Dr. Bbosa Science

UGANDA NATIONAL EXAMINATION BOARD

PRIMARY LEAVING EXAMINATION

2015

MATHEMATICS

Time allowed: 2hours 15 minutes

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Index No:

WITH ANSWERS

Candidate's Name……..

Candidate's signature……..

District Name……

Read the following instructions carefully

1. This paper has two sections **A** and **B.** Section **A** has 50 questions and section **B** has 5 questions. The paper has 15 pages following altogether.
2. Answer all questions. All answers to both sections A and B must be written in the spaces provided.
3. All answers must be written using a blue or black ball-point pen or ink. Any work written in pencil other than graphs, pictures and diagrams will **not** be marked.
4. Unnecessary change of work may lead to loss of marks.
5. Any handwriting that cannot easily be read may lead to loss to marks.
6. Do not fill anything in the boxes indicated:
   "For examiners'. Use only and inside the question paper

FOR EXAMINERS USE ONLY		
Qn.No	**MARKS**	**EXR'S NO.**
1-10		
11-20		
21-30		
31-40		
51		
52		
53		
54		
55		
Total		

Turn over

SECTION A: 40 MARKS

Answer all questions in this section.

Questions **1**to **20** carry **two** marks each.

1. Work out: 124 - 45

   124

   - 45

   79

2. Write in figures: **Eighty thousand, ten.**

   80000

   + 10

   80010

3. Simplify: 18x-5(3x+7).

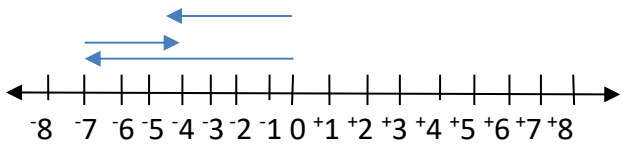
   18x-5(3x+7).

   18x- 15x-35

   3x -35

4. Given that set *k* ={g, m, v, *z*}, find the number of subsets in **set *k***

5. Workout $^{-}7$ - $^{-}3$ on the number line below.



6. Find the sum of the 5th and 8th prime numbers.

   List of prime numbers: 2, 5, 7, 11, 13, 17, 21, 23

   Fifth prime number 13

   Eight prime number + 23

   39

7. Work out: $\frac{14}{15} \div \frac{2}{5}$

   $\frac{14}{15} \div \frac{2}{5} = \frac{14}{15} x \frac{5}{2} = \frac{7}{5} = 1\frac{2}{5}$

8. A birthday party started at4:30 p.m. and lasted $2\frac{3}{4}$ hours. At what time did the party end?

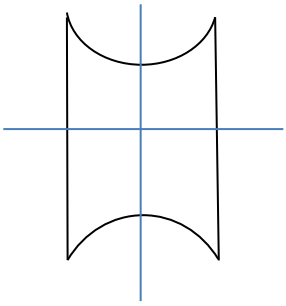
   2 ¾ hour = 2hrs 45minutes

   4: 30

   + 2: 45

   8 : 15 pm the party ended at 8:15pm

9. Show all the lines of folding symmetry in the figure below



10. A traders sold a pair of shoes at 32,800 making a profit of sh 1,200.
    What was the cost price of the pair of shoes?

    Cost price = Selling price – profit

    = 32800 – 1200

    = shs. 31600

11. In a car park there are 192 cars. The probability that a car picked at random from the pick is made in Japan is $\frac{5}{8}$.
How many cars are not made in Japan?

The probability that a car is not made in Japan = 1 - $\frac{5}{8} = \frac{4}{8}$

