Dr. Bbosa Science

UGANDA NATIONAL EXAMINATION BOARD

PRIMARY LEAVING EXAMINATION

1998

MATHEMATICS

Time allowed: 2hours 15 minutes

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Index No:

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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. What is x if: 7 + x=11?

   7 + x =11

   Collect like terms

   x = 11-7 = 4

2. Express 125g as a fraction of a kilogram.

   1kg = 1000g

   The fraction = $\frac{125}{1000} = \frac{1}{8}$

3. Write 40 in Roman numerals.

   40 = XL

4. Change 1010_{two} to base ten

   $1010_{two} = (1x2^3) + (0 \times 2^2) + (1 \times 2^1) + (0 \times 2^0)$

   $= 8 + 0 + 2 + 0$

   $= 10$

5. $\frac{2}{3} - \frac{1}{2}$

   $\frac{2}{3} - \frac{1}{2} = \frac{2\,x\,2 - 1\,x\,3}{6} = \frac{4-3}{6} = \frac{1}{6}$

6. Given that: P = {1,2, 3, 4, 5 } and N = {1, 3, 5, 6, 7}. Find n(P U N).

   P U N = {1,2, 3, 4, 5, 6, 7}

   n(P U N) = 7

7. The cost of 6 books is Sh. 4,500/= What is the cost of 9 books?

   6 books cost 4500

   1 book cost $\frac{4500}{6}$

   9 books cost $\frac{4500\,x\,9}{6} = 6750$

8. Find the next number in the sequence: 0, 1, 2, 3, 5, 7, 9,….

0, 1, 2, 3, 5, 7, 9, 12

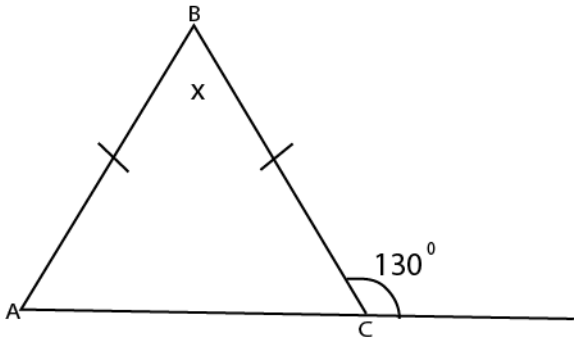
+1 +1 +1 +2 +2 +2 +3

9. There are 45 pupils in a class. The ratio of the girls to the boys is 2 : 3. Find the number of girls in the class.

Total ratio = 2+3 = 5

Number of girls = $\frac{2}{5}\ x\ 45 = 18$

10. In the figure below, find the size of angle marked *x*.



$< BAC =< ACB = 180 - 130 = 50^0$

$< BAC + < ACB + x$ = 180^0 (angle sum of triangle)

$50^0 + 50^0 + x = 180^0$

x 80^0

11. Find the median of the following numbers: 0, 3, 6, 2, 5, 1, 4.

Arrange the number in increasing order: 0, 1, 2, 3, 4, 5, 6

The median is the middle number = 3

12. If P = r, r = 4 and q = 3, work out: $\frac{pq}{r}$

$\frac{pq}{r} = \frac{4\ x\ 3}{4} = 3$

13. The average length of three strings is 38cm. Two of the strings measure 44cm each. Find the length of the third string.

Total length of the string = 38 x 3 = 44 + 44+ x

The length of the third string, x = 114 – (88)

= 26

14. Kamanda paid Sh. 12,600 for a shirt, which was at 10% discount. How much was the discount?

Let the price of the shirt be x

⇨ $\frac{90x}{100} = 12600$

x = 14000

$discount = original\ price - actual\ price$

= $14000 - 12600$

= 1400

15. Write in numerals: "Sixty thousand six"

= 60000 + 6

= 60,006

16. Simplify: 2(7-a)-(8-a)

Remove brackets

14 -2a -8 +a

Collect like terms

6-a

17. A minute-hand of a clock makes 2 ½ revolutions to cover the time of the Mathematics examination. If the exam starts at 9.45 am, at what time will it end?

