Dr. Bbosa Science

UGANDA NATIONAL EXAMINATION BOARD

PRIMARY LEAVING EXAMINATION

2013

MATHEMATICS

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Time allowed: 2hours 15 minutes

Index No:

Candidate's Name……..

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Read the following instructions carefully

1. This paper has two sections A and B.
2. All the working. For both section A and B must be shown in the spaces provided
3. All working must be done using a blue or black ball
   Point pen or fountain pen Diagram should be drawn in pencil
4. No calculators are allowed in the examination room.
5. Unnecessary change of work may lead to loss of marks
6. Any hand writing that cannot easily be read may lead to loss of marks
7. 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.
1-5		
6-10		
11-15		
16-20		
21-22		
23-24		
25-26		
27-28		
29-30		
31-32		
TOTAL		

Section A

Answer all questions in this section

Questions 1 to 20 carry two marks each.

1. Work Out : 22 X 4

   22 x 4 = 88

2. What number has been expanded below?

   20,000 + 600 + 8

   20,000

   600

   + 8

   20608

3. Write XCIX IN Hindu -Arabic numerals.
   XCIX = 99

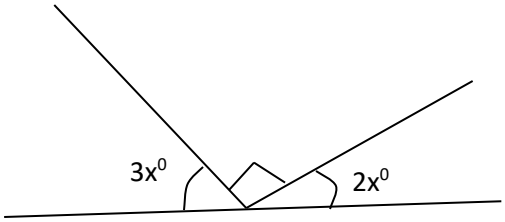
4. Given that set P = $\{1, 2, 3, 5, 7, 9\}$ and set Q= $\{2, 3, 5, 7\}$.
   Find (P∩Q)

   P∩ Q ={2, 3, 5, 7}

5. Round off 12,962 into the nearest thousands

   12,962 = 13,000 (to the nearest a thousands

6. Find the value of X in the diagram below.



$3x + 90^0 + 2x = 180^0$ (angle sum of straight line)

$5x = 90$

$X = 18$

7. A pupil bought a dozen books for shs 6,000. He later sold each book at shs 700. Calculate the profit.

   Total sale = 12 x 700 = 8400

   Profit = total sale – cost

   = 8400 – 600

   = 2400

8. Simplify: $4t-2k+5k-t$

   Collect like terms: 4t-t +5k-2k = 3t+3k

9. Divide 6363 by 7

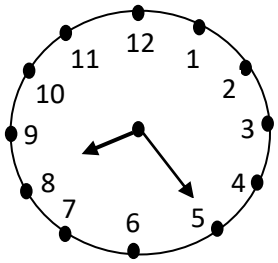
   6363 ÷ 7 = 909

10. Work out: $^2/_3 + ^1/_4$

    Find the LCM of 3 and4 = 12

    $\frac{2}{3} + \frac{1}{4} = \frac{8+3}{12} = \frac{11}{12}$

11. What morning time is shown on the clock face below?



8:25 am (am for the morning time)

12. Simplify: $^{+}4-^{+}6$

    4 – 6 = -2

13. In class, the ratio of girls to boys is 3:2. If there are 18 girls, how many pupils are in the class?

    Total ratio = 3+2 = 5

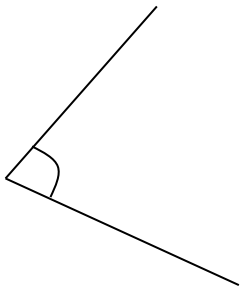
    Let the number of pupils be Q

    $\frac{3}{5}Q = 18$

    Q = 30

    The number of pupils in a class = 30

14. Using a ruler and a pair of compasses only, bisect the angle given below



15. Work out: 2-6 (mod 7)

    2+7-6 = 3(mod 7)

