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**THE INTERNATIONAL SCHOOL BANGALORE**
**GRADE 8 – MATHEMATICS ENTRANCE EXAMINATION DETAILS**

1. **SYLLABUS OUTLINE**

A student applying to Grade 8 is expected to have sufficient knowledge and understanding of the following topics, as per a Grade 7 level curriculum:

 **1. Number Systems**

* **Integers**: Operations (addition, subtraction, multiplication, division), properties (commutative, associative, distributive), order of operations (BODMAS).
* **Fractions & Decimals**:
	+ Simplification, conversion between forms.
	+ Operations: addition, subtraction, multiplication, division.
* **Rational Numbers**:
	+ Properties, representation on number line.
	+ Operations and comparing rational numbers.
* **Factors & Multiples**:
	+ LCM, HCF (using prime factorization, division method).
	+ Divisibility rules.
* **Square & Cube Numbers**:
	+ Perfect squares/cubes, square roots and cube roots (including estimation and factor method).
* **Exponents & Powers**:
	+ Laws of exponents (multiplying, dividing, raising powers).
	+ Scientific notation and standard form.

 **2. Algebra**

* **Basic Algebraic Expressions**:
	+ Terms, coefficients, like and unlike terms.
	+ Simplification and evaluation.
* **Operations on Algebraic Expressions**:
	+ Addition, subtraction, multiplication of monomials and polynomials.
	+ Use of identities:
		- (a+b)2= a2 + 2ab + b2
		- (a−b)2= a2 − 2ab + b2
		- a2−b2= (a+b) (a−b)
* **Linear Equations in One Variable**:
	+ Solving simple and multi-step equations.
	+ Applications in word problems.
* **Factorization**:
	+ Taking common factors, using identities.
* **Simple Inequalities**:
	+ Solving and graphing on a number line.

 **3. Data Handling and Statistics**

* **Types of Data**: Discrete and continuous.
* **Reading and Drawing Graphs**:
	+ Bar graphs, line graphs, pie charts.
* **Mean, Median, Mode**: For ungrouped data.
* **Probability (Basic)**:
	+ Understanding chance and likelihood (0 to 1).
	+ Simple problems using coins, dice.

**4. Geometry**

* **Lines and Angles**:
	+ Types of angles, complementary & supplementary angles.
	+ Properties of parallel lines with transversal.
	+ Angle sum property of triangle and quadrilateral.
* **Triangles**:
	+ Types by sides and angles.
	+ Congruence criteria (SAS, ASA, SSS).
* **Quadrilaterals**:
	+ Properties of parallelogram, rectangle, square, rhombus, trapezium.
* **Circles**:
	+ Basic terms: radius, diameter, chord, arc, sector.
	+ Angle at center, properties of chords.

 **5. Mensuration**

* **Perimeter and Area**:
	+ Triangle, square, rectangle, parallelogram, trapezium, circle.
* **Surface Area and Volume**:
	+ Cubes and cuboids.
	+ Cylinders and spheres.

 **6. Ratio, Proportion & Percentages**

* **Ratio & Proportion**:
	+ Equivalent ratios, word problems.
* **Unitary Method**: (Finding value of one and multiplying).
* **Percentages**:
	+ Finding percentages, increase/decrease.
	+ Applications: profit & loss, discount, interest.
* **Simple Interest**:
	+ Formula:

**7. Commercial Math**

* **Profit & Loss**:
	+ Cost price, selling price, profit/loss percentage.
* **Simple Interest** (as mentioned above).

**QUESTION PAPER PATTERN**

* **Nature of Questions:** Multiple Choice Questions (MCQs)
* **Number of Questions:** 40
* **Duration:** 40 minutes

**Links to Past Question Papers**

[Grade 8 Math Entrance question Paper.pdf](https://nafltrust-my.sharepoint.com/%3Ab%3A/g/personal/veena_tisb_ac_in/ESYWUGdsRBZDpdWcOPI_SWsBlrZffbXrDMtifuV0_vDT3w?e=L7VhZo)

[Grade 8-Entrance-ANSWER KEY.pdf](https://nafltrust-my.sharepoint.com/%3Ab%3A/g/personal/veena_tisb_ac_in/EX4uR4CXCNBNhLVzFuKMSTwB8E2ATs9floP-zn_xuE2R1A?e=mcooGb)