The number of cars not made in japan = $\frac{4}{8}\ x\ 192 = 96$

12. How many packets of 200 grams can be got be got from 2.6 kilograms of salt?

Convert 2.6kg to grams = 2.6 x 1000 = 2600g

Number of packets = $\frac{2600}{200}$ = 13 packets

13. Given that $a = -2$, $b=3$ and c=4, find the value of $b(a^2 + c)$.

Substitute for a, b and c

$b(a^2 + c) = 3(-2^2 + 4)$

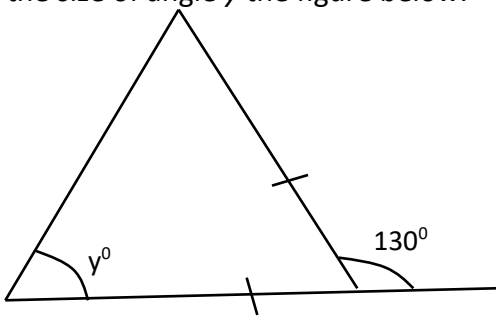
Evaluate

$3(-2^2 + 4) = 3(4+4) = 24$

14. Work out: $1101_{two} + 111_{two}$

$$\begin{array}{r} 1101_{two} \\ +\ 111_{two} \\ \hline 10100 \end{array}$$

15. Find the size of angle *y* the figure below.

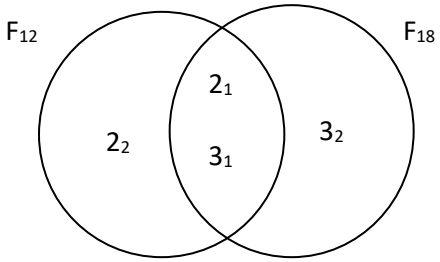


$2y = 130^0$

$y = 65^0$

16. The Venn diagram below shows the prime factors of 12 and 18

Use it to answer the question that follows



Find the lowest common multiple of 12 and 18.

LCM= $2_1 \times 2_2 \times 3_1 \times 3_2 = 36$

17. Find the median of the numbers: 8, 10, 4, 1, 6 and 9.

Arrange the number in order starting with the smallest

1, 4, **6**, **8**, 9, 10

since the total number is even, the average middle numbers 6 and 8 give the median

∴ the median = $\frac{6+8}{2} = 7$

18. Bbosa has goat and sheep in the ratio of 3:2. It he has 24 goats, how many sheep does he have?

Total ratio = 3+2 = 5

Let the total number of be Y

$\frac{3}{5}$ Y = 24

Y = 40

The number of sheep = 40 – 24 = 16 sheep

19. A bucket was $\frac{3}{4}$ full of water. When 4 liters were removed, it become $\frac{1}{2}$. What is the capacity of the bucket?

Let the capacity of bucket be X

$\frac{3}{4}X - 4 = \frac{1}{2}X$

Multiply be 4 throughout

3X -16 = 2X

Collect like terms

X = 16

20. In a poultry farm, eggs are packed into boxes into boxes which hold 144 eggs. How many boxes of the same size are needed to pack 1,008 eggs?

$$The\ number\ of\ packs = \frac{total\ number\ of\ eggs}{the\ number\ of\ egge\ per\ pack}$$

$$= \frac{1{,}008}{144}$$

= 7 packs

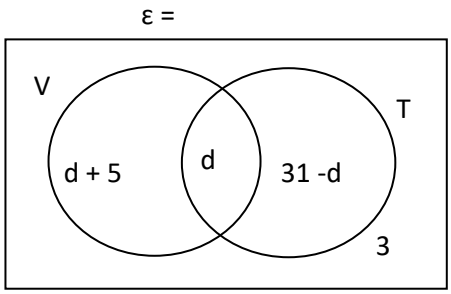
SECTION B: 60 MARKS

Answers all question in this section.

Marks for each question are indicated in the brackets

21. In a class, 31 pupils play tennis (T) and (d + 5) play volley ball (V) only D pupils play both games while 3 play neither of the games.

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



(b) If 27 pupils play volleyball altogether, find the valve of *d* (02marks)

$2d + 5 = 27$

$2d = 22$

$d = 11$

22. (a) What number has been expanding red below?

$(6x10^3)+ (2x10^1) +7x10^0) + (3x10^{-2})$ (03marks)

$= 6000 + 20 + 7 + 0.03$

$= 6027.03$

(b) Work out (8.5x14) +(8.5x16) (02 marks)

$= 8.5(14 + 16)$

$= 8.5 \times 30$

$= 255$

23. The table below shows the rate at which different currencies were sold and bought in a commercial bank during the month of September.

Use it to answer the question that following.

currency	Selling in Ug. Sh.	Buying in ug.sh.
1 US dollar ($) 1Euro (€) 1 Rwandese franc	3,600 4,000 4.0	3,650 4,020 5.0

(a) How many Euros Musa get for Ug. shs.603, 000? (02 mark)

Shs. 4,020 buy 1 Euro

∴ shs. 60300 buy: $\frac{603000}{4020} = 150$ Euros

(b) Amina came from Rwanda with 109,500 Rwandese francs and exchanged them for US dollar. How many US dollar did she get from the bank? (03mark)