2 ½ revolution of minute hand = 2 hours and 30 minute

9.45

+ 2.30

12.15pm

The exam will end 12.15 pm

18. A school bag contains 6 yellow and 5 green pencils. Find the probability of picking a yellow pencil at random from the bag.

Sample space = 6 + 5 = 11

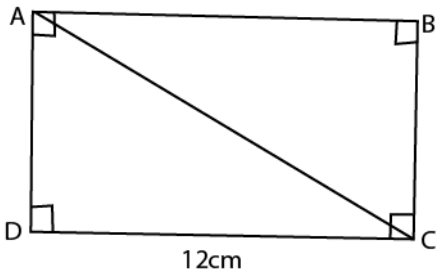
Probability of yellow pencil = $\frac{number\ of\ yellow\ pencils}{total\ number\ of\ pencils} = \frac{6}{11}$

19. Musa deposited Sh. 60,000/= in Crane Bank which offers an interest of 12% per year. How much interest did Musa receive from the bank after 9 months?

From I = PRT

Interest, I = $60000\ x\ \frac{12}{100}\ x\ \frac{9}{12} = shs\ 5400$

20. If the area of the figure ABCD below is $60m^2$, find the length of its diagonal AC.



Area = L x W

60 = 12 x W

AD = W = 5cm

Using Pythagoras theorem

$AC^2 = AD^2 + DC^2$

$AC^2 = 5^2 + 12^2 = 25 + 144 = 169$

AC = $\sqrt{169}$ = 13

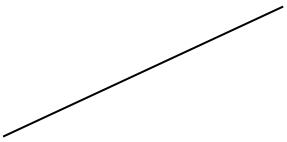
21. Add: 35.7+ 0.35

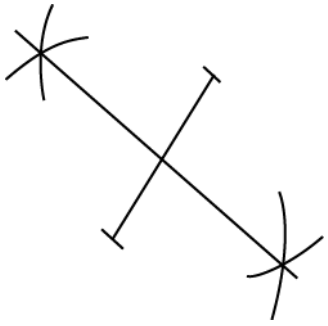
35.70

\+ 0.35

36.05

22. Using a pair of compasses and a ruler only, bisect the line given below.





23. Find the diameter of a circle whose circumference is 4.4cm. (Take π = $\frac{22}{7}$)

Circumference = πd = 4.4 = $\frac{22}{7}\ x\ d$

⇨ d = $\frac{4.4\ x\ 7}{22}$ = 1.4cm

24. 6 men take 10 hour to weed a garden of cassava. How long will 4men working at the same rate take to weed the same garden?

6 men take 10hours to weed a garden

1 man will take 6 x 10 = 60 hours

4 men will take $\frac{60}{4}$ = 16 hour

25. The distance between Tororo and Mbale towns by road is 45Km. On the map of Uganda the distance between the two towns is 5cm. Find the scale of the map.

Scale on a map should in the same units

1km = 100,000cm

45km = 45 x 100000 = 4,500,000cm

Scale:

5cm represent 4,500,000

1cm on map represent $\frac{4,500,000}{5}$ =90,000

Scale 1: 90000

26. Find the Lowest Common Multiple (L.C.M) of 6 and 9

3	6	9
	2	3

L.C.M of 6 and 9 = 3 x 2 x 3 = 18

27. Mukasa was born on 1st January 1980. How old was he on 31st December 1990?

Mukasa's age = 1990 – 1980 + 1 =11years

28. A wheel of a bicycle makes 1 ½ revolutions to cover 2 metres. How many revolutions will it make to cover 120 metres?

2m are covered by 1.5 revolution

120m require $\frac{1.5\ x\ 120}{2}$ = 90 revolution

29. A bus broke down after covering $\frac{5}{7}$ of the journey. The remaining distance to complete the journey was 140km. How long was the whole journey?