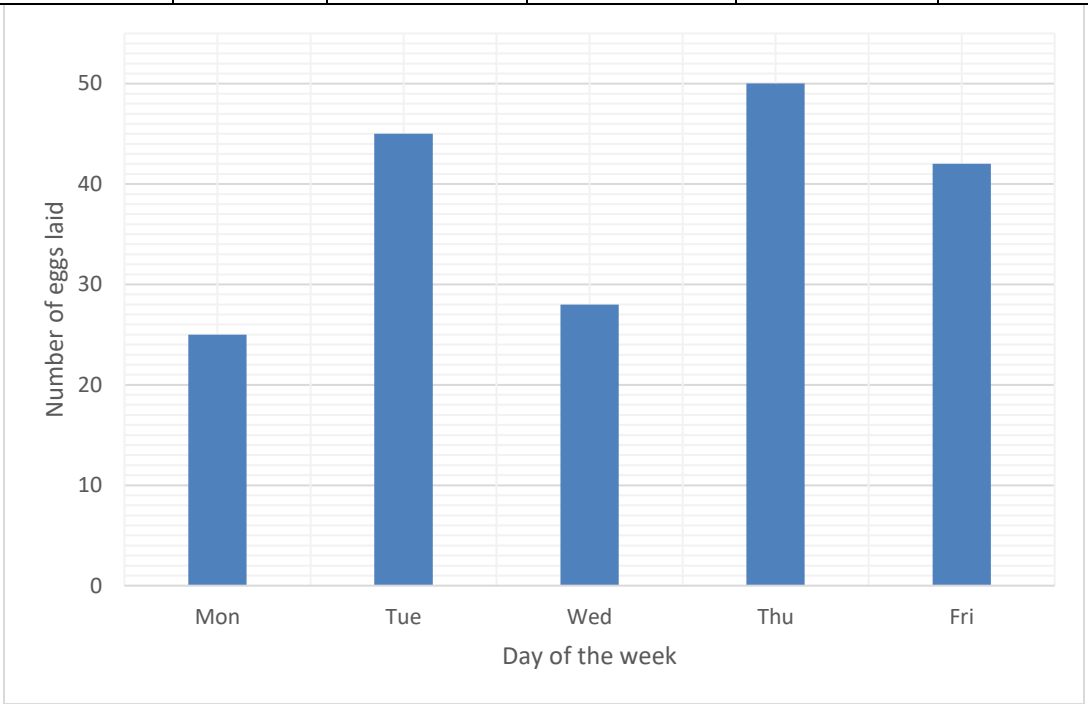
16. Given that a = $\frac{1}{3}$ and b = $\frac{1}{9}$.Find the value of $\frac{a}{b}$

$$\frac{a}{b} = \frac{1}{3} \div \frac{1}{9} = \frac{1}{3} x \frac{9}{1} = ,3$$

17. The bar graph below shows the number of eggs laid by chicken in Bbosa`s farm from Monday to Friday. Study it to complete the table.

Day of the week	Mon	Tue	wed	Thur	Fri

No of eggs laid	25	45	28	55	42



18. The lowest common multiple (LCM) of two numbers is 72 and their Greatest Common Factor (GCF) is 6 . If one of the numbers is 24, find the second number.

Let the number be Q

Q x 24 = LCM x GCE

Q x24 = 72 x 6

Q = 18

19. Trees were planted along a straight road 305 metres long. If the trees were planted 5 metres a part, how many trees were planted along the road?

The number of tree $= \frac{305}{5} + 1 = 61$

20. Medi has 30kg to be parked in $^{3}/_{4}$ kg packets. How many packets will he get?

The number of packets = $30 \div \frac{3}{4} = 30 \times \frac{4}{3} = 40$

SECTION B: 60 MARKS

Answers all questions in this section

Marks for each question are indicated in the brackets

21. Bbosa bought the items in the below from a shop.

(a) Complete the table (04 marks)

Item	Price	Amount
3 bars of soap	Shs 2,200 per bar	Shs 6,600
2 loaves of bread	Shs***1700*** per loaf	Shs 3,400
$2^{1}/_{2}$ kg of salt	Shs 800 per kg	Shs 2000
Total expenditure		Shs ***12000***

b) If Bbosa paid shs 10,800, what percentage discount was he given? (02 marks)

Discount = 12000 – 10,800 = 1200

Percentage discount = $\frac{discount}{total} \; x \; 100 = \frac{1200}{12000} \; x \; 100\% = 10\%$

22. (a) Express 0.406 in standard form. (02 marks)

4.06×10^{-1}

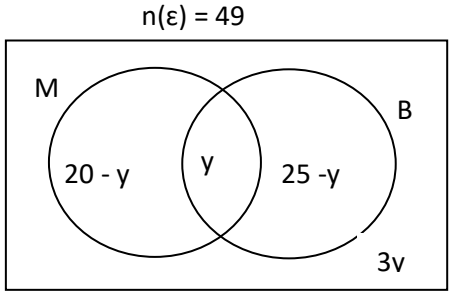
(b) Write 72 as a product of its prime factors. (02 marks)

2	72
2	36
2	18
3	9
3	3
	1

Prime factors of 72 = 2 x2 x 2 x 3 x 3 or $2^3 x3^2$.

