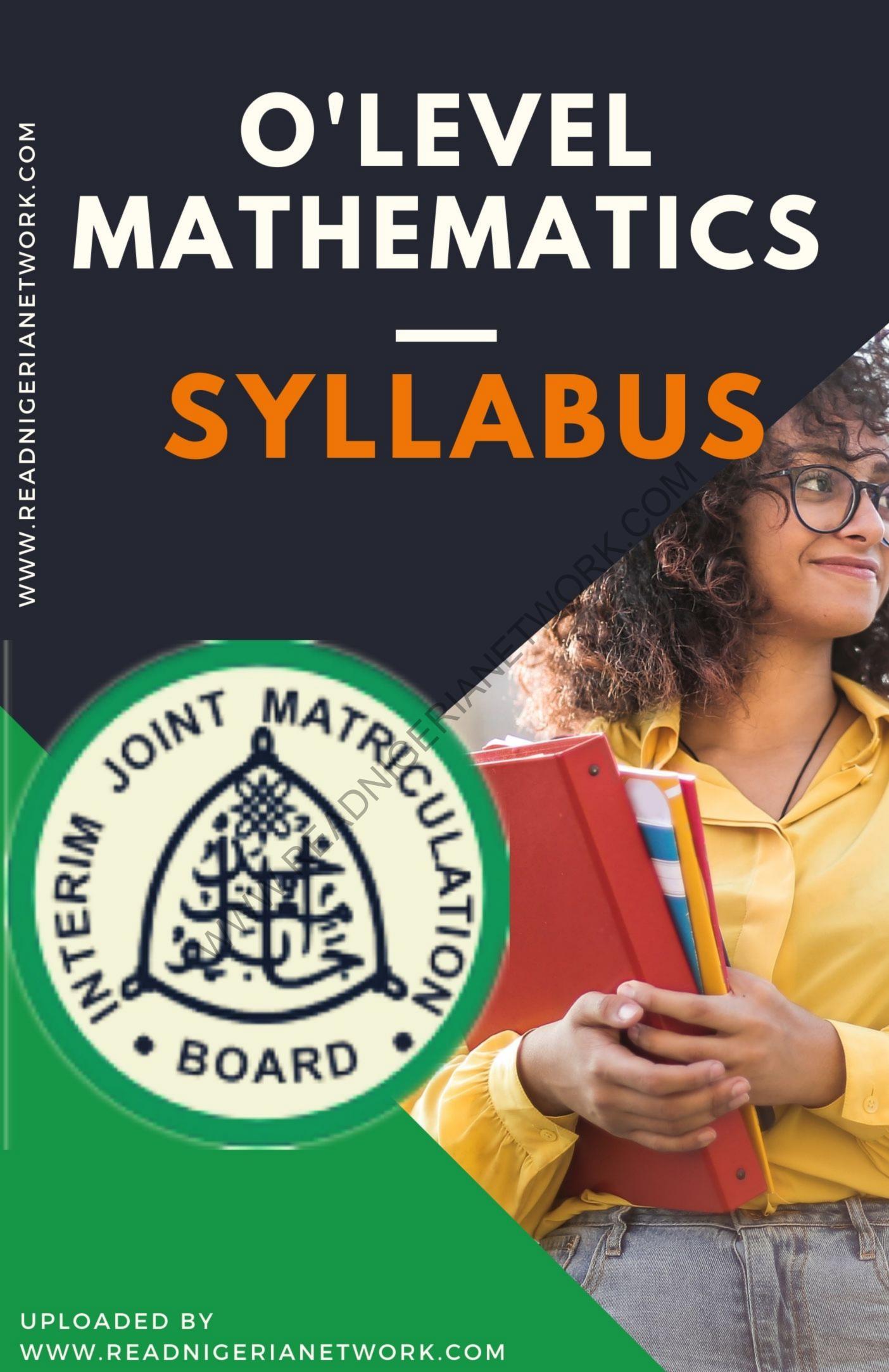
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INTERIM JOINT MATRICULATION BOARD EXAMINATION (IJMBE) ORDINARY LEVEL MATHEMATICS SALLARBUS (REVISED 2012)

Introduction:

This syllabus is for both teaching and examination, and is equivalent to Senior Secondary Certificate Examination (SSCE).

Students admitted into any of the affiliated colleges or any tertiary institution in general who do not hold the equivalent of SSCE credit in Mathematics are expected to score at least 40% in IJMB 'O' Level Mathematics to remedy their deficiencies.

In the examination the use of mathematical and statistical tables, and pocket calculators are permitted. Candidates are expected to bring mathematical instruments because they will not be allowed to borrow such instruments and other materials from other candidates in the examination hall. Graph papers as may be required will be provided during the examination.

Objective:

The IJMB 'O' Level Mathematics is aimed at testing among others, the students':

understanding of mathematical concepts and applications to i. everyday living

ability to recognise mathematical problems and solve them ii.

computational skills and accuracy iii.

appropriate, logical and abstract thinking iv.

Examination:

The examination will consist of two papers as follows:

Paper I: This will be a 40 question objective test lasting one hour fifteen minutes (1 hour 15 minutes). Candidates are expected to answer all the questions. This paper will be 40% of the total marks.

Paper II: This will contain nine (9) questions out of which candidates are expected to answer any six (6) questions in two hours (2 hours). paper will carry 60% of the total marks.

