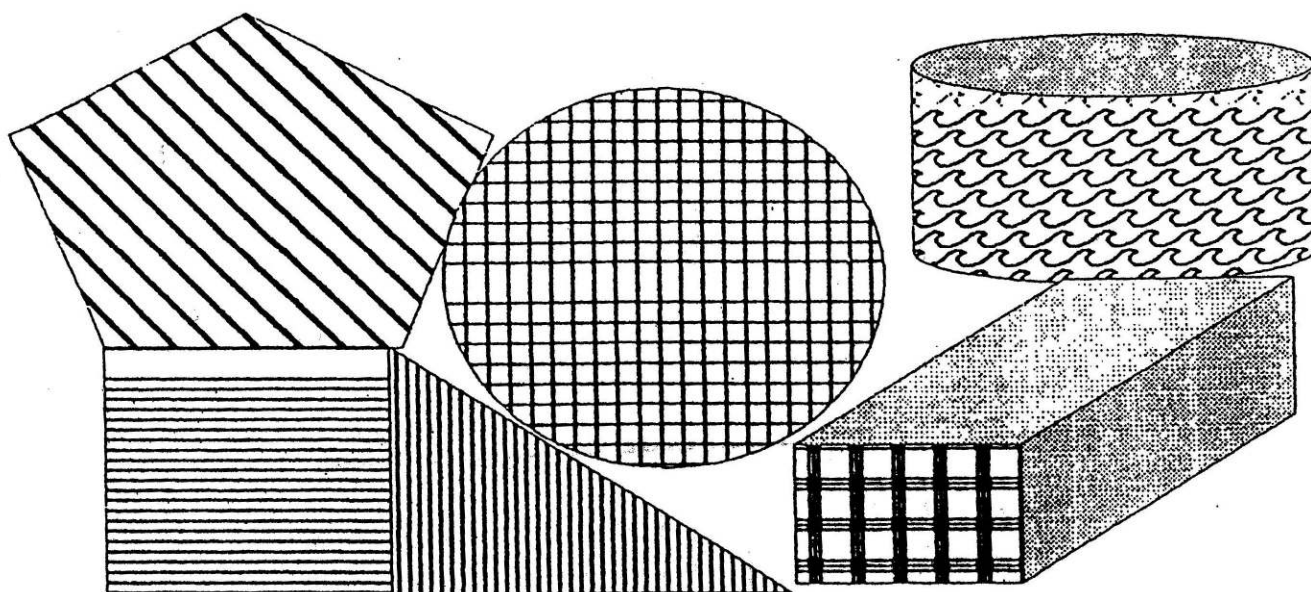


BAHAMAS JUNIOR CERTIFICATE

044 MATHEMATICS

SYLLABUS 2003



MINISTRY OF EDUCATION, YOUTH & SPORTS
THE TESTING & EVALUATION SECTION

BAHAMAS JUNIOR CERTIFICATE
0044 MATHEMATICS
2003

- ▶ The Bahamas Junior Certificate Examination in Mathematics will consist of two papers.
- ▶ Both papers are to be written.
- ▶ **ALL** questions are to be answered in the spaces provided on the question papers.
- ▶ **NO CALCULATORS WILL BE ALLOWED.**
- ▶ **ALL** working is to be done in **BLACK OR BLUE INK** with the exception of constructions and lines, which may be done with a **pencil**.
- ▶ Show **ALL** necessary working.

DETAILS OF THE EXAMINATION COMPONENTS

Paper Number	Duration	Weighting	Structure
ONE	1 hour	40%	Short answer questions requiring little working. The content is taken from the entire syllabus.
TWO	2 hours	60%	More structured type questions of a more complex nature than those in paper one. ALL questions are to be answered.

GRADES AVAILABLE ARE A - G.