Fraction for remaining journey = 1 - $\frac{5}{7}$ =$\frac{2}{7}$

Let the journey be x km

$\frac{2x}{7}$ = 140km

x = $\frac{140\ x\ 7}{2}$ =490km

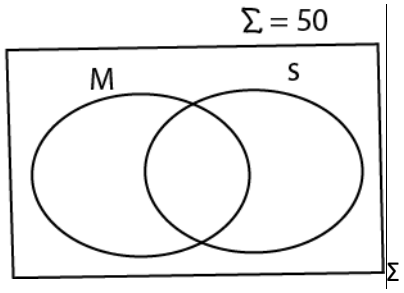
30. Divide: 4.2 ÷ 0.03

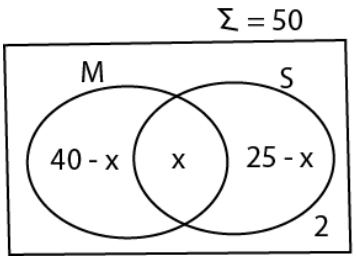
$\frac{4.2}{0.03}$ =$\frac{420}{3} = 140$

SECTION B

31. In class of 50 boys, 40 like Mathematics (M) and 25 like Science (S). Some boys (X) like Σboth subjects and 2 do not like any of the two subjects.

a). Show this information in a Venn diagram below.





b) How many boys like both Mathematics and Science?

From the Venn diagram the number of student that like both subjects = x

40 – x + x + 25 – x + 2 = 50

Collecting like terms

67 – x = 50, => x = 17

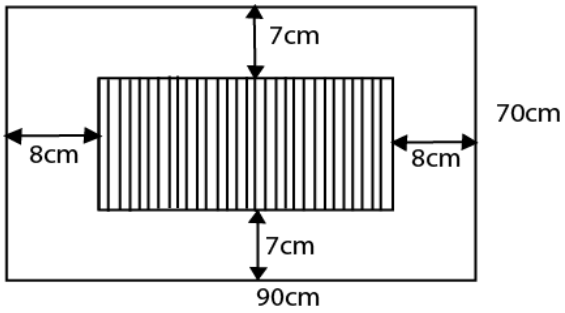
c). How many boys like Mathematics only?

n(M) only = 40 – 17 = 23

d)How many boys like Science only?

n(S) only = 25 – 17 = 8

32. A piece of cloth is laid on a table 90cm long and 70cm wide as shown in the figure below. The area covered by the piece of cloth is shaded.



a).Find the length and width of the piece of cloth.

Width of piece of cloth =70 – (7 + 7) = 56cm

Length of piece of cloth = 90 – (8 + 8) = 74cm

b). Find the area of the table that is not covered by the piece of cloth.

Area of the table	= L x W = 90 x 70	= 6300 cm^2
Area of the cloth	= L x W = 74 x 56	= 4144 cm^2
Area uncovered (= difference)		= 2156 cm^2

33. A tap was opened for 5minutes and water of 40 litres poured into a tank. How long would it take to a tank whose capacity is 1080 litres using the same tap? (Give your answer in hours)

40 litres require 5 minutes

1080 litres require $\frac{5\ x\ 1080}{40} = 135 minutes$

Changing 135minutes to hours = 2hours 15 minutes

NB 1 hour = 60minutes

34. The table below shows the goals scored by football teams in different seasons. Use it to answer the questions that follow.

Goals scored	0	1	2	3	4	5	6	7
Teams scoring the	2	5	10	8	5	4	3	1

a).How many teams participated altogether?

= 2 + 5 + 10 + 8 + 5 + 4 + 3 +1

= 38

b).Find the mode of the goals scored.

2 (was scored by highest number of teams)

c). Work out the mean score.

$= \frac{0\ x\ 2+1\ x\ 5+2\ x\ 10+3\ x\ 8+4\ x\ 5+6\ x\ 3+1\ x\ 1}{38}$

$= \frac{0+5+20+24+20+20+18+7}{38}$

$= \frac{114}{38} = 3goals$

35. A motor cyclist leaves his home at 9.00a.m. For Kisoro town which is 45Km away, riding at 16 km per hour. At 9.15a.m he gets a puncture and delays for 15minutes. At what speed must he cover the remaining journey in order to reach Kisoro town at 10.OOa.m? (Give your answer in kilometers per hour.)