First Semester:

Duration: 150hrs

Topics 1-23

Duration:

Second Semester:

138hrs

Topics 24 – 31

285

DETAILED SYLLABUS

FIRST SEMESTER UPLOADED BY WWW.READNIGERIANETWORK.COM

SECTION A: NUMBER AND NUMERATION

S/NC	: TOPICS / CONTENTS	ACTIVITIES (DD) CT	
1.	FRACTIONS, DECIMALS	ACTIVITIES / PRACTICAL GUIDE Illustrate equivalent fractions	DURATION
1	AND PERCENTAGES	Cultivatent tractions	
1		common fraction and percentages,	Iweek/6hrs
1	The law of equivalence of	using squared paper and paper	
1	common fractions. Basic	t and market the interactions	Jane .
1	processes applied to common	between the different fractional	
10000	fractions. Basic processes	system, e.g.	
1	applied to decimal fractions.	0.5	27 000 200
1	Relationship between	0.5 x 1.2 is identical to $\frac{1}{2}$ x $1\frac{1}{5}$ and $\frac{1}{4}$ =	115 4 / 1 Journe
	percentages, common	0.25 = 25%	1
	fractions and decimal	Car to you committee	art y and
	fractions	T.	
	Company of the compan	Express ratios as decimal fraction	
	Fractions, ratios, decimals	including simple cases of recurrence,	
	(terminating and recurring)	e.g. $\frac{1}{4} = 0.25$, $\frac{1}{3} = 0.33 = 0.3$	
	and percentages	Similaria de Calardo Calendario Calendario Calendario Calendario Calendario Calendario Calendario Calendario Ca	Lynnasin
	percentages	$\frac{1}{9} = 0.11 = 0.1, \frac{3}{4} = 0.75$	
	Household arithmetic		
	including budgeting, saving,	Conversion between fractions,	
	rent, taxes, etc.	decimal and percentages.	
	The state of the s	the Mary to engineering the	
	Commercial arithmetic	NOTE:	
	including profit and loss,	Decimal fractions should be largely	
	interest, discount.	confined to two places, e.g. 0.2 – 1.32	
Ì	commission, etc.	is inappropriate in mathematics and	
	commission, etc.	should be presented as 0.20 – 1.32.	
		Extension of decimal places beyond	
l	20 A C 1 8 A C	2. Enquiry into profit and loss in	
Till to	of the state of th	trading. Application to commerce	
d	A Commence	generally.	
- 1		Rate of interest charged on short-term	
		loan, e.g. N60 due a week later.	
101	I have the state	Mention cheques, money order, postal	
		orders, etc.	tento presenta de la compositione de la composition
2.	APPROXIMATIONS	Revise place value. Discuss the need	1 16 21 /
131	7	for approximation and reasons for	man grant
1	Place value, approximation	degree of approximation. Consider	
	and significant figures	many practical examples, e.g.:	1week/6hrs
		Population of a big city to nearest	15 12
- 1	A 10 M	thousand, the population of a small	
	in a mari i i ga ar 🖡	city to the nearest ten. The height of	2837 261 2
	100	a person to three significant figures.	127 T
		a per min	

Students should be asked to produce UPLOADED BY WWW.kelafforene wastern popper.com	
OI LOTTED BY WWW.LETTER WARELING TO COM	
Caution should be exercised not to	
encourage false notion of accuracy	
e.g. 1.3456 Mention of accuracy.	,
e.g. 1.3456. Mention should be made	
of equipment for measuring to a	ı İ
greater degree of accuracy when	1
circumstances demand it, particular	r
reference should be made to	
equipment available in the school	
science laboratory or to any being	
used by surveyor in the vicinity.	
3. NUMBER BASES Illustrate the process of conversion of	F
numbers from base 10 to other bases	
Operation in different by successive division and keeping	
number bases from 2 to 10. the remainder, e.g. convert 7 base 10	
Conversion from one base to to a number in base 2, i.e.:	
another	Lweek/6hrs
2 7 R	
$\begin{bmatrix} 2 & 3 & \cdots & 1 \\ 2 & 3 & \cdots & 1 \end{bmatrix}$	10 212
2 31 2 11	
01	
therefore $7_{10} = 111_2$	
Also give examples on how to	
convert from other number bases to	
base 10, e.g. $23_4 = 2 \times 4^1 + 3 \times 4^0$	
= 8 + 3	
$=11_{10}$	
Conversion from one base to another,	
this should be done via base 10, e.g.	
convert 23 ₄ to a number in base 2, i.e.	
$23_4 = 2 \times 4^1 + 3 \times 4^0$	
= 8 + 3	
$=11_{10}$	
and then	3.1.1
and their	
1 A CONTROL OF CAMPAINED STANDS SHOWN AND	- 5g F1
$\begin{bmatrix} 2 & 11-R \\ 2 & 5 \end{bmatrix}$	
$\begin{bmatrix} 2 & 5-1 \end{bmatrix}$	a same la come
$\begin{vmatrix} 2 & 2-1 \end{vmatrix}$	
2 1-0	4
0-1	
therefore $23_4 = 1011_2$	
Conversion to include decimals.	1 2 2 2
4. INDICES Basic arithmetic operations in	Iweek/6hrs
different number hase from 2 – 10	te Management
Laws of Indices	
The laws of indians should be	in the State
Standard form	5 1 7 5 G
illustrated and simple examples	