23. In a village of 49 farmers ,20 grow millets (M). 25 grow beans (B) and y farmers grows both millet and beans. 3y farmers grow neither of the two food crops.

(a) Use the information given above to complete the Venn diagram below. (03 marks)



b) Find the value of y (02 marks)

20 -y + y + 25 -y + 3y = 49

2y = 49-45

y = 2

c) How many farmers grow neither millet nor beans? (01 marks)

3y = 3 x 2 = 6

24. Pupils did a test and scored marks as shown in the table below.

Marks	50	k	45	80
Numbers of pupils	2	6	3	4

(a) How many pupils did the test? (01 marks)

2 + 6 + 3 + 4 = 15

(b) Find the value of K if the mean mark was 61. (03 marks)

$$\frac{(50\ x2)\ +(k\ x\ 6)+(45\ X\ 3)+(80\ x\ 4)}{15} = 61$$

$$K = 60$$

(c) What was the range of the marks? (01 marks)

Range = the biggest – smallest mark

80 – 45 = 35

25. (a) Solve the inequality: 9≤-3 (y-1). (03 marks)

$9 \leq\ -3(y-1)$

$9 \leq\ -3y + 3$

9-3 ≤ -3y +3-3

6 ≤ -3y

-2 ≤ y

b) State the first two values of the solution set for the inequality? (01 marks)

-1, 0

26a). A watch loses 5 second every hour .How many minutes will it lose in two days? (02 marks)

In 1hournthe clock loses 5 second

In 1 day (24hours) it loses 5 x 24 = 120 seconds

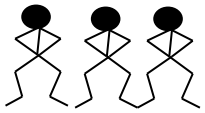
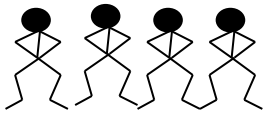
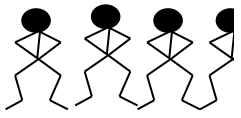
In 2 day (48hours) it lose 5 x 48 = 240 second or $\frac{240}{60} = 4minutes$

(b) Express 5m/sec in km/hr (03 marks)

Changes meters to km	Change 1 second to hour
1m = $\frac{1}{1000}$	3600s are equal to 1hours
5m = $\frac{5}{1000}$	1s = $\frac{1}{3600}$

Speed = $\frac{Distance}{time} = \frac{5}{1000} \div \frac{1}{3600} = \frac{5}{1000}\ x\ \frac{3600}{1} = 18km/hr$

27. The pictograph below represents the number of patients who were admitted in a hospital on a certain day. Study and use it to answer the questions that follow.

Men's ward	
Children's ward	
Women's ward	
Maternity ward	

Note:  Represents 10 patients  Represents 10 patients

(a) How many patients were admitted in the hospital on that day?

(02 marks)

Men's ward	30
Children's ward	40
Women's ward	35
Maternity ward	15
Total	**120 patients**

(b) Find the ratio of the patients in the women`s ward to those in the children`s ward in its simplest form. (02 marks)

$\frac{women}{children} = \frac{35}{40} = \frac{7}{8}$

(c) Express the number of patients in the men`s ward as a percentage of the total number of patients (02 marks)

$$\frac{30}{120}\ x\ 100\% = 25\%$$

Turn over

28. A tank was $\frac{2}{3}$ full of water. When $^1/_4$ of the water in the tank was drawn, 2,500 litres remained Find the capacity of the tank when full.

(04 marks)

Let the volume the total volume be V

$(\frac{2}{3}\left(1-\frac{1}{4}\right)x\ V = 2{,}500litres$

V = 5000litres

29. Opoka rides a distance of 2.97km from his home to school on a bicycle. The wheel of the bicycle has a diameter of 63cm.

(a) How many revolutions does the wheel make to cover the distance? (Take π-22/7)

Change 2.97km to cm = 2.97 x 100000 = 297000cm (03m arks)

Spons Circumference of the wheel = πd =$\frac{22}{7}\ x\ 63 = 198cm$)2309

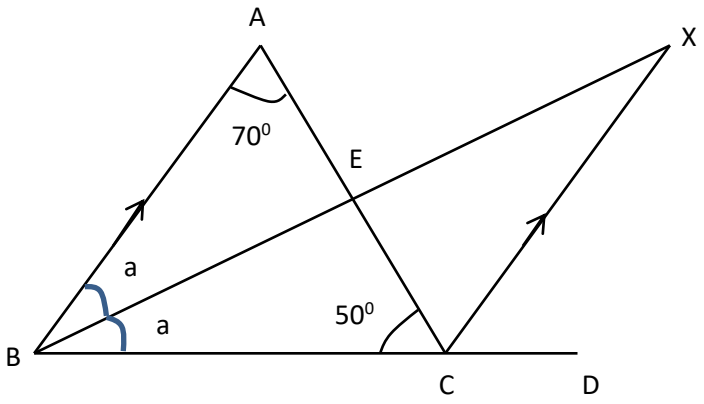
Number of revolutions = $\frac{distance}{circumfrnce} = \frac{297000}{198} = 1500revolution$

(b) If Opaka makes 50 revolutions in one minute, how long does he take to reach the school?