First find the money in Uganda shilling and the buy US dollars

1 Rwanda franc is equivalent to Ug shs. 5.0

∴ 109500 Rwandese fracs ≡ 5 x 109500

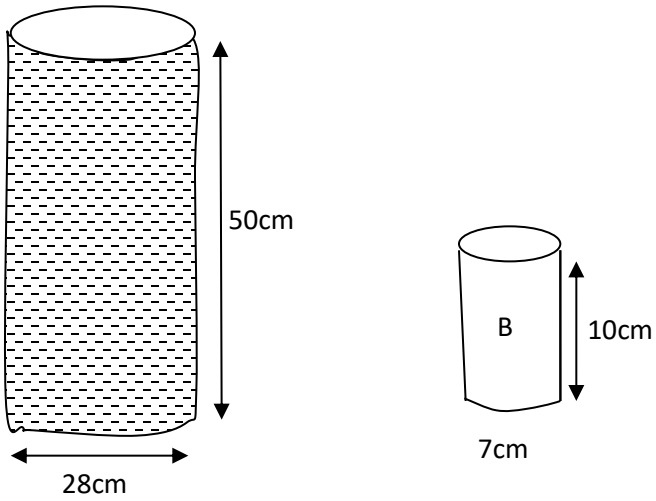
= 547500

Then buy UD dollar using Uganda shillings

Ug. Shs 3,650 buy 1 US dollar

∴ 547500 will buy $\frac{547500}{3650} = 150\ US\ dollars$

24. Bbosa filled container A below with drinking water, she served visitor with the water using cups of size B shown in the diagram



Find the total number of full cups of water she served the visit

(Use $\pi\frac{22}{7}$) (06marks)

Volume of a cylinder = $\pi r^2 h$

Volume of container A = $\frac{22\ x\ 14^2\ x\ 50}{7} = 30800 cm^3$

Volume of each cup = $\frac{22\ x\ 3.5\ x\ 3.5\ x\ 10}{7} = 385\ cm^3$

Number of filled cups = $\frac{volume\ of\ A}{volume\ of\ the\ cup} = \frac{30800}{385} = 80\ cups$

25. A fruit seller sold the following number of mangoes in six days.

60, 35, 40, 28, 42, and 35.

(a) What is the modal number of mangoes sold? (01marks)

The modal number is the most common number = 35

(b) Work out the mean number of mangoes sold

(02marks)

$$the\ mean = \frac{sum\ of\ the\ number}{number\ of\ items}$$

$$= \frac{60+\ 35+\ 40+28+42+\ 35}{6} = 40$$

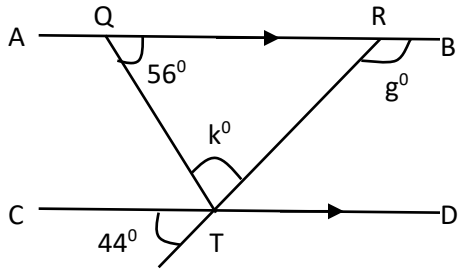
(c) By the end of the seventh day, the mean number of mangoes sold was 44. How many mangoes were sold on the seventh day? (02 marks)

Let the number of mangoes sold on Sunday be Q

$$44 = \frac{40\ x\ 6+Q}{7}$$

Q = 68 mangoes

26 In the figure below line AB is parallel to CD, Angle CTV = 44 and angle TQR=56. **Study use it to answer the questions that follow:**



Find the size of

(a) Angle *k* (02mark)

Angle RTD = 44^0 (corresponding angles)

Angle RTD + k + 56 = 180

k = 180 – (44 + 56) = 80^0

(b) Angle g (02mark)

g + angle RTD = 180^0

g = 180 -44 =136^0

27 The table below shows how a motor cyclist travelled from town R through towns Q and S to town P.

Study and use it to answer the question that below

Town	arrival	departure
R		9:00 a. m
Q	9:30 a. m	9:42 a. m
S	10:35 a. m.	11:10 a. m
P	1:30 p. m	

a. How long motor cyclist stay at town S (01mark)

11: 10

- 10: 35 35 minutes

35

b. Find time the motor cyclist took to travel from town R to town P (02mark)

Time taken = 12.00 -9.00 + 1.30 = 4hrs 30 minutes

c. If the distance from town R to town P is 180km, calculate the average speed of the motor cyclist for the whole journey. (02marks)

$Speed = \frac{Distance}{time}$

$= \frac{180}{\frac{9}{4}} = \frac{180\ x\ 4}{9} = 80kmhr^{-1}$

28. Bbosa sold his radio to Aguti at sh 63,000 making a loss of 10 %. Aguti later sold the radio to chebet at a profit of 15%.

(a) Calculate the amount of money Bbosa paid for the radio.