		involving negative and fractional	
	Relationship between indices		
	and logarithms, e.g.	WW.READNIGERIANETWORK.COM	
	$y = 10^{K} \Leftrightarrow k = \log_{10}^{y}$	i. $a^m \times a^n = a^{m+n}$	
	$y = 10 \Leftrightarrow k = 10g_{10}$	ii. $a^m \div a^n = a^{m-n}$	
		$(a^{m})^{n} = a^{mn}$	
-	The darker branch branch	iv. $a^{m/n} = {}^{n}\sqrt{a^{n}} = ({}^{n}\sqrt{a^{m}})$, etc.	
		Expressing of numbers in the form	
1		a x 10^b where 1< a < 10 and b is an	
	The second section of the second section secti	integer	
		Illustrate by example how some	600 (3) 5) 54.
4		problems in logarithms could be	
1	the second of the second of the	solved by changing it to indices and	
1	The state of the s	vice versa.	
101		and the state of t	
5.	LOGARITHMS	Calculation involving multiplication,	THE PARTY OF THE PARTY.
	Basic rules of logarithms, i.e.	division, powers and square roots.	
7 1	$-\log_{10}(PQ) = \log_{10}P + \log_{10}Q$	Remember that the proofs of the rules	
	$-\log_{10}(P/Q) = \log_{10}P -$	are not required only application is	
	$log_{10}Q$	needed	1week/6hrs
1 4	$-\log_{10}P^n = n\log_{10}P$		
27		Use of table of logarithms, base 10	
	$-\log_{B}^{A} = \log_{C}^{A}$	logarithm and anti-logarithm tables	
	log _C ^B		
6.	SURDS	Surds of the form a , $a\sqrt{b}$, and	
		\sqrt{b}	
	Simplification and		1 1/61
1	rationalization of simple	$\sqrt{a} + \sqrt{b}$ where a, is rational and b is	1 week/6hrs
1 = 5	surds	a positive integer. Basic arithmetic	
2 1		operation should be perform on surds.	
7 %		Also note that $\sqrt{(a+b)} \neq \sqrt{a+\sqrt{b}}$, $\sqrt{(a-b)}$	
		b) ≠ √a-√b.	Treatment to the state of
7.	SETS		
	(i) Idea of sets, universal set,	Notations: $\{ \in, \cap, \phi, \{ \}, U, p^1 \}$ (the	
	finite and infinite sets,	complement of p) or p ^c . Difference of	
	subsets, empty sets and	sets, e.g. A-B.	
•	disjoint sets. Notation for		1
	union, intersection and	Illustrate using simple examples of	1 week/6hrs
	complement of sets.	finite sets	
1712	(22) A11	TDI - 6.37 - 11	
1	(ii) Algebra of sets,	The use of Venn diagrams restricted	
	commutative, associative and	to at most 3 sets	
	distributive properties	and the second s	The state of the s
	Solutions of practical		
	problems involving	이 그는 그리고 있다면 하는 사람들이 되었다.	FWL.
	classification using Venn	그렇다는 걸 하게 하게 하게 하게 하다.	
	diagrams		

SECTION B: ALGEBRATCY PROCESSES

	TOPICS / CONTENTS	ACTIVITIES / PRACTICAL GUIDE	DURATION
0:	ALGEBRAIC IDEAS AND	The state of the s	
	PROCESSES hoth		
	PROCESSES Exercises involving both	Simplification and evaluation should	
	Exercises involves.	only involve binomials and trinomials.	
		Expressions of the following types:	
		Expressions of the following types.	
	problems involving simple	20 1 1 1 1 1 1 1 1 1 1	
	algebraic fractions	(i) $1-x$, $1+1=u+v$	
	ange-	2+y u v uv	
	The second secon	(ii) $6(1+x)$, $3x^2 + x = 14$. 11.1
	U.A. TOTALIT	$3x + 3$ x^2	. 331.1
	The state of the s	3x + 3 x	Quarter
		Intelligence to the second	2weeks/ 12hrs
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	(iii) $2xy + 6x + 2y$	121115
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	where $x = -2$, $y = 4$	1.1
	a summer of	Exercises should include the following	
	Expansion of binomials and	types:	
	trinomials with a result of	to the modernos	
	not more than four terms	(a) $4a(ab + bc + 2ac)$	
	not more than roth terms	(b) $(a + b)(a + b)$ or $(a + b)^{+}$	
	i galanismi sa	(c) $(a + b)(a - b)$ or $a^2 - b^2$	
	*	(d) $(ax + b)(cx + d)$	
		(a) $(ax + b)(cx + b)$	
	18+120 1111	Exercises should include the following	
	Factorization of expressions	types:	
	with not more than four		
		(a) $x^2 + 5x + 6$	
	terms	(b) $x^2 + 4x + 4$	
		(c) $ac + ad + bc + bd$	
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	(t) 2 0	
	the transport of a field of	(d) $a^2 - 9$	
	in the North State of the State	Help the students to see factorization as	
		the reverse process of expansion.	1213 140
	2 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	the reverse process of expansion	ACTOR STATE
	Change of subject of a	Revise solutions of simple equations	
	formula	Work problems of the following types:	ar ned 3
		to towns of the	A tenho
	101	If $3x = 5 + 2y$, find x or y in terms of the	
		others	
2	ne a bent dangero	k = 2 (a + b) (Expression for Perimeter of	
	> 20 j. decar on white dealed = V	rectangle)	
	a e la companya de la	then $k = 2a + 2b$	
		that is $2a = k - 2b$	to a second second second
	generalization aparelization be	a = k - 2b or $1(k - 2b)$	9 3.JA (
		2 2	ri udil
	water have the contract of the	The second of the second of the second	in Season
	The A MEST SELECTION	Introduce examples to improve the skill	1 1 1 1 1 1 1
		of expansion and factorization	

