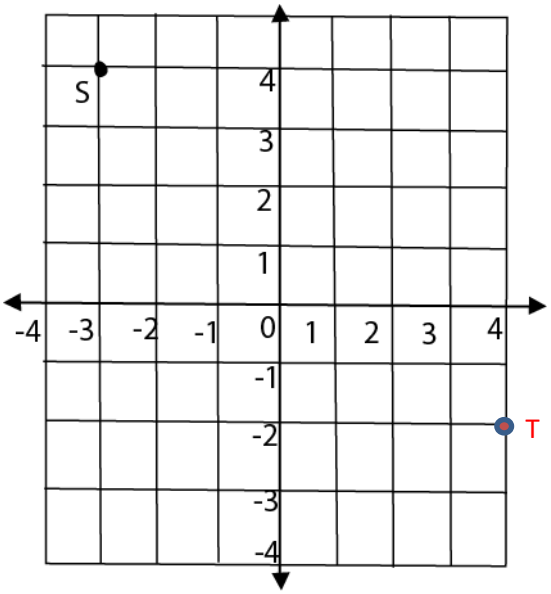


$x + 2x = 90^0$

$3x = 90^0$

$x = 30^0$

Use the grid below to answer questions 19 and 20.



19. State co-ordinates of point S. (-3, 4)

20. Mark point T(4, -2) on the grid,

21. Kaliki paid Sh 24,000 for four textbooks. Find the cost of one textbook.

Cost per textbook = $\frac{24000}{4} = 6000 \neq$

22. Mbabazi walked 3,600m in 36 minutes. Find his average speed in Km per hour.

1000m = 1km	1000m = 1km
3600m = $\frac{3600}{1000} = 3.6km$	3600m = $\frac{3600}{1000} = 3.6km$
60 minutes = 1hour	60 minutes = 1hour
36minutes = $\frac{36}{60} = \frac{3}{5}\ hour$	36minutes = $\frac{36}{60} = \frac{3}{5}\ hour$

23. The faces of a cube are numbered 1 to 6. The cube is rolled once.

What is the probability that a prime number will show on the top face?

Sample space =(1, 2, 3, 4, 5, 6)

Prime numbers = (2, 3, 5)

Probability of prime number = $\frac{3}{6} = \frac{1}{2}$

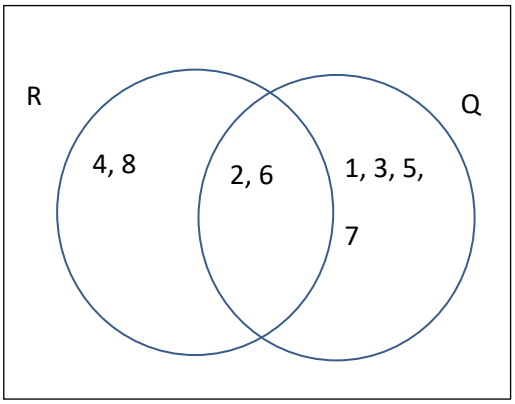
24. Find the circumference of a circular compound whose radius 14m. (Take π $^{22}/_{7}$)

Circumference = $2\pi r$

= 2 x $\frac{22}{7}\ x\ 14$

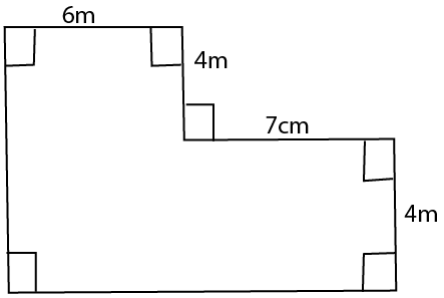
= 88cm

25. Given that R = { 2, 4, 6, 8} and Q={l,2,3,5,6,7}Find: n(RUQ)



n(RUQ) = 8

26. Akello has a garden of the shape shown. Find the distance around her garden in metres.



4 + 4= 8

6 + 7= 13

Distance = 8 + 6 + 4 + 7 + 4 + 13 = 42

27. Work out: $\frac{1}{4} + \frac{3}{5}$

$\frac{1}{4} + \frac{3}{5} = \frac{(1\ X5)+(\ 3\ X\ 4)}{20} = \frac{5+12}{20} = \frac{17}{20}$

28. A rectangular tank measures 5m by 4m by 3m. Find its volume.

Volume = L x W x h

= 5 x 4 x 3

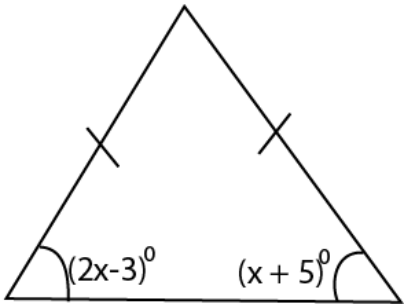
= 60cm^3

29. Odama deposited Sh 120,000 in bank, which gives a simple interest rate of 4% per year. Find his interest after 3 months.

I = PRT

= $120{,}000\ x\ \frac{4}{100}\ x\ \frac{3}{12} =$ shs 1200

30. Find the value of *x* in the figure below



(2x -3) = (x + 5)

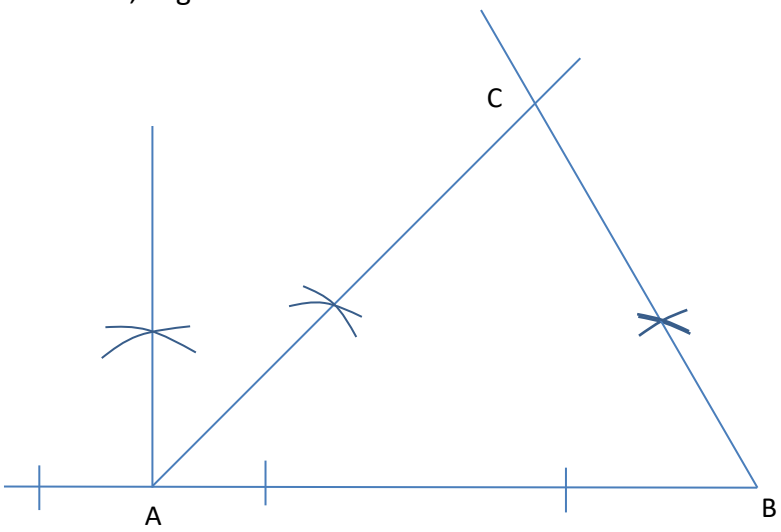
Remove brackets

2x -3 = x + 5

x = 8

SECTION B

a) Using a pair of compasses, pencil and ruler only, construct triangle ABC, in which AB = 8cm, angle ABC = 60°, angle CAB = 45°



b) Measure AC = 7.2cm

31. Work out $\frac{0.27\ x\ 0.06}{0.9\ x0.3} = \frac{0.27\ x\ 0.06}{0.9\ x0.3}\ x\ \frac{10000}{10000} = \frac{27\ x\ 6}{9\ x\ 3\ x\ 100} = \frac{6}{100} = \frac{3}{50}$

32. The mean of the scores: 8,7,6,5, {a - 5) is 6.

a) Find the value of a.

Average = $\frac{sum\ of\ items}{number\ of\ items}$

$6 = \frac{8+7+6+5+(a-5)}{5}$

30 = 21 +a

a = 9

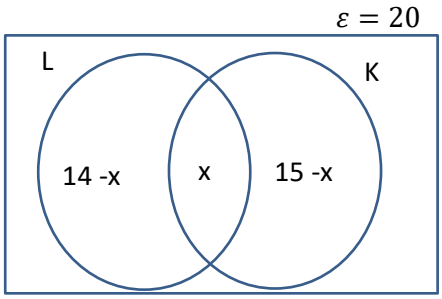
b) Find the range of the scores.

Range = highest value – lowest value

= 9 – 5 = 4

34. In a class of 20 pupils where two languages are spoken, 14 speak luganda (L), 15 speak Kiswahili (K).

a) Draw a Venn diagram and show the i nformation given.



Let pupils that speak both language be x

b) Find the number of pupils who speak both Lluganda and Kiswahili.

20 = 14 –x + x + 15 – x

20 = 29 – x

x = 9

therefore, number of students that speak both languages = 9

c) Find the number of pupils who speak one language only.

= 14 – 9 + 15 – 9

= 5 + 6

= 11 pupils

35. When marking a test, a teacher awarded 2 marks for every correct answer and subtracted a mark for every wrong answer. The test contained 20 questions.

a) A pupil got 18 correct answers. What mark did the pupil get?

= (18 x 2) – (1 x 2)

= 36 – 2

= 34

b) A pupil got 25 marks. How many correct answers did the pupil get?

Let the number of correct answers be x

Wrong answers = (25 – x)

25 = 2x – (20 –x)

25 = 3x – 25

3x = 45

x = 15

∴ there were 15 correct answers

36. In a feed factory, crushed fish is mixed with maize flour in the ratio 1:3

The feed are packed in 80kg bags.

a) How many Kilograms of fish are used in one bag of the feeds?

