Dr. Bbosa Science

UGANDA NATIONAL EXAMINATION BOARD

PRIMARY LEAVING EXAMINATION

2004

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. Work out:

$$\begin{array}{r} 9017 \\ -\ 915 \\ \hline 8102 \end{array}$$

2. Write 9,109 in words.

   Nine thousand one hundred and nine

3. Work out:

$$\begin{array}{r} 1010_{two} \\ +\ 111_{two} \\ \hline 11_{two} \end{array}$$

4. Two angles are supplementary. If one of them is 28°, find the other angle.

   Supplementary angles add up to 180^0

   ∴ the supplement of 280 = $(180 - 28)^0 = 152^0$

5. Write XCIV in Hindu-Arabic numerals.

   XCIV = 94

6. Simplify: 7 –8 = -1

7. What is the place value of 3 in the number 41.32? = 0.3

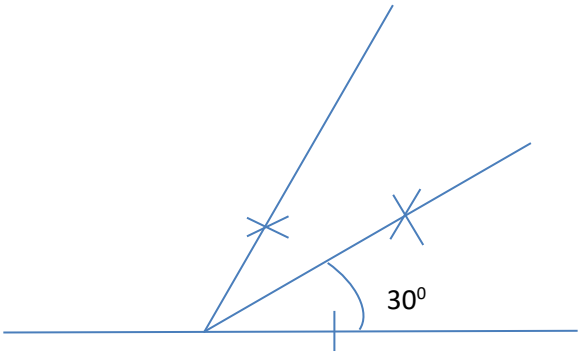
8. There are 30 eggs in one tray. How many trays will be required to pack 330 eggs?

   330 ÷ 30 = 11

9. Express 0.05 as a simplified fraction.

   $0.05 = \frac{5}{100} = \frac{1}{20}$

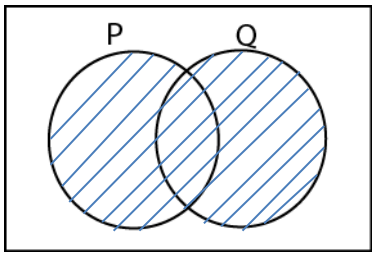
10. Using a pair of compasses, a ruler and a pencil only, construct an angle of 30° in the space provided below.



11. Work out $1\frac{1}{2} - \frac{3}{4}$

$$1\frac{1}{2} - \frac{3}{4} = \frac{3}{2} - \frac{3}{4} = \frac{(2\,x3)-3}{4} = \frac{3}{4}$$

12. In the Venn diagram below, shade the complement of P U Q



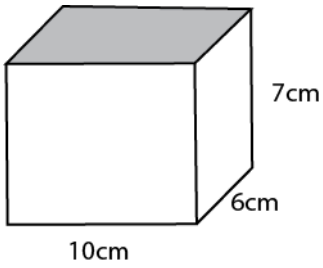
13. Find the next number in the following number pattern: 1, 3, 6, 11, 18……..

1 (+2) 3 (+5) 6 (+5) 11 (+7) 18 (+11) 29

Keen observation shows that the sequence is generated by addition of prime numbers

The next prime number to be added is 11

14. Find the area of the shaded top cover of the rectangular box below:

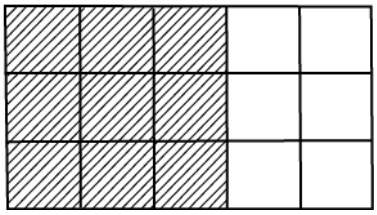


Area = L x W

= 10 x 6

= $60cm^3$

15. The diagram below is divided into equal parts



What fraction of the diagram is shaded? $= \frac{9}{15} = \frac{3}{5}$

16. Mugisha bought a bull at Shs 200,000 and sold it at Shs 180,000. What was his percentage loss?

Loss = 200000 – 180000 = 20000

Percentage loss = $\frac{loss}{cost\ price}\ x\ 100\%$

$= \frac{20000}{200000}\ x\ 100\%$

= 10%

17. Peter was given a bundle of one thousand shilling notes numbered from OR447500 to OR447699 consecutively. How much money did Peter get?

Number of notes = (447699 – 447500) + 1 = 200

Amount of money = 200 x 100 = 20,000

18. Akello kept the following daily record of the number of the people who visited their home in a week: 3, 5, 3, 2, 0, 3, 5. Find the mean.

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

$= \frac{3+5+3+2+0+3+5}{7}$

$= \frac{21}{7} = 3$

19. The area of a square flower garden is $5\frac{4}{9}$ m^2

Find the length of one side of the garden.

Length = $\sqrt{5\frac{4}{9}} = \sqrt{\frac{49}{9}} = \frac{7}{3} = 2\frac{1}{3}$

20. When $\frac{1}{9}$ of the pupils in a class are absent, 32 pupils are present. Find the total number of pupils in the class.

Fraction of the pupils present = 1 - $\frac{1}{9} = \frac{8}{9}$

Let the number of pupils be X

$\frac{8}{9}$ of X = 32

X = 32 x $\frac{9}{8}$ = 36pupils

21. A die is rolled once. What is the probability that a prime number will show on top?

Sample space = {1, 2 ,3, 4, 5, 6}

Prime numbers = {2, 3, 5}

Probability of a prime number on top = $\frac{n\{prime\ numbers)}{n(sample\ space)} = \frac{3}{6} = \frac{1}{3}$

22. Jane slept from 9.10pm. to 5.35am. For how long did she sleep?

She slept for (12.00 – 9.10) + 5.35

= 2.50 +5.35

= 8hour and 25minutes

23. Solve the equation; $\frac{1}{2}$p + 1 = 3

$\frac{1}{2}$p + 1 = 3

⇨ $\frac{1}{2}P = 2$

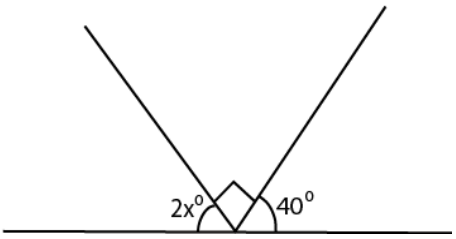
$P = 4$

23. Find the value of $\frac{5a-(m-a)}{a}$, when a = 3 and m = 6.

Substitution

$\frac{5\,x\,3-(6-3)}{3} = \frac{15-3}{3} = \frac{12}{3} = 4$

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



2x + 90 + 40 = 180 (angle sum on a straight line)

2x +130 = 180

2x = 180 – 130

2x = 50

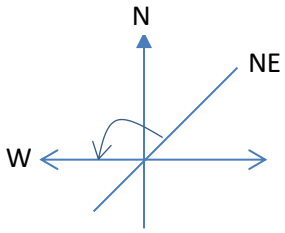
x = 25

26. Mary deposited sh 200,000/= in bank at a simple interest rate of 5% per annum. How much interest did she earn after 9 months?

I = PRT

= 200000 x $\frac{5}{100}$ x $\frac{9}{12}$ =7500/=

27. Asimwe is facing North-East. If she turns anti-clockwise to face west, through what angle does she turn?



Angle = 90 + 45 = 135^0

28. There are two sets A and B. Set A={1,3, 4, 6, 8}, AUB={l,2,3, 4,5,6,7,8}and A∩B = {3,6} find n(B).

Set B = members in intersection + member in set A

= {3, 6, 5,7)

n(B) = 4

29. A string is 3m long. How many pieces of string, each measuring 20cm long can be cut from that string?

Convert 3m to cm

1m = 100cm

3m = 3 x 100 = 300cm

To get the number of pieces; divide 3m by 20cm

Number of pieces = $\frac{300}{25} = 15\ pieces$

30. One of the interior angles of a regular polygon is 120°. How many sides does the polygon have?

Exterior angle + interior angle = 1800 (angle sum on a straight line)

Exterior angle = $180^0 - 120^0 = 60^0$

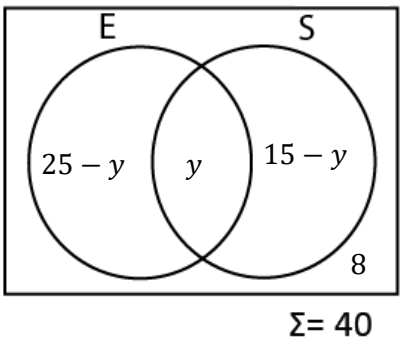
Number of sides of a polygon = $\frac{360}{exterior\ angle} = \frac{360}{60} = 60^0$

SECTION B

31. In a class of 40 pupils, 25 like English (E), 15 like Science (S), y pupils like both English and Science and 8 do not like any of the two subjects.