_		involving negative and fractional	
	Relationship between indices	indices should be given.	
	and logarithms, e.g.		1
	$y = 10^{K} \Leftrightarrow k = \log_{10}^{y}$	i. $a^{in} \times a^n = a^{in+n}$	
		ii. $a^m \div a^n = a^{m-n}$	
	7 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	iii. $(a^m)^n = a^{mn}$	
	A STATE OF THE PARTY OF THE PAR	iv. $a^{m/n} = {}^{n}\sqrt{a^{n}} = ({}^{n}\sqrt{a^{m}})$, etc.	
	. The state of the support of	za nakiel osnoviji i i i i i i ji i i izi 🔄	
	the state of the s	Expressing of numbers in the form	
	plate that the street of	a x 10^b where $1 < a < 10$ and b is an	
	The state of the s	integer	
		recorder to the following of	
American in the		Illustrate by example how some	
	The frequency of the same	problems in logarithms could be	
	The first of the f	solved by changing it to indices and	•
	The first Court Beauty Co.	vice versa.	11 A 11 A
2015		vice versa.	×
-	LOGARITHMS	Calculation involving multiplication,	Entraria de la compansión de la compansi
5.	1 —	division, powers and square roots.	
	Basic rules of logarithms, i.e.	Remember that the proofs of the rules	
	$- \log_{10}(PQ) = \log_{10}P + \log_{10}Q$	Remember that the proofs of the fales	
	$-\log_{10}(P/Q) = \log_{10}P -$	are not required only application is	1week/6hrs
1	$\log_{10}Q$	needed	1 wccwom3
	$-\log_{10}P^n = n\log_{10}P$	C. Ida CIV with the bose 10	
	1	Use of table of logarithms, base 10	
	$-\log_{B}^{A} = \log_{C_{p}}^{A}$	logarithm and anti-logarithm tables	
	log _C ^B		
6.	SURDS	Surds of the form a, a√b, and	
		√b	
	Simplification and	(A)	1.761
, é .	rationalization of simple	$\sqrt{a} + \sqrt{b}$ where a, is rational and b is	1week/6hrs
	surds	a positive integer. Basic arithmetic	
	Sures and a second seco	operation should be perform on surds.	
	7 3	Also note that $\sqrt{(a+b)} \neq \sqrt{a+\sqrt{b}}$, $\sqrt{(a-b)}$	1
	8,44	b) ≠ √a-√b.	·
		0) 7- 14 10.	
7.	SETS	Notations: \in , \cap , ϕ , $\{$ $\}$, U , p^1 (the	
	(i) Idea of sets, universal set,	complement of p) or p°. Difference of	
	finite and infinite sets,	complement of p) of p. Difference of	
	subsets, empty sets and	sets, e.g. A-B.	
	disjoint sets. Notation for	of	1week/6hrs
	union, intersection and	Illustrate using simple examples of	
	complement of sets.	finite sets	
	Complement of Bots.		
1 7	(ii) Algebra of sets,	The use of Venn diagrams restricted	1
13	111111111111111111111111111111111111111	to at most 3 sets	
	commutative, associative and		
and the second	distributive properties	I summer special to this seeker in a serious in	
Pari	Solutions of practical	a commission in the sale of a second	
	problems involving		A
	classification using Venn	A CONTRACTOR OF THE PARTY OF TH	
	diagrams		

SECTION B: ALGEBRAIC PROCESSES

		BY WWW.READNIGERIANETWORK.COM	Para I
	TOPICS / CONTENTS	ACTIVITIES / PRACTICAL GUIDE	DURATION
S/NO:	ALGEBRAIC IDEAS AND	30 - 30 - 401	1
8.	PROCESSES	ALL DESCRIPTION OF THE PARTY OF	2.1
	Exercises involving both	Simplification and evaluation should	
	positive and negative	Office officialis and unformals.	1
	rational numbers. Word		
	problems involving simple	100000000000000000000000000000000000000	
	problems involving strapes	(i) $1-x$, $1+1=u+v$	
	algebraic fractions	2+y u v uv	
		and the second of the second parameters from the property of the second	
		(ii) $6(1+x)$, $3x^2 + x = 14$ $3x + 3$ x^2	
	l granter	$3x + 3$ x^2	
	d as the first section of the		2weeks/
~	1,1	(iii) $2xy + 6x + 2y$	12hrs
		(iii) $2xy + 6x + 2y$ where $x = -2$, $y = 4$	
		where x = 22, y = 4	DE 2
		Exercises should include the following	
	1 7 41 7 7 7 11 11 12 2	1 1 11 1 13 21 22 23 2	
	Expansion of binomials and	types:	
and by	trinomials with a result of	on one dispose	
	not more than four terms	(a) $4a(ab + bc + 2ac)$	
	Hot more	(b) $(a + b)(a + b) \text{ or } (a + b)^2$	
		(c) $(a + b)(a - b)$ of $a - b$	
		(d) $(ax + b)(cx + d)$	-
		Exercises should include the following	
	of avaressions	types:	
	Factorization of expressions	1960	
	with not more than four	(a) $x^2 + 5x + 6$	0.
Ì	terms		3
- 1		(c) $ac + ad + bc + bd$	i
- 1	the state of the s	(d) $a^2 - 9$	
		and factorization as	
		Help the students to see factorization as	and the same of th
		the reverse process of expansion	AUTI OF
1	Change of subject of a	Revise solutions of simple equations.	
	formula	Work problems of the following types:	Chain
		and the second s	tappo
		If $3x = 5 + 2y$, find x or y in terms of the	
		others	
~ \ \	Total Carlo Carlo Special Control	k = 2 (a + b) (Expression for Perimeter of	
	The in the same of the same in the same		
1		rectangle)	
	1	then $k = 2a + 2b$	
1		that is $2a = k - 2b$	
		a = k - 2b or $1 (k - 2b)$	10 15 L 11
		2 2	27,091
	1	7410117	1
	A MARIN M. T. (No. 1985 - C. P. S. P.	Introduce examples to improve the skills	restriction of
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	of expansion and factorization	principal design of the
		or expansion and factorization	