The Candidates should be able to:

1. recall, apply and interpret mathematical knowledge in the context of everyday situations;
2. set out mathematical work, including the solution of problems, in a logical and clear form, using the appropriate symbols and terminology;
3. organize, interpret and present information accurately in written, tabular, graphical and diagrammatical forms;
4. perform calculations by suitable methods;
5. understand systems of measurement in everyday use and to make use of them in the solution of problems;
6. estimate, approximate, and work to degrees of accuracy appropriate to the context;
7. use mathematical and other instruments to measure and to draw to an acceptable degree of accuracy;
8. recognize patterns and structures in a variety of situations, and form generalizations;
9. interpret, transform and make appropriate use of mathematical statements expressed in words or symbols;
10. recognize and use spatial relationships in two and three dimensions, particularly in solving problems;
11. analyze a problem, select a suitable strategy and apply an appropriate technique to obtain its solution;
12. apply combinations of mathematical skills and techniques in problem solving;
13. make logical deductions from given mathematical data;
14. respond to a problem relating to a relatively unstructured situation by translating it into an approximately structured form;
15. understand and apply basic concepts of probability;
16. select and use basic statistical methods to analyze data;
17. use the language of mathematics to express mathematical ideas precisely;
18. apply limited use of transformations and symmetry to analyze mathematical situations;
19. show mathematical achievement through continuous assessment.

TOPICS	NOTES
<p>1a. Whole numbers (odd, even, prime, squares, cubes, factors, multiples, square roots, indices)</p> <p>b. Number patterns and sequences</p>	<ul style="list-style-type: none"> • Read and write numbers in exponential form. • Know the symbols indicating square and cube roots • Calculate roots up to 400 without a calculator. • Cube roots up to 1,000. • Recognize simple number patterns e.g. squares, cubes, triangular numbers. Pattern will be easily defined.
<p>2a. Vulgar and decimal fractions and percentages.</p> <p>b. Percentage of a sum of money.</p> <p>c. Express one quantity as a percentage of another.</p>	<ul style="list-style-type: none"> • Express an improper fraction as a mixed number and vice versa. • Convert to a percentage • Equivalent fractions • Vulgar fractions to decimal fractions <p>E.g. Express 48 minutes as a percentage of one hour.</p>
<p>3a. The four rules applied to whole numbers, decimals and fractions.</p> <p>b. Language and notation of simple vulgar fractions in appropriate contexts</p>	<ul style="list-style-type: none"> • Denominators will only have one significant digit except for equivalent fractions. • Decimal fractions will involve up to three places of decimals. • Addition, subtraction, multiplication and division of fractions, whole numbers and fractions and mixed numbers.

4. Directed numbers	<ul style="list-style-type: none"> • Use in practical situations e.g. temperature and tide level. • Simple financial loss/gain. • Four rules of integers.
5a. Elementary ideas on ratio	<ul style="list-style-type: none"> • Ratio expressed in the form a to 1 or 1 to a. (A is a whole number). • Simple ratios.
5b. Direct and indirect proportion.	<ul style="list-style-type: none"> • Notation a : b will be used. • The notion of unit pricing.
c. Linear scales including map.	
6. Estimation/Approximation to obtain reasonable answers.	<ul style="list-style-type: none"> • Approximate to two decimal places. • Estimate +, -, x, and ÷ for whole numbers, decimals, fractions and percentages. • Approximate to a given number of significant figures for any decimal number n, where 1 < n < 100.
7. Sets and their relationships.	<p>Notation:</p> <ul style="list-style-type: none"> • $n(A)$ Number of elements in set A. • \in is an element of • \notin is not an element of • A' Complement of set A • \emptyset Empty set • \sum Universal set • $A \subset B$ A is a subset of B • $A \not\subset B$ A is not a subset of B • $A \cup B$ A union B • $A \cap B$ A intersect B. • \leftrightarrow Equivalent Sets <p>SOLVE: Two sets using Venn diagrams</p>

