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MATHEMATICS	
PAPER 1 4^{\vee}	
JULY/AUGUST 2012	
2 1/2 HRS	

Index No	/
Date	

BUTERE DISTRICT JOINT EVALUATION – 2012

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Kenya National Examination Council (K.C.S.E)

BUTER Free 121 /1 MATHEMATICS PAPER 1 JULY/AUGUST 2012 2 ½ HRS

INSTRUCTIONS TO CANDIDATES

- 1. Write your name and index number in the spaces provided at the top of this page.
- 2. This paper consists of two sections: Section I and Section II.
- 3. Answer ALL questions in section 1 and ONLY FIVE questions from section II
- 4. Show all the steps in your calculations, giving your answers at each stage in the spaces below each question.
- 5. Marks may be given for correct working even if the answers are wrong.
- 6. Non Programmable silent electronic calculators and KNEC mathematical tables may be used, except where stated otherwise.

Secti	on I				101				01 01						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

FOR EXAMINERS LISE ONLY

Secti	on II								GRAND
17	18	19	20	21	22	23	24	TOTAL	TOTAL

This paper consists of 16 printed pages. Candidates should check the question paper to ensure that all pages are printed as indicated and no questions are missing

@ June /July 2012

1

121/1 Maths

Turn over

If x: y = 4:7 and y : $\pounds = 5:3$ find the ratio \cancel{y} : \pounds 1.

(2mks)

visit www.freekcsepasto Find the equation of a line perpendicular to 2x + 4Y = 8, which crosses the line at its y – 2. HOT NOTE Free KCSH Past Intercept. (3 mks) 3. Simplify $\frac{6a^2 + 7ab + 2b^2}{4a^2 - b^2}$ (3mks)

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4. An American tourist arrived in Kenya with 1000 Us\$ and converted the whole amount into Kenyan shillings. He spent sh. 40,000 and changed the balance to sterling pound before leaving for united Kingdom. A Kenya bank buys and sells foreign currencies as shown.

	Buying (in Kshs)	Selling (in Kshs)	
1 US dollar	84.2083	84.3806	
1 Sterling Pound	134.7941	135.1294	
Calculate the amount he received to	o the nearest sterling pound.	(4 mks)

Find the area in hectors of a field book measurement is recorded in metres as follows. (3mks) 5.

com



The sum of the digits in three digit number is nine. The tens ten is digits half the sum of the other two and the hundreds digit is half the units digit. Find the number. (4mks)

7. The diagram below represents a circular flower bed surrounded by a path of uniform width given that R = 14m and r = 12.6m, Calculate to the nearest whole number the area of the path Take $\Pi = \frac{22}{7}$ (3mks)





Develop a frequency distribution table for the graph.

(4mks)

9. The acceleration, ams^{-2} , of a particle is given by $a = 25 - 9t^2$, where t is time in seconds after the particles passes a fixed point O.

If the particle passes O, With a velocity of 4 ms⁻¹ find.

a) An expression for velocity v, in terms of t. (2mks)







11. The figure below shows triangle PQR in which PR = 12 cm. T is a point on PR such that TR = 4 cm Line ST is parallel to QR. If the area of triangle PQR is 336cm². Find the area of the quadrilateral. (4mks)



12. A number h is such that when its divided by 3,7,11 or 13, the remainder is always one . Find the number n. (2mks)

13. Solve for x $8^{2x-1} = 1$

14. Under an enlargement centre (2,1) the image of P (1,-1) is P` (4,5). Determine the scale factor of the enlargement (3mks)

15. The line segment AB is rotated onto the line AB, Find by construction, the centre and angle of rotation?



16. Use tables of reciprocal only to work out $\frac{5}{0.0396} + \frac{12}{0.593}$

SECTION II (50 MARKS)

Answer any FIVE questions in this section in the spaces provided.