	Further factorization BY	Harder problems on factorization should www.READNIGERIANETWORK COM include expressions of the types: (a) $4x^2 - 9y^2$ (b) $x^2 - y^2$ (c) $x^2 + 22x - 8$ (d) $m^2 - 3n^2 + mn - 3nm$ In general, expressions should not exceed quadratics, but cubic of the form $x^3 - x$ or $x^3 - 5x^2 + 6x$ may be included	
9.	LINEAR EQUATIONS Linear equations in not more than 2 variables Linear inequalities	Solving linear equations by standard methods and graphically. Solution of word problems. Comparison of results obtained by graphical and algebraic methods	
	gate and so state of the contract of the contr	Students should be introduced to solve inequalities by performing the same operations on both sides of the inequality Until the solution is obtained, e.g. If $-x < 3$, solve for x (add x to both sides) $x - x < 3 + x$ simplify $0 < 3 + x$ add -3 to both sides $-3 < 3 - 3 + x$ simplify $-3 < x$ or $x > -3$ Make comparison of results obtained by graphical and algebraic methods	1week/6hrs
	es entire property	Graphing and identifying the regions making up the solution of linear inequalities. Solve and give harder exercises.	
10.	LITERAL RELATIONS Change of subject of literal equations	Introduce literal equations with practical applications, example: $A = 2\pi r^2 + 2\pi rh$	Char Each
	ann tor real	Total surface area of cylinder. Find h in terms of A, r and π . Relate this to work done in mensuration	1week/6hrs
11.	ALGEBRAIC EQUATIONS Quadratic expression as the sum of the square of a linear	Students should observe the result of the expansion of expressions like	

expression and a constant.

Solution of equation by completing the square.

Deducing formula from completion of square

Graphical solution of a pair of equations of the form $y = ax^2 + bx + c$ and y = mx + k. Use a quadratic graph to solve a related equation, e.g. Graphy of $y = x^2 + 5x + 6$ to solve $x^2 + 5x + 4 = 0$

Drawing of a tangent to a curve.

Use of tangent to determine one variable

Revise linear inequalities in one variable. Graphs of linear inequalities in two variables

Revision of factorization. Solution of quadratic equations using:

- (i) Factorization
- (ii) Completing the squares
- (iii) Formula
- (iv) Symmetric properties of the roots

$$\alpha + \beta = \frac{-b}{a}$$
 and $\alpha\beta = \frac{c}{a}$

(v) Graphical methods

Solutions of two simultaneous equations where one is linear and the other quadratic; using graphical methods

 $(x + a)^2$. Given an expression of this form $E = x^2 + ax$ WWW.READNIGERIANETWORK.COM

Students should learn to find the constant term, k, which can be added to the expression so as to make the result a perfect square 2weeks/

12hrs

For example: $(x^2 + 6x) + 9 = (x + 3)^2$

This method of solving quadratic equations should be compared with the earlier methods used and the different methods be applied to the same equation

After drawing the two graphs, students should be able to recognise the points of intersection as the solutions of the equations

Use of a set-square to draw tangents to curves at given points

Exercises should include practical problems where there are restrictions on two variables

Revise factorization and also the expansion of algebraic factors. Work problems using the fact that if the product of 2 numbers is zero, one of the numbers must be zero. Extend this to factors. Check solutions by substituting in the original equations. Work problems illustrating the use of the five methods of solving quadratic equations as stated in the content

Solve the equation $f(x) = x^2 - 3x + 5$ by:

UPLOADED BY WWW.READNIGERIANETWORK.COM Of f(x) and noting the intersection of the x - axis

(ii) Setting
$$f(x) = 0.5^{\circ}$$
 that $x^2 = 3x - 5$

Work problems based on linear and quadratic equations

Quadratic equations

Algebraic solutions of problems on direct, inverse and partial variation. Joint variation Draw graphs of x^2 and 3x - 5 on the same scale. Obtain the x-coordinates of the intersections for the solutions. Compare the solutions in (i) and (ii)

Solve the equations

$$y = 3x^2 - 4x + 9$$
(i)

$$y = 5x - 7$$
(ii)

by equating (i) = (ii) to obtain $3x^2 + x - 2$ = 0 and then solve by completing the square.

Solve problems in various areas such as science, commerce, economics, statistics and engineering linked with accuracy of results when comparing graphical and algebraic methods

Use mentals of factorization and graphical solutions. Students should be encouraged to explain solutions that must be rejected on practical grounds. The use of the graphical method where an expression cannot be factorised easily should be emphasized.

The mass, M, varies directly with the length, L is: M) L.

(ii) A
$$\alpha_{z}^{1}$$
, T α 1

S

When the value of a variable y is proportional to the product of variables p and x, y is said to vary jointly as p and x, e.g.

POLYNOMIALS

Addition, subtraction and multiplication of polynomials (not exceeding degree 3)

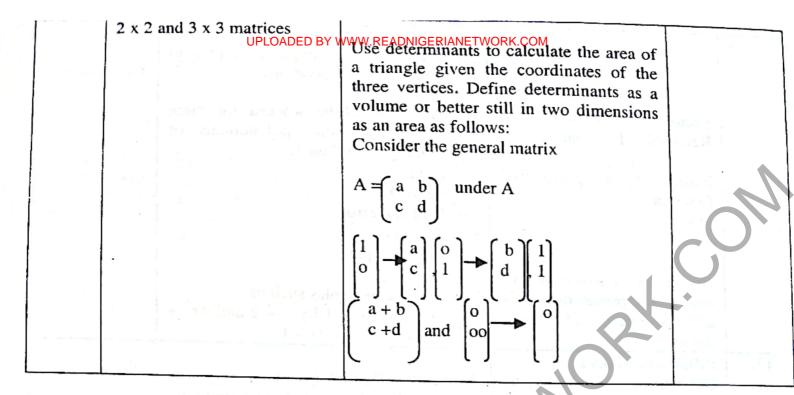
Define a polynomials as:

$$f(x) = a_n x^n + a_{n-1} x^{n-1} + \dots + a_1 x^1 + a_n$$

where a,'s are real numbers and

UPLOADED BY WWW.READNIGERIANETWORK! COMWIL and II is

		referred to as the degree of the	
	Programme and State of State o	polynomial. Use simple examples to	7
	UPLOADED B	YMWSREAR NIGERIA DE TOPPES COMS.	lweek/6hrs
	a line was affected to the first		ř
	Factor Theorem and	Examples should be worked for these	
	Remainder Theorem	two theorems, using polynomials of	
		degree not greater than 3.	
	Zeros of a polynomial	Solve by:	
	function	(i) Factorizing	
	(n < 3)	(ii) Trial and error	
		(iii) Formula	
	I i mist of	(iv) Use of graphs	
	Divide a polynomial of	Work simple examples such as:	
	degree not greater than 3 by	Divide $3x^2 - 2x + 1$ by $x - 2$ and $4x^3 + 1$	•
	a polynomial of lesser	$3x^2 - 2x + 1$ by $x^2 + 2x - 1$	
	degree PROGRESSIONS	JA ZA 1 ZOJ A J	- 1 i
13.	Definitions of Arithmetic	Define an A.P., find the nth term, sum of	
	Progression (A.P.). Use	the n terms. Application to compound	
	formula for nth term and	interest and Hire Purchase	
	sum of n terms of an A.P.	CONTRACTOR OF THE STATE OF THE	
	Definition of a geometric	Define what is G.P. Find the nth term	1week/6hrs
	progression (G.P.). Use	and sum of the n terms. Also apply the	
8.1	formula for the nth term and	concept of G.P. to finance with reference	
	the sum of n terms of a	to Hire Purchase and compound interest	
	geometric series	out it is a set the sets N (the	
14.	BINARY OPERATIONS	Check whether or not the sets N (the	
	- man for two way to	natural numbers) Z (the integers); Q (the rationals), R (the real numbers) are	
	Binary operations:	closed under the four rational operations.	
	Properties of closure, inverse, identity,	Repeat for the other three properties.	
	inverse, identity, commutativity, associativity	Define a binary operation	
	and distributivity	\Box (+, -, x, ÷) on a sets as	
	and distributivity	☐: A x A♠ A satisfying one or all of the	
	tray . Autororay	properties of closure, commutativity,	included in the second
	T alignmen	associativity and distributivity. Check	1week/6hrs
	Q	that 0 is the identity element in Z	
		(integers) with respect to addition, that 1	
_	G.	is the identity element of Q - (0) (non-	
		zero rational numbers) with respect to	
		multiplication	
15.	MATRICES AND	on the state of th	al La Co
111	DETERMINANTS	Addition, subtraction and perform matrix	
	2 x 2 motai	multiplication of 2 x 2 matrices. Give	TY.
	2 x 2 matrices	examples to show that the multiplication of matrices is non-commutative, i.e. AB	•
	, or so so take some to o	≠ BA. Do simple applications of	±11
		matrices. Give basic illustration of	***
	acerai, egit i bid ii i	matrices as an example of linear	1week/6hrs
	LIDLOADED	Y TRANSPORTATION LANGTWORK COM	Large Management of the Control of t
	UPLOADED B	I WWW.READNIGERIANELWORK.COM	