Time taken before the puncture = 9.15am – 9.00am = 15 minutes = $\frac{15}{60} = \frac{1}{4}hours$

Distance covered before the puncture = speed x time = 16 x $\frac{1}{4} = 4km$

Time wasted 15 minutes

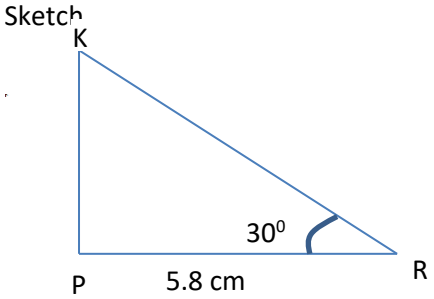
Remaining distance = 45 -4 =41km

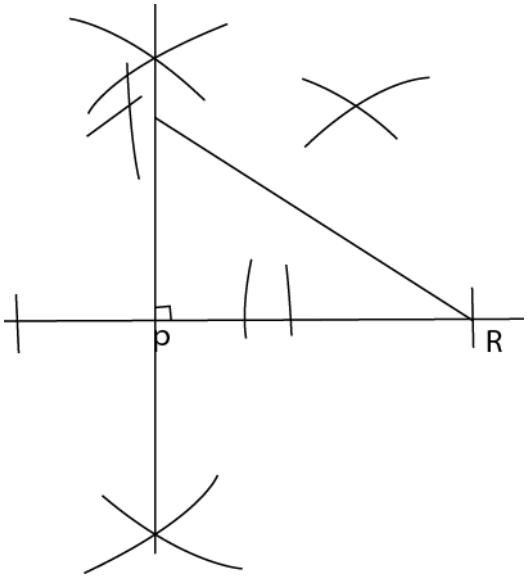
Remaining time = 10.00 – (9.15 + 0.15) = 30minutes or $\frac{1}{2}hours$

Speed = $\frac{distance}{time} = \frac{41}{\frac{1}{2}} = 82km/hr$

36.(a) Using a ruler and a pair of compasses only, construct a triangle KPR such that angle KPR = 90°, angle PRK = 30° and PR = 5.8cm

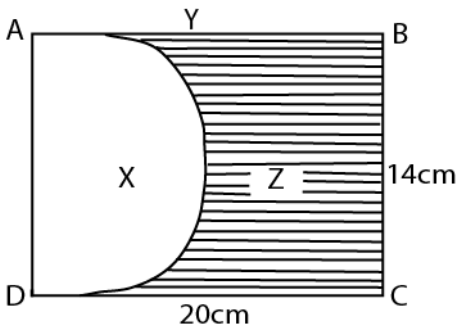
Sketch





(a) KR = 5.7cm

37. Find the area of the shaded part in the figure ABCD below. (Take $\pi = \frac{22}{7}$)



Area of shaded part = area of rectangle – area of semicircle

$= (L \times W) - (\frac{1}{2}\pi r^2)$

$= (20 \times 14) - (\frac{1}{2} \times \frac{22}{7} \times \frac{14}{2} \times \frac{14}{2})$

$= 280 - 77$

$= 203cm^2$

38. To make a school uniform for a primary seven girl, a tailor needs the following:

$2\ ^{3}/_{4}$ metres of cloth at	Sh. *1*,200/= per metre,
2 buttons at	Sh. 200/= per button,
School barge costing	Sh. 500/=
Thread	Sh. 200/=,
Tailor's labour	Sh. 3,000/=.

(a). Find the total cost for the dress.

Cost of a dress = 2 ¾ x 1200 + 2 x 200 + 500 + 200 + 3000 = 7400

(b) If Jane paid Sh. 7,030/= for the dress, what percentage discount was she given?

Discount = 7400 – 7030 = 370

Percentage discount = $\frac{370\ x\ 100}{7400} = 5\%$

39. ln Kabiriti market the cost of a cow is 7 times the cost of a goat. Opit bought a cow and a goat at Sh.232, 000/-, Find the cost of each of the two animals.

Let the cost of a got be x

The cost of a cow will be 7x

⇨ 7x + x = 232000

8x = 232000

x = 29000

the cost of a got shs 29000

the cost of a cow is shs 29000 x 7 =203000

40. A farmer planted his land as follows:

Maize $^{2}/_{5}$of the land.

Beans $^{1}/_{3}$ of the land.

Peas $^{1}/_{5}$ of the land, and

Elephant grass on the remainder.