(03marks)

Let the amount be Q

(100-10)%Q = 6300

$$Q = \frac{6300\ x\ 100}{90} = 7000$$

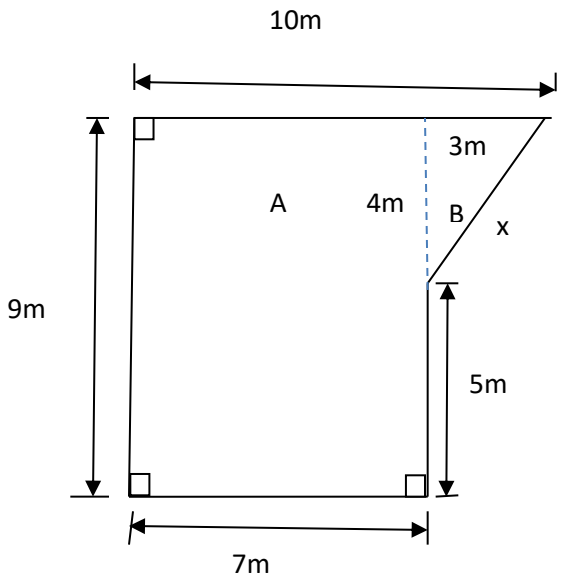
(b) For how much money did Aguti sell the radio? (02 marks)

Let the selling price be P

$$P = \frac{(100+15)\ 6300}{100} = 7245$$

Aguti sold the radio at Shs. 7245

29. Study the figure below and use it to answer the questions that follow.



(a) Calculate the area of the figure (03mark)

Total area = Area of A + Area of B

= L x B + ½ bh

= (7 x 9) + ½ (4 x 3)

= 63 + 6

= 69 cm^2

(b) Work out the perimeter of the figure. (03marks)

First, we find the value of X using Pythagoras theorem

X = $\sqrt{4^2 + 3^2} = 5m$

Perimeter = 10 + 5 + 5 + 7 + 9 = 36m

30. Two taps F and E are connected to water tank. Tap F can fill the tank in 2 hours while E can empty it in 3hours, one day when the tank was $\frac{1}{2}$ full of water; the taps were opened at the same time.

How long did it take to fill the tank?

Let the volume of the tank be V

Rate of filling the tank = $\frac{V}{2} - \frac{V}{3} = \frac{1}{6}V$

Time take = $\frac{volume}{rate} = \frac{1}{2}V \div \frac{1}{6}V = \frac{6}{2} = 3hours$

31. A geometry set costs half as much as a book. A book costs shs 600 more than a fountain pen. If the total cost of the three items is shs 6,900, find the cost of the geometry set. (04marks)

Let the cost of geometry set = x

The cost of the book will be = 2x

The cost of fountain pen = 2x – 600

Total cost = x + 2x + 2x – 600 = 6900

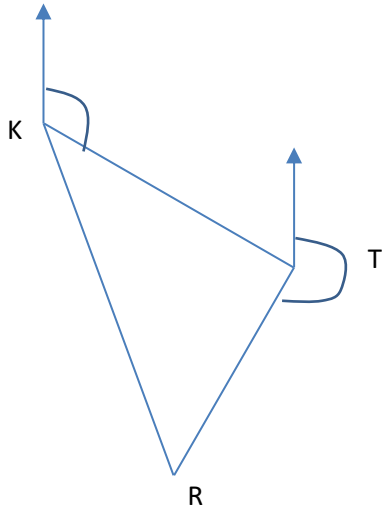
5x = 7500

X = 1500

A geometry set cost shs. 1500

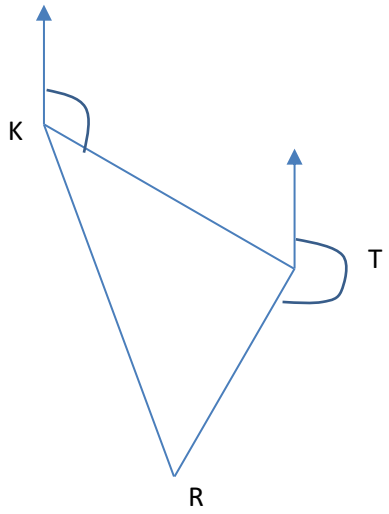
32 A plane flew from airport **K** to airport **T** on a bearing of 120^0. The distance between **K** and **T** is 600km. It then left airport **T** for airport **R** on a bearing of 210^0. The distance between **T** and **R** is 500km.

(a) Sketch journey made by the plane (04marks)



(b) Using scale of 1cm represent 100km draw an accurate diagram to show the journey made by the plane.

(04marks)



(c) Find the bearing airport **R** from airport **K** = 160^0 (01mark)