SECTION C: PLANE GEOMETRY

S/NO:	TOPICS / CONTENTS	ACTIVITIES ADDACTICAL CLIDS	DIID
16.	ANGLES AND PARALLEL	ACTIVITIES / PRACTICAL GUIDE	DURATION
10.	LINES		
	(i) Angle at a point add up	Proofs of those standard results are	
1	to 360°	Proofs of these standard results are not required. Rather, students should know	GP 18 1 165
	(ii) Adjacent angles on a		
	straight line are	angles are to be covered	
	supplementary	angles are to be covered	luvaale/6hm
1	(iii) Vertically opposite	out, readers 20 justiness.	lweek/6hrs:
	angles are equa!	A Clear of the Language of Art. States of the Art.	Tuestou
	(iv) Alternate angles are	Section 1997	de trica (
	equal	Application to proportional division of	
	(v) Corresponding angles	line segments in triangles	
C Tall	are equal	The second secon	
•	(vi) Interior opposite angles	edit of October	1
	are supplementary	officer errogatemics	
i	(vii) Intercept theorem	Validated to state or the	
17.	TRIANGLES		
-	(i) The sum of the angles of	I to the second	
	a triangle is two right angles	Proofs not required	1.00
	(ii) The exterior angle of a	7 1 14 14 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
	triangle equals the sum of the		1
	two interior opposite angles	Conditions for congruency to be known	
	(iii) Congruent triangles	Equiangular, ratio of sides and areas to	à la
	(iv) Similar triangles	be taught	
	(v) Special triangles	Isosceles, equilateral, right angled,	
September 1		scalene triangles and their properties	

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		The stronger was a larger to the first	1 week/onrs
	1 '	the second section of the section of the second section of the section of t	
	1	(A.178)	
		The state of the s	114 }
	, and a second	The state of the s	1 4
74			I vili
18.	QUADRILATERALS	of January 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
	(i) Special quadrilaterals:	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	3
	Parallelogram, Rhombus,	grants a lastW	
	Rectangle Square and	2.23 GOVERNOV	
	Trapezium	the signs of the active	
	(ii) Parallelograms on the same base and between the	Proof not required A-11	1week/6hrs
	same parallels are equal in	Proof not required. Applications in problems involving shapes	
	· ·	problems involving snapes	1978.
	area POLYGONS		100
19.	(i) The sum of the angles of	a display and the selection of the selection	gio r
	a polygon	2006.57	1207
	(ii) Properties of exterior	1213	1 week/6hrs
	angles of a polygon	the state of the s	1 WEEK OH'S
20.	CIRCLES		
20.	(i) The angle which an arc		
	of a circle subtends at the	Proofs of basic theorems not required	1
	centre is twice that which it		lweek/6hrs
	substends on the remaining	and the state of	1 1
	part of the circumference	- Lamine of the cotals - Creat Strait	leg
8 10	(ii) Angles in semi-circle is a	No Alamera	
	right angle	A supramo	
7	(iii) Angles in the same		
V 1	segment are equal		
	(iv) Angles in opposite		
	segments are supplementary		
	(v) Perpendicularity of	Cyclic quadrilateral chords	
	tangent and radius		
	(vi) Angles in alternate		
	segment		

SECTION DIRECTOR STREET

		· ·	
S/NO:	TOPICS / CONTENTS	ACTIVITIES / DD ACTICAL CHIDE	DIVE ATTION
21.	LENGTHS AND	ACTIVITIES / PRACTICAL GUIDE	DURATION
	PERIMETERS		
	(i) Lengths of arcs of circles	$2\pi r\theta$	
	(11) Lengths of chords of	$\ell = \frac{2\pi r\theta}{360^0}$	
	circles		1week/6hrs
	(iii) Perimeters of sectors	Use trigonometric ratios, where	CRI S
	and segments of circles	required, to determine lengths of	
		chords.	Lagra 9
22.	AREAS AND VOLUMES	Work various examples on perimeter	Samuel III
	(i) Areas of triangles and	of the state of th	
Salte C.	special quadrilaterals	four as extra about	
	(ii) Areas of circles, sectors	one is a neglect of an event for	275362
	and segments	water, they produce to the contract of	11407
-	(iii) Surface areas and	Relation between surface area of a	1week/6hrs
	volumes of cubes, cuboids,	cone and the sector of a circle	
	cylinders, cones, pyramids,		French II
	prisms, spheres and	the second party	it are
611 6	composite figures	12130	
-	(iv) Volumes of similar	1/4	.41
22	solids THE EARTH AS A SPHERE	To the State and State and State and	
23.	(i) Lines of longitudes and	Compare with the definitions in	B 10
, N. 1	latitudes	Geography and reconcile the two	Oran I
,	(ii) Calculations of distances		and the s
	on the surface of the earth	Treat simple examples. Work	1week/6hrs
		examples involving known places	1
			1707

150 hours

UPLOSE CONSTRUCTION AND LOCI

S/NO:	TOPICS / CONTENTS	ACTIVITIES / PRACTICAL GUIDE	DURATION
1.	CONSTRUCTIONS (i) Bisectors of angles and line segments (ii) Line parallel / perpendicular to a given line (iii) Angles 90°, 60°, 45°, 30° (iv) Angle equal to a given angle (v) Triangles and Quadrilaterals	Draw thin lines, make arcs and curves to facilitate the use of protractors and a pair of compasses to measure angles	2weeks/ 12hrs
2.	(i) Parallel lines and perpendicular bisectors (ii) Angle bisectors (iii) Circles	Locus of points must be based on geometrical principles relating to parallel lines, perpendicular bisectors of lines, angle bisectors, etc.	2weeks/ 12hrs