Use this information to answer questions (a) and (b).

(a) Complete the Venn diagram.



(b) Find the value of y.

40 = 25 – y + y + 15 –y + 8

40 = 48 –y

y = 8

32. A P7 pupil was sent to the market with sh 20,000 to buy the items shown in the table below. Use the table to answer the questions that follow.

Item	Price	Total cost
3kg of beans	Shs **700** per kg	2100/=
3kg of sugar	Shs.1400/= per kg	**4200**
4kg of meat	Shs **2500** per kg	10,000/=
2 loaves of bread	Shs.1600/= per kg	3,200/=
	Total expenditure	19500/=

a) Complete the table above.

b) What balance did the pupil get after buying the item if a discount, of 10% was given?

Discount = $\frac{10}{100}\ x\ 19500$ =1950

Money paid = 19500 – 1950

= 17550/=

33. Joy drove from town A to town B a distance of 120km in 2 hours. If it took her $1\frac{1}{2}$ hours to drive from B to the next town C at the same speed, how far is town C from town A?

Speed = $\frac{distance}{time} = \frac{120}{2} = 60km/h$

Distance between A and C = speed x time

= 60 x 3 ½ hours

= 60 x $\frac{7}{2} = 210km$

34. (a) - Okello's wage was increased by 10% to Shs 77,000 per month. Find his old salary.

Let the old wage be x

(100% + 10%) of x = 77000

$\frac{110}{100}x = 7700$

x = 77000 x $\frac{100}{110} = 70{,}000$

therefore, Okello's old salary was 70,000/=

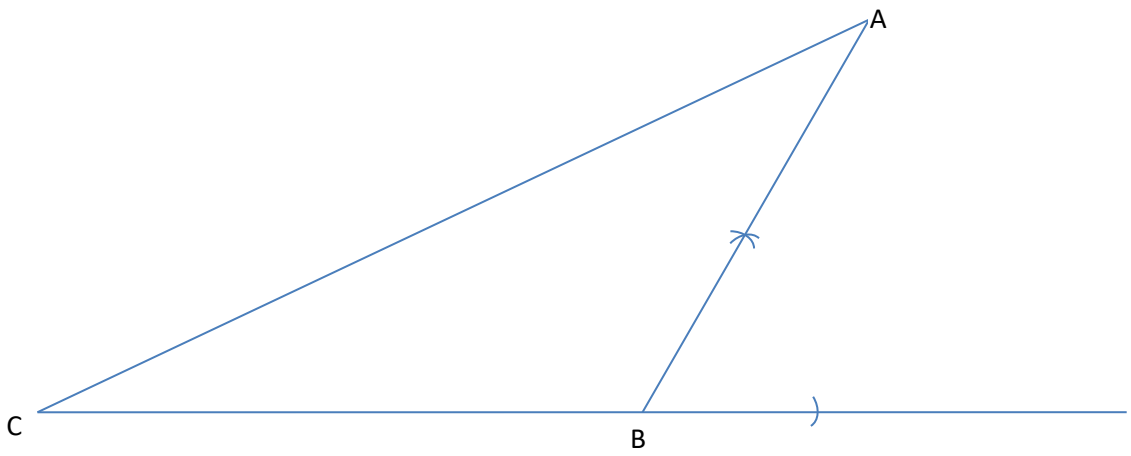
(b)If his new wage of Shs 77,000 was decreased by 5%, find his final wage.

His new salary = (100% - 5%) of 77000

$= \frac{95}{100}\ x\ 77000 = 73150$

Okello's new salary will be sh. 73150

35. a) Using a pair of compasses, a ruler and a pencil only, construct a triangle ABC such that BC = 8 cm, angle ABC = 120°andAB=6cm.



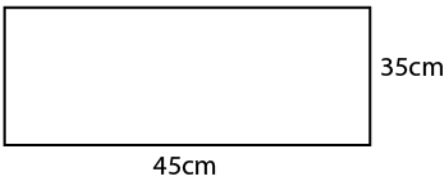
(b)Measure length AC = 12.1cm

(c) Measure angle BCA =250

36 Given that y = 3x - 5, complete the table below.

X	4	1	$^1/_3$	-1	3
y	7	-2	-4	-8	4

37. Abdul cut out circular plates of diameter 7cm from a rectangular sheet of metal of length 45 cm and width 35cm shown below.



(a) How many circular plates did he cut out from the rectangular sheet?

He cut 6 x 5 = 30 circular plates

(b) Find the area of the unused sheet after cutting out the circular plates (Take π = $\frac{22}{7}$)

Area of the metal sheet = 45 x 35 = 1575cm^2

Area of a circular plate = $\pi r^2 = \frac{22}{7} \; x \; \frac{7}{2} \; x \frac{7}{2} = 38.5 \; cm^2$

Area of 30 circular plate = 30 x 38.5 = 1155 cm^2

Area of unused part =1575-1155

= 420cm^2

38. (a) Solve the inequality: $\frac{3}{4}$x-8>l

Multiply with4 throughout 3x -32 >4

3x >36

x >12

b) Solve for P 3-(p- l) = 2(p + 5)

3-(p-1) = 2p + 10

3-p + 1 = 2p + 10

3p = -6

p = -2

39. Corona Primary School, $^1/_3$ of the pupils in P. 7 like Matooke, $^2/_5$ of the remainder like rice. The rest of the pupils like posho. If those who like posho are 42, find the total number of pupils inP.7.

Fraction of pupils that does not like matooke = $1 - \frac{1}{3} = \frac{2}{3}$

Fraction of student that like rice = $\frac{2}{5}$ $of\ those\ that\ \ do\ not\ like\ matooke$

$= \frac{2}{5}\ x\ \frac{2}{3} = \frac{4}{15}$

Fraction of students that like rice = 1- $(\frac{1}{3} + \frac{4}{15}) = \frac{15-((1\ x5)+(4\ x\ 1))}{15} = \frac{15-(5+4)}{15} = \frac{6}{15} = \frac{2}{5}$

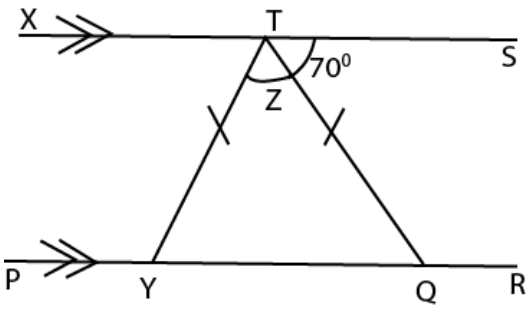
Let the total number of student be x

$\frac{2}{5}\ of\ x = 42$

$\frac{2x}{5} = 42$

x = 105

40. In the diagram below, XTS is parallel to PYQR. Use it to answer the question that follows.



Find the size of angle Z

<TYQ = <TQY = 70^0 (alternative angle)

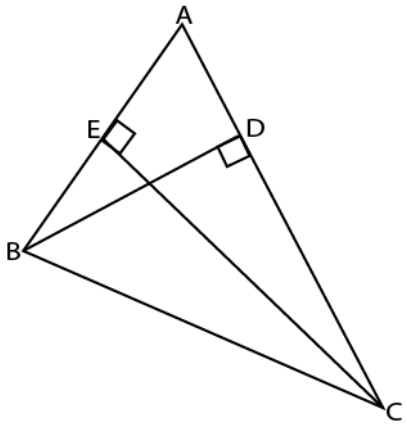
<TYQ + <TQY + Z = 180^0 (angle sum of triangle)

$70^0 + 70^0$ + Z = 180^0

140^0 + Z = 180^0

Z = 40^0

b) In the triangle below AB = 12cm, CE = 10cm and AC = 16cm. Use the triangle to answer the question that follows.