17. In The figure, The circle centre O is the circum circle of triangle PQR and also the in circle of triangle ABC.

7

@ June /July 2012

121/1 Maths



	Given that angle BAC = 62° and angle ACB = 44°	
	Calculate	(2mks)
a)	< PQR	

b) < QPR

(2mks)



18. Tsuma bought some rice at sh 30 per kg.He packed two- fifths of the rice in 2kg packets which he sold at shs. 85 per packet. He packed the other three- fifths in 3 kg packets and sold thee at shs. 120 per packet. He sold all the rice in this way and made a profit of sh. 4400.
a) Determine the amount of rice bought. (4mks)

9

- b) Calculate to one decimal place.
 - i) The percentage profit he made.

(2mks)

- ii) The percentage produces a start man fill the had sold all the rice in 2kg packet. (4mks)
 - 19. A certain number of people agreed to contribute equally to buy books worth sh.12000 for a school library. Five people pulled out so that others agreed to contribute an extra sh. 100 each. Their contribution enabled them to buy books worth sh 2000 more than they originally expected.
 - a) If the original number of people was x, write down.
 - i) an expression of how much each was originally to contribute. (1mk)

ii) Two distinct expressions of how much each contributed after the five pulled out. (2mk)



d) Calculate

i) The number of people who actually made the contribution and how much per person. (2mks)

The ratio of the supposed original contribution to new contribution. (1mk) ii)

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Construct a triangle PQT such that PQ = 10 cm QR = 9 cm and RP = 8 cm. 20.

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Construct the locus of the point x such that QX = XR and mark with the letter X the i) point where this locus meets QR. ë

ii)

Construct the locus of the point X such that QX = XR and mark with the letter X the point where this locus meets QR

- Construct the locus of the point Y such that PY= 6cm and mark with the letter Y, the point where the locus meets PR.
- For More Free LCSEIII) By Shading the unwanted regions show the area bounded by the three loci by the letter T such that $QT \ge TR$

 $PT \le 6 cm$

 $< PRT \ge < ORT$

Label the region required by the letter T.

(10mks)

21. The diagram below represents a solid consisting of a hemispherical bottom and a conical frustum at the top.



a) Determine the value of x and hence the height of the cone. (2mks)

b) Calculate (i) the surface of the solid. (4mks)

ii) The volume of the solid. (4mks)

- The table below shows Kenya's part acertain year. 22.

Income (K£ p.a)	Tax rates (Ksh Per £)
1-5220	2
5221 - 10440	3
10441 - 15660	4
15661 - 20880	5
• 20881 and above	6

In that year Mr. Masaku earned a basic salary of ksh 16,000 per month. He is entitled to a house allowance of Ksh. 12,000 per month and a medical allowance of Ksh. 2000 per month. FOT NOTE Free KCSI Calculate:

a)

i)

His taxable income per year in pounds. (2mks)

ii) His monthly gross tax. (4mks)

iii) The monthly net tax if he is given a relief of Kshs. 1056 per month.(2mks)

		com
b)	Other deductions per month are as N.H.I.F	follows. Sh 320
	WCPS 00	sh 3600
	Coop shares	sh 2000
	Find his monthly net pay.	
	water .	
	visit	
	oapers	
Past		
Y The	diagram shows two intersecting circl	es of radii 2

(2mks)

23. cost

The diagram shows two intersecting circles of radii 20 cm and 15 cm such that their centres A and B are 30 cm apart.



Calculate to 2 decimal places. a) The area of sector ACD

(3mks)

(3mks)

b) The area of sector BCD

c) The length of the common CD.

15

Turn over

(2mks)



- 24. Draw the quadrilateral A =(-6, -1), B(-6,-4), C(3,-7) and D (3,2). (1mk) On the same grid draw the image. a) A` B` C` D` under an enlargement centre (0,-1) scale factor $\frac{1}{3}$ (2mks).
 - b) $A^{*} B^{*} C^{*} D^{*}$ the image of $A^{*} B^{*} C^{*} D^{*}$ under a rotation centre (1,0) through an angle of 90⁰. (2mks)

c) $A^{**}B^{**}C^{**}D^{**}$ the image of $A^{*}B^{*}C^{*}D^{*}$ under a reflection in the line y = x. (2mks)

d) $A^{III} B^{III} C^{III} D^{III}$ the image of $A^{III} B^{III} C^{III} D^{III}$ under a translation $\begin{pmatrix} -2 \\ 3 \end{pmatrix}$ and write down the co-ordinates of the final image. (3mks)