SECTION F: TRIGONOMETRY

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S/NO:	TOPICS / CONTENTS	ACTIVITIES / PRACTICAL GUIDE	DURATION
3.	SINE, COSINE AND TANGENT OF ANGLES (i) Sine, cosine and tangent of acute angles and their reciprocals. (ii) Use of trigonometric tables (iii) Trigonometric ratios of special angles, i.e. 30°, 45°, 60°, etc. (iv) Sine, cosine and tangent of angles from 0° to 360° (v) Graphs of sine, cosine and tangent of angles from 0° to 360° (v) Graphs of sine, cosine and tangent (vi) Sine and cosine rules	This can be explained by drawing a right angled triangle This can be discussed by drawing an isosceles right-angled triangle (in case of 45° , etc.) This can be discussed by drawing a circle of unit radius and divided into four quadrants Plot the graph by taking the values of 0° , $0^{\circ} < \varsigma < 360^{\circ}$ at interval The sine rule can be illustrated by drawing a triangle with two sides and an angle given, e.g. $<$ ABC with a = 3cm, b = 5cm and $<$ ABC = 70°	2weeks/12hrs
4.	ANGLES OF ELEVATION AND DEPRESSION (i) Angles of elevation and depression (ii) Applications of angles of elevation and depression to heights and distances	Give examples of angles of elevation, e.g. angles of viewing the top of a building. Also give examples of angles of depression, e.g. viewing a person from the top of a tree	2weeks/12hrs
5.	BEARINGS (i) Bearing	Give examples of bearing in the form 035°, N50°E, 230°, etc. Also use the sine or cosine rule to find the distances and heights of objects in problems involving bearing, e.g. the bearing of a town A from a town B is 40°. If A is 160 km from B, how far north of A is B?	2weeks/12hrs

TRIGONOMETRIC IDENTITIES AND EQUATIONS (i) Trigonometric identities, e.g. Sin ² x + cos ² x = 1, 1 + tan ² x = sec ² x (ii) Simplification of trigonometric expressions using	opple sample vertexis can be consoned the consoned the consoned the consoned the consideration of the two examples and the consideration of the two examples are considerations.	3weeks/18hrs
identities	tor probably of the value of skill value of skill velocity.	e dlean (i.)

SECTION G: STATISTICS AND PROBABILITY

	Eddis.	ACTIVITIES / PRACTICAL GUIDE	DURATION
S/NO:	TOPICS /	ACTIVITIES/TRACTICIES GOLD	
S/NO.	CONTENTS	and the same of th	NO STONE L
	STATISTICS		
7.	SIAID	upara	
	(i) Importance of	Introduce realistic problem where	The second secon
	statistics and need for		
	statistics and need re-		
	data collection	1. Conduct of examination depend on	
	(ii) Graphical	late of registered students	
	presentation of data;	a i i amoutament denellus on data	
	frequency tables,	1 Janeity	The Same not
	pictograms, pie charts,	on road density Discuss the importance of data	3weeks/18hrs
-	line-graphs, bar charts,	three forms e.g. for easy	
	ata	presentation in these forms, organized and	imabalabA i. Y
	etc. Measures Of	visualization and analysis. Reading and	randived to
. 6 1 2	· donov	drawing simple inferences from graphs	F INVIENDED
	COLLEGE	V 1 · tempretations of unit in the	12
	mean, mode	L' and and	0 2 JolA . 19
	median for both	Examples for both the discrete and	win't
Ji su	grouped and discrete	COCES SHOULD	
	data	determine these measures. The	
	(iv) Histograms,	determine these measures	eq gerall .
	frequency polygon,	should be mentioned. Exclude unequal	Secondera
True p	curve, mode,	should be mentioned. Exclude should be mentioned.	C. Thomas
4	0.11 / 0,	class interval. Use of	4.0
	(0 !)	should be discussed	t jostoski j
		The mode of the distriction The	21.17.0002
- 2	Median, quartiles and	The mode of the distribution. The estimated from the histogram. The median of the distribution should be from the cumulative	V Inne
	percentiles	madian of the distribution simulative	Managara
2147.3	(v) Measures of	median of the distribution sumulative	1
	dispersion; range,	estimated from the discrete	OH WALK .
	inter-quartile range,	frequency cuit should cover both the discrete	
	mean deviation and	frequency curve. Examples should cover both the discrete and grouped data The importance of these measures	a milicity
1 m 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	standard deviation		Schools .
of the pro-	from the mean,	The importance of these	
	variance	The importance of these measures should be stressed	
	variance	Silve	

Γ	8.	PROBABILITY		Fr. Zenton en kanne
		(i) Introduction to the occurrence of probability (chance) in everyday life (ii) Experimental and theoretical probability using a simple sample space (iii) Addition of probability for mutually exclusive and independent events (iv) Multiplication of probabilities for	probability. Only simple cases should	3weeks/18hrs
		independent events	be treated	
	9.	Revision		4weeks/24hrs
	*		Total	138hrs

Recommended Texts / Reference Materials:

- 1. Adelodun, A.A. (2000): Distinction in Mathematics Comprehensiv Revision Text (3rd Edition). Ado-Ekiti, ENPL.
- 2. Ale, S.O. (1985): Essentials of Basic Mathematics. Ahmadu Bell University Press Limited, Zaria.
- 3. Lassa, P.N. and Ilori, S.A. (1995): Further Mathematics for Senic Secondary Schools. Ibadan University Press, Ibadan.
- Macrae, M.F. et al (2001): New General Mathematics for Senic Secondary Schools (3rd Edition), Books 1 3. Pearson Education Limited Edinburgh Gate, Harlour, Essex.
- 5. MAN, (1991): Secondary Mathematics, Books 1 3. University Press Ibadan 6.NERDC (1998): Further Mathematics for Senior Secondar Schools. University Press, Ibadan.