50 revolution per minutes = 1minute (02 marks)

1500 revolutions take $\frac{1\ x\ 1500}{50} = 30\ minutes$

30. In the figure below, BCD is a straight line. Line BX bisects angle ABC. Line AB is parallel to line XC. Angle BCE = 50^0 and angle BAC =70^0



Find the size of the angles:

(i) CEX (04 marks)

Considering triangle ABC

a + a 50^0 + 70^0 = 180^0 (angle sum of a triangle)

$2a = 60^0$

$A = 30^0$

Using triangle BAE

a + Angle BEA + 70^0 = 180^0

30^0 + angle BEA + 70^0 = 180^0

Angle BEA = 80^0

But, angle BEA = angle CEK

∴ angle CEK = 80^0

(ii) DCX (01 marks)

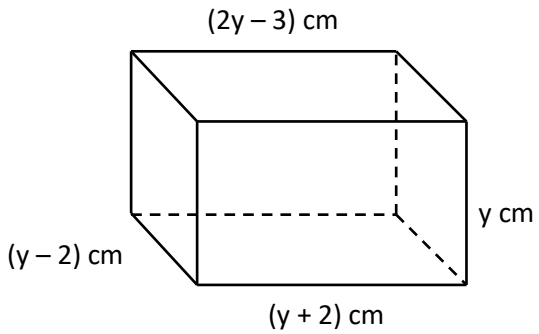
Angel XCA = angle BAC = 70^0 (alternative angles)

Angle BCA + angle ACX + angle XCD = 180^0 (angle sum on a straight line)

50^0 + 70^0 + angle XCD = 180^0

Angle XCD = 60^0

31. The figure below is a cuboid. Study and use it to answer the questions that follow.



(a) Find the value o f y (02 marks)

2y – 3 = y + 2

y = 3

(b) Find the volume of the cuboid (03 marks)

Length = y + 2 = 5 + 2 = 7

Width = y -2 = 3

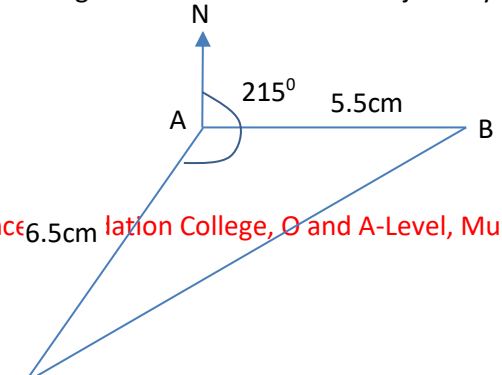
Height =y = 5

Volume = length x width x height= 7 x 3 x 5 =105cm^3.

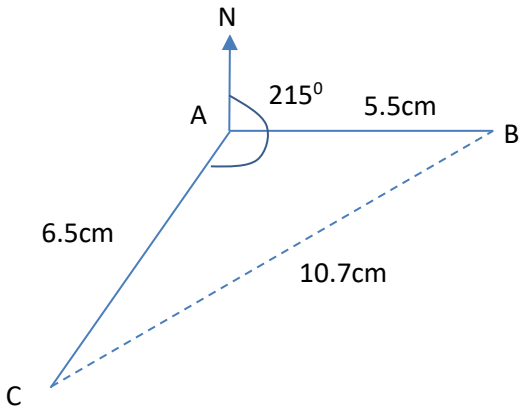
32. A tourist left town A and traveled 55 km westwards to town B. He then tuned on a bearing of 215^0 and traveled to town C which is a distance of 65km.

(a) Draw a sketch diagram to show the tourists ` journey. (01 marks)

(b) ...



(c) Using a scale of 1cm to represent 10km, draw an accurate diagram to show the tourist`s journey. (03 marks)



(d) Find the shortest distance from town C to A in km. 10.7cm (01 marks)

End