Answer

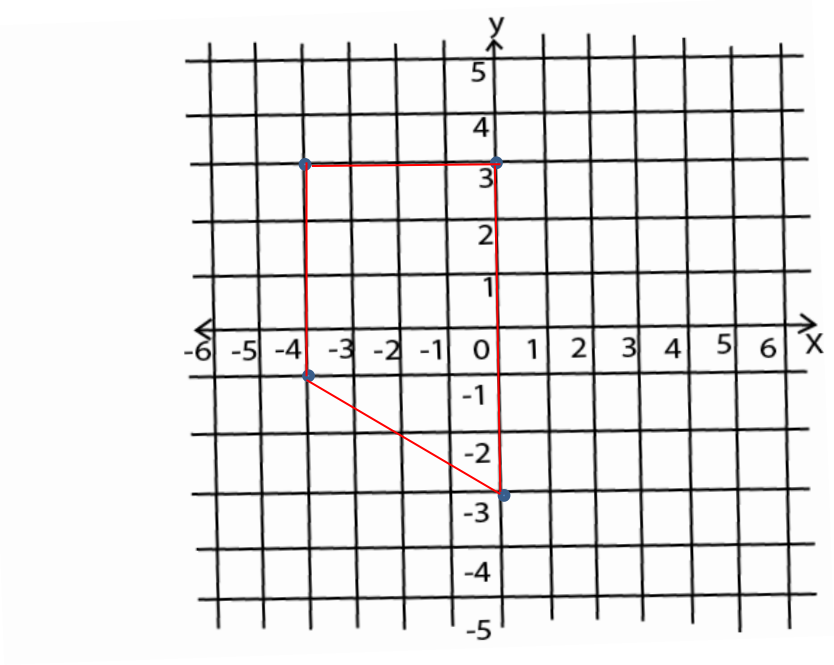
Area of triangle ABC = $\frac{1}{2}\ x\ AC\ x\ BD = \frac{1}{2}\ x\ AB\ x\ CE$

$= \frac{1}{2}\ x\ 16\ x\ BD = \frac{1}{2}\ x\ 12\ x\ 10$

BD = 7.5cm

Find the length of BD in cm.

41. Study the graph below and answer the questions that follow.



One unit square = 1 cm^2

(a) Plot the points:

(i) A (-4, 3)

(ii) B(0,3) C (0,-3) D(-4,-l)

(b)Join the points A to B, B to C, C to D and D to A.

(c)Name the quadrilateral formed: trapezium

(d)Find the area of the quadrilateral in (c) above.

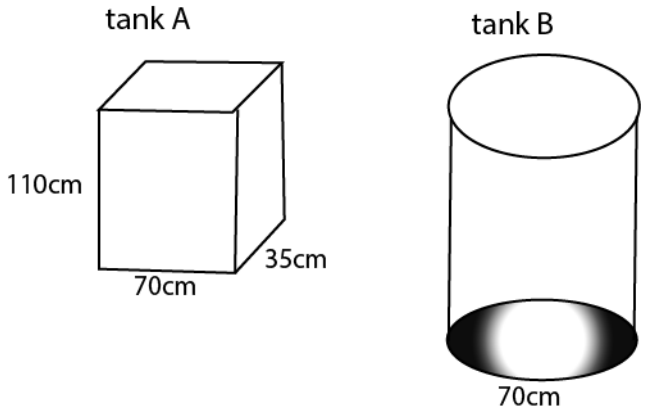
Area = $\frac{1}{2}\ (a + b)x\ h$

$= \frac{1}{2}(6 + 4)\ x\ 4$

$= 5\ x4$

$= 20cm^3$

42. A cuboidal water tank (A), which is 70cm long by 35cm wide by 110cm, was filled with water. The water from tank (A) was all poured into the cylindrical tank (B) of diameter 70cm.



a) Find the volume of water in tank A when it is full

Volume = L x W x H

= 70 x 35 x 110

= 269 500 cm^2

b) Find the new height of water after it has been poured into tank B

Volume of cylinder = πr^2h

Radius r = $\frac{diameter}{2} = \frac{70}{2} = 35cm$

⇨ 269500 = $\frac{22}{7}\ x\ 35\ x\ 35\ xh$

⇨ h = 70cm

Thank U