

CLASS 8

MATHEMATICS

MID TERM 1

1. Rational numbers
2. Exponents
3. Algebraic expressions and identities
4. Linear equation and inequation (only equation and problem sