## Sec 1 End of Year Mathematics Paper
### Revision Checklist 2011

<table>
<thead>
<tr>
<th>No.</th>
<th>Topics</th>
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<tbody>
<tr>
<td>1</td>
<td>Arithmetic</td>
</tr>
<tr>
<td></td>
<td>1. Understand and use real, rational, irrational, integer, whole, natural, prime, odd, even, positive, negative numbers</td>
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<tr>
<td></td>
<td>2. Use inequality symbols $&lt;$, $&gt;$, $\leq$ and $\geq$</td>
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<td></td>
<td>3. Apply PEMDAS (parentheses, exponents, multiplication, division, addition and subtraction)</td>
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<td></td>
<td>4. Work with fractions, decimals and recurring decimals</td>
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<td></td>
<td>5. Use the calculator to evaluate calculations</td>
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<td></td>
<td>6. Apply prime factorisation to find LCM &amp; HCF to find factors, multiples, highest common factors, lowest common multiples, exponents, square and cube roots</td>
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<td></td>
<td>7. Write numbers in product of factors in exponent form (by prime factorisation)</td>
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<td>8. Understand significant figures and write numbers in required significant figures</td>
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<td>9. Convert decimal numbers to binary numbers</td>
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<td></td>
<td>10. Apply simple operations (addition, subtraction) for binary numbers</td>
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<tr>
<td>2</td>
<td>Algebra</td>
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<tr>
<td></td>
<td>1. Simplify algebraic expressions involving addition, subtraction, brackets, fractions (where either the denominator or numerator is a numeral and algebraic expressions) and combinations of these</td>
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<tr>
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<td>2. Evaluate algebraic expressions by substituting values for variables</td>
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<td></td>
<td>3. Addition and subtraction of algebraic fractions with linear denominator</td>
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<td></td>
<td>4. Construct formula from word problem</td>
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<td>5. Change the subject in given formula in linear form</td>
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<td>6. Use the skills in change of subject to evaluate unknown in given algebraic formula</td>
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<td></td>
<td>7. Solve simple linear equations involving one unknown</td>
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<td>8. Solve simple linear equations involving fractional and decimal coefficients</td>
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<td></td>
<td>9. Solve simple fractional equations that can be reduced to linear equation</td>
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<td></td>
<td>10. Form linear algebraic equations from given word problems</td>
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<td></td>
<td>11. Perform the fundamental operations of addition, subtraction, multiplication, and division on linear inequalities</td>
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<tr>
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<td>12. Simplify and solve simple linear inequalities of one variable</td>
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<td></td>
<td>13. Form and solve simple linear inequalities from given word problems</td>
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<tr>
<td>3</td>
<td>Indices</td>
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<tr>
<td></td>
<td>1. Apply rules of indices to simplify simple indicial expressions</td>
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<td></td>
<td>2. Apply rules of indices to simplify algebraic expressions involving addition, subtraction &amp; multiplication</td>
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<tr>
<td></td>
<td>3. Evaluate indicial expressions</td>
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<tr>
<td>4.</td>
<td>Solve equations and problems involving non-negative integral indices</td>
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<td>5.</td>
<td>Change the subject of an indicial formula</td>
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<tr>
<td>6.</td>
<td>Write numerals in standard form $a \times 10^n$ where $1 \leq a &lt; 10$</td>
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<td>7.</td>
<td>Perform arithmetic operations with numerals in standard form</td>
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<tr>
<td><strong>4</strong> Geometry</td>
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<tr>
<td>1.</td>
<td>Find the length of a side of a right-angled triangle using Pythagoras’ theorem</td>
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<tr>
<td>2.</td>
<td>Determine whether a triangle is right-angled using Pythagoras’ theorem</td>
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<tr>
<td>3.</td>
<td>Solve problems involving Pythagoras’ theorem</td>
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<tr>
<td>4.</td>
<td>Find perimeter and area of 2D objects including parallelogram &amp; trapezium</td>
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<td>5.</td>
<td>Solve problems involving perimeter and area of composite plane figures</td>
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<td>6.</td>
<td>Find volume and surface area of 3D objects including cuboid, prism, cylinder, pyramid, cone and sphere</td>
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<td>7.</td>
<td>Solve problems involving volume and surface area of composite solids</td>
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<tr>
<td>8.</td>
<td>Identify right, acute, obtuse and reflex angles, complementary &amp; supplementary angles, vertically opposite angles, adj angles on a straight line, adj angles at a point, interior and exterior angles.</td>
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<td>9.</td>
<td>Identify angles formed by two parallel lines and a transversal: corresponding, alternate and interior angles.</td>
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<tr>
<td>10.</td>
<td>Know properties of triangles and special quadrilaterals,</td>
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<td>11.</td>
<td>Able to classify special quadrilaterals on the basis of their properties</td>
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<tr>
<td>12.</td>
<td>Find sum of interior angles and exterior angles of any convex polygon</td>
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<tr>
<td><strong>5</strong> Statistics</td>
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<tr>
<td>1.</td>
<td>Interpret bar graphs, pictograms, histograms, pie charts, stem and leaf diagrams, dot diagrams and line graphs</td>
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<tr>
<td>2.</td>
<td>Calculate and interpret the three different measures of central tendencies, namely the mode, median and mean</td>
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<td><strong>6</strong> Set Theory and Venn Diagrams</td>
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<tr>
<td>1.</td>
<td>Understand empty or null set, finite set, infinite set, universal set, equal set, subset, complement of a set</td>
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<tr>
<td>2.</td>
<td>Use set language and notation to describe sets and represent relationships between sets</td>
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<td>3.</td>
<td>Understand and use the following notations: Union of $A$ and $B = A \cup B$ Intersection of $A$ and $B = A \cap B$ Number elements in set $A = n(A)$</td>
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<td>4.</td>
<td>Use Venn diagram to represent the relations of different sets</td>
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<tr>
<td>5.</td>
<td>Use Venn diagram to represent the intersection of sets, union of sets</td>
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<tr>
<td>6.</td>
<td>Use Venn diagram to solve problems involving sets</td>
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<tr>
<td>7.</td>
<td>Solve maximum/minimum size of a set through logical deduction.</td>
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