<p>8a. Measures of weight, length, area, volume and capacity in current units.</p> <p>b. Time: 24 hour clock as well as the 12 hour clock.</p> <p>c. Foreign currency</p> <p>d. Consumer mathematics</p>	<ul style="list-style-type: none"> • Use metric units as well as the corresponding Imperial units. • Expression of compound units e.g. km/hr. • Elapse time • Do simple conversions. • Personal and household finance. • Hire purchase, interest, taxation, discount, loans, wages, salaries, profit and loss. • Reading of graphs, clocks and dials. • Use charts and tables • Simple interest and Amount only • Average speed • Budgets
<p>9.. Recognize lines of symmetry in 2D and Properties of triangles, quadrilaterals, circles, regular polygons.</p>	<p>Recognize, draw, complete shape about a line of symmetry.</p>
<p>10a. Perimeter of regular and irregular polygons.</p> <p>b. Area of regular polygons</p> <p>c. Area and circumference of circles.</p> <p>d. Volume of cubes and cuboids.</p>	<ul style="list-style-type: none"> • Including compound shapes made up of rectangles, triangles, parallelograms, trapezium and circles. • Work with border regions • Recognize the difference between cube and cuboid • Recognize basic solids

11a. The classification of statistical data. Reading, interpreting and making simple inference from tables and statistical diagrams.	
b. Measure of central tendency. c. Probability	<ul style="list-style-type: none"> • The mean, mode and median of individual and discrete data. • Calculate the probability of dependent and independent events. • Calculate the probability of an event happening. • Express probabilities either as fractions, decimals or percentages.
12. Ordering by magnitude	<ul style="list-style-type: none"> • Use $<$, $>$ and $=$ to order numbers, fractions, decimals and percentages.
13a. The use of letter for generalized numbers. b. Substitution of numbers for words and letters in formulae. c. Solution of linear equations in one unknown.	<ul style="list-style-type: none"> • Read and write inequality statements. • Show inequalities on a number line. • Simplify expressions with or without brackets.
14a. Cartesian co-ordinate in two dimensions. b. Interpretation of graphs in relevant situations.	<ul style="list-style-type: none"> • Plotting given points and reading from graphs. (Scales will be given) • Shading simple regions. • Travel graphs, conversion graphs.

15. The geometrical terms:	<ul style="list-style-type: none"> Point, lines, (straight, segment, ray, parallel, oblique, perpendicular). Right angle, acute angle, obtuse angle, straight angle, reflex angle, perpendicular angles, vertically opposite, adjacent, corresponding, exterior, interior, angles at a point, revolution. Angles formed by parallel lines
16. Vocabulary of triangles, quadrilaterals and circles.	<ul style="list-style-type: none"> Isosceles, equilateral, acute-angled, obtuse-angled, right-angled, scalene, right-angled isosceles. Square, rhombus, rectangle, trapezium, parallelogram, kite. Radius, circumference, diameter, chord, arc, diameter, sector, segment, radii.
17. Angle properties of triangles, quadrilaterals	<ul style="list-style-type: none"> Use information on angles and angle properties of triangles and quadrilateral to calculate unknown angles. Exterior angles of a triangle.
18. Measurement of lines and angles.	<ul style="list-style-type: none"> Use a 30cm ruler or a 12 inches ruler to measure or draw lines. Use a protractor to measure or draw angles.
19. Constructions.	<ul style="list-style-type: none"> Angles of 60°, 90° Bisection of angles Bisection of lines Triangles being given (i). three sides, (ii). 1 side and two angles or (iii). 2 sides and the included angle.

<p>20. Transformations.</p>	<ul style="list-style-type: none"> • Simple figures to be reflected horizontal or vertical lines • Identify translations, rotations and reflections as examples of transformation geometry.
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Ministry of Education, Youth & Sports
The Testing & Evaluation Section

ERRATUM

Please add to the Bahamas Junior Certificate (BJC) Syllabus 2003, the following assessment objective:

Objective # 19:

show mathematical achievement
through continuous assessment.