Total ratio = 1 + 3 = 4

Mass of fish = $\frac{1}{4}\ x\ 80 = 20\ kg$

b) If one Kilogram of maize flour costs Sh 400, how much does it cost to buy maize flour to make feeds weigh 1000Kg?

Mass of fish = $\frac{1}{4}\ x\ 1000 = 250kg$

Mass of maize = 1000 – 250 = 750kg

Cost of maize in 1000kg of feed = 750 x 400 = shs 300,000

37. The table below shows a boy's expenditure. Study it and answer the questions that follow.

Item	Quantity bought	Price per kg	Amount spent
Posho Beans Rice sugar	....kg 2 kg 3 kg 3 kg	shs 700 shs 1,300 shs ... shs. 800	shs 2,800 shs ..... shs 1,800 shs .....
		Total	shs .....

Item	Quantity	Price per kg	Amount spent
Posho Beans Rice Sugar	4kg 2kg 3kg 3kg	Shs 700 Shs 1300 Shs 900 Shs 800	Shs 2,800 Shs 2,600 Shs 1,800 Shs 2,400
		total	Shs 9600

(a). Complete the table.

(b). If the boy went to the market with Sh 10,000, what was his balance?

The balance = 10000 – 9600 = shs 400

38. A man left his home at 7.00a.m riding a bicycle and arrived at his place of work 25Km away at 9.30 am

a) Find his average speed.

Time taken = 9. 30 am

- 7. 00 am

2 . 30 or 2 ½ hour

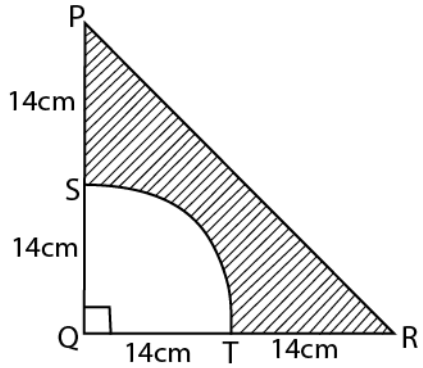
Speed = $\frac{distance}{time} = 25 \div 2\frac{1}{2} = 25 \div \frac{5}{2} = 25\ x\ \frac{2}{5} = 10km/hr$

b) If he left his place of work for home at 5.00pm. Riding at an average speed of 15Km per hour, at what time did he get home?

Time taken = $\frac{distance}{speed} = \frac{25}{15} = \frac{5}{3} = 1\frac{2}{3}\ hours = 1hour\ 40minutes$

Time of arrival = 5 :00 + 1:40 = 6:40pm

34. In the figure below, PQ = QR = 28Cm. Use it to answer the questions that follow. *P* below.



a) Find the area of triangle PQR.

Area of a triangle = $\frac{1}{2}bh$

$= \frac{1}{2}\ x$ 28 x 28

= 14 x 28

= 392cm^2

b) Find the area of the sector QST. (Take $\pi = {}^{22}/_{7}$)

Area of QRT = $\frac{1}{4}\ x\ \pi r^2$

$= \frac{1}{4}\ x\ \frac{22}{7}\ x\ 14\ x\ 14$

= 154cm^2

c) What is the area of the shaded part?

Area of shaded part = area of triangle – area of unshaded part

= 392 – 154

= 238 cm^2

40. (a) Solve x- 1 =2x+5.

x- 1 =2x+5

collect like term

x = -6

(b) Solve the inequality; 3(2-x)< 15.

3(2-x)< 15

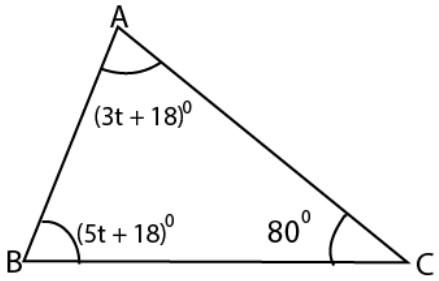
Remove brackets

6 – 3x < 15

Collect like term

X > -3

41. Study the triangle below and use it to answer the questions that follow. A



i) Find the value of t.

$(3t + 18) + (5t + 18) + 80^0 = 180^0$ (angle sum of triangle)

Remove brackets

$3t + 18 + 5t + 18 + 80 = 180$

$8t + 116 = 180$

$8t = 64$

$t = 8^0$

ii) Find the size of angle ABC.

Angle ABC = $5 \times 8 + 18 = 58^0$

42. Kiyemba rode a bicycle from town A to town C through town B as follows:

He rode from A to B a distance of 30km for 3 hours and then rested for ½ an hour. From B, he rode to C a distance of 20Km in $2^1/_2$ hours.

On the graph given below, draw a line to show Kiyemba's movement. Also show towns B and C.