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NAME:	INDEX NO:
SCHOOL:	Candidate's signature:
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121/2	
MATHEMATICS	
PAPER 2 stratit	
JULYAUGUST	
2 1/2 HOURS	

KITUI WEST DISTRICT JOINT EVALUATION TEST - 2011

Kenya Certificate of Secondary Education

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MATHEMATICS

PAPER 2

2¹/₂ HOURS

INSTRUCTIONS TO CANDIDATES

- 1. Write your name school and index number in the spaces provided at the top of this space
- 2. The paper consists of two sections section I and section II
- 3. Answer all the questions in section I and only five questions from section II
- 4. All answers and working must be written on the question paper in the spaces provided below each question
- 5. Marks may be given for correct working even if the answer is wrong.
- 6. Negligence and slovenly work will be penalized
- 7. Non- programmable silent electronic calculators or a mathematical table may be used except where stated otherwise.

FOR EXAMINERS ONLY

SECTION 1

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	TOTAL

SECTION II

17	18	19	20	21	22	23	24	TOTAL

GRAND TOTAL



1. Using logarithms evaluate;

(4mks)

121/2 Mathematics Paper 2

2. Make t the subject of formula.



3. Evaluate;

$$\int (2 + 3)$$

(3mks)

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ALSWEIS 4. Use matrix method to determine the co-ordinates of the point of intersection of the two lines.

(3mks)

5. P and Q are the points on the ends of the diameter of the circle below.

3x - 2y = 13, 2y + x + 1 = 0

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a) Write down in terms of x and y the equation of the circle in the form; $ax^{2} + by^{2} + x + y + c = 0$ (2mks)

b) Find the equation of the tangent at Q in the form ax + by + c = 0(2mks)

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....al expansion to expand (1 - -)⁴ up to the 4th tern.

(3mks)

8. An arc of a circle radius 3.5cm is 9.1cm long. Find the angle it substends at the centre of the circle (3mks)

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(3mks)

9. In the figure below ST and RU are parallel. Given that $\langle RUT = \langle SRT, RT = 12cm, TS = 6cm$ and



ALSWEIS

10. In mr Mukala's shop, a radio has marked price of ksh10000. Mr mukala can allow a reduction of 15% on the marked price and still make a profit of 25% on the cost price of the radio. What was the cost price of the radio (3mks)

11. A point T divides a line AB internally in the ratio 5:2. Given that A is (4,10) and B(11,3). Find the coordinates of T (4mks)

ALSWELS 12. Grade x and grade y sugarcost sh60 and sh50 per kilogram respectively. In what proportion must the two grades be mixed to produce a blend that cost sh53 per kilogram (3mks) Par

ROT NOT THE PROFILE PROTITION TO THE PROTOCOLINE PROFILE PROFI 13. Use the identity $\sin^2 + \cos^2 = 1$ to find the values of sin , Given that $\cos = -$ (3mks)

14. A two-digit number is made by combining any of the two digits 1, 3, 5, 7 and 9 at random.

a) Make an array of possible combinations

(2mks)

b)	Find the	probability	that the	number	formed is	prime

(1mk)

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(3mks)

16. Mukai travels from A to B at xkm/h. The two towns are 40km apart. She then travels to town C at (x + 6)km/h. Town B and C are 100km apart. If the time she takes from B to C is the same time from A to B, find the value of x (3mks)

y and mener

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SECTION II (50MARKS)

Papers and Answers Answer any FIVE questions from this section

17. Income tax is charged on annual income at the rate shown below

	Taxable mcome (K£)	Rate (sh per K£)
	1-e45000	2
ć	<u>5</u> 1501 – 3000	3
	13001 – 4500	5
Fre. 1/2	4501 - 6000	7
MOT TY TH	6001 - 7500	9
\$0. 9. X	7501 - 9000	10
* J.Y.	9001 - 12000	12
	Over 12000	13

a) A certain headmaster earns a monthly salary of Ksh8570. He is housed in the school and as aresult his taxable income is 15% more than his salary. He is entitled to a family tax relief of ksh150 per month. How much tax does he pay in a year (6mks)

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b) From the headmasters salary the following deductions are also made every month

WC PS 2% of gross salary NHIF Paper ksh20 House reactivater and furniture charges ksh 246 Calcolate the headmaster's net salary to each month (4mks)

18. The figure below is a solid in which base ABCD is a rhombus. AC = 16km, BD = 12cm and CE = 12cm. Calculate the angle between the planes



a) EBD and ABCD

(4mks)

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(3mks)

e) Length BC and BE

(3mks)

(2mks)

19. a)Fill	the table	below
------------	-----------	-------

Х	0	15	30	45	60	75	90	120	150	180	
3Sinx -1	-1		0.5		1.6		2				
Cos x	1		0.87	0.71	0.5		0	-0.5	-0.87	-1	1
	•	•		•	•	•	•	•	•	. (2	mks

b) Using the same axis draw on the graph paper provided, the graph of y = 3Sin x - 1 and y = Cos xfor $0^{\circ} \le x \le 180^{\circ}$ (5mks)

c) Use your graph to solve the equation

i) 3Sin x - Cosx = 1 (1mk)

ii) 3Sinx = 1

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20. A bag contains 3red, 4 white and 5 green balls. Three balls are selected without replacement. Find

the probability that the three balls chosen are

a) All Red $2^{2^{k}}$	(2mks)
b) All green	(2mks)
c) One of each colour	(6mks)
ROT NOT THE TIME	

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- ALSWEIS 21. A particle moving along astraight line covers a distance 5 metres in time t seconds from a fixed point O on the line where $s = t^3 - 6t^2 + 8^t - 4$ Par Find
- a) The velocity of the particle when t = 5For Note Free Con Joshuani
 - b) The acceleration when t = 5 seconds

c) The time when the velocity of the particle is constant (4mks)

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(3mks)

(3mks)

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ALSWEIS 22. a) Using a rular and a pair of compass only construct triangle ABC in which $\langle BAC = 120^{\circ}AB =$

6.4cm and AC = 7.0 cm²

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For Work tree I www. Johnson pastini. Con.

(4mks)

Measure i) <ABC (1mk) ii) BC (1mk) b) Construct the circumscribed circle of triangle ABC withO as its centre. Describe the (4mks)

circumscribed circle as a locus

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- ALSWERS 23. Two aircrafts A and B took off at the same time on Monday from Jomo Kenyatta International Airport (1°S, 37°E) at 1.00Pm. AircraftA flew due East and Aircraft B flew due west. If they met again after 18 hows at (1°S, 117°W), calculate:- (take radius of Earth = 6370km)
- fhe, For wore tree tost joshuaarini por nicht to. Their respective speeds in km/h (to 2d.p) i)

(8mks)

24. The time they met again

(2mks)

ALSWEIS 25. A ball is kicked vertically appeared from a point 0.5m above the ground at a velocity of 16m/s. Assuming that acceleration due to gravity is 10m/s²

Determine

- a) An expression for its velocity t seconds later
 - b) An expression for its height above the ground t seconds later (3mks)

c) The maximum height reached by the ball

(4mks)

121/2 Mathematics Paper 2

(3mks)