Draw a pie chart to represent this information.

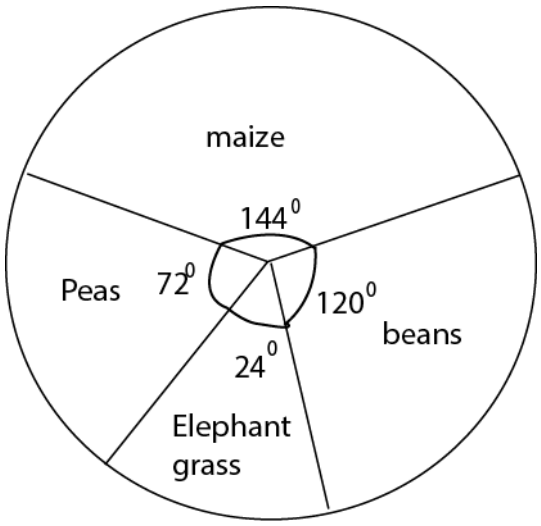
Expressing fraction into degrees

Maize = $\frac{2}{5}\ x\ 360 = \ 144^0$

Beans = $\frac{1}{3}\ x\ 360 = \ 120^0$

Peas = $\frac{1}{5}\ x\ 360 = \ 72^0$

Elephant grass = (360 – (144 + 120 + 72) = 24^0



41. Below is part of Uganda Airlines timetable for daily i between Entebbe, Soroti and Kasese. Use it to answer the questions which follow.

From	To	Flight No.	Departure	Arrival
Ebbe	Soriti	Qu 740 Qu 758	0700hrs 1700hrs	0800hrs 1800hrs
Ebbe	Kasese	Qu 702 Qu 730	0700hrs 2100hrs	0815hrs 2215hrs
Kasese	Ebbe	Qu 703 Qu 731	0700hrs 2145hrs	0815hrs 2300hrs
Soroti	Ebbe	Qu 741 Qu 759	0830 hrs 1830 hrs	0930 hrs 1930 hrs

(a) How long does the flight from Entebbe to Soroti take?

It takes 0800hrs – 0700hours = 1hour

(b) Otema travelled from Kasese to Entebbe in the evening. He then travelled to Soroti by the earliest flight.

(i) For how long did Otema wait at Entebbe?

Time taken = 2400 – 2300 + 0700 = 8hours

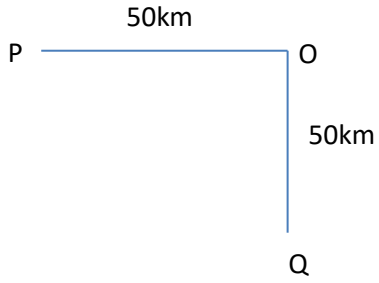
(ii) At what did he arrive at Soroti?

Time for arrival at Soroti = 1800hours

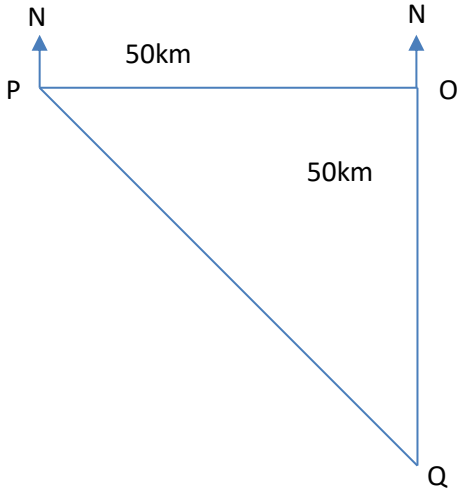
(c). If Qu 758 to Soroti returns to Entebbe as Qu 759, for how long does the plane stop at Soroti? 1830 -1800 = 30minutes

42. Peter and John walked from the same point 0. Peter walked 50 metres westwards to point P *and* John walked 50 metres southwards to point Q.

(a). Sketch a diagram to show the above information.



(b).Draw an accurate diagram to show the movement of the two boys. Use a scale of 1 cm to represent 10 metres.



(c). Measure the distance between P and Q and give your answer in metres.

PQ = 7.1 cm

=7.1 x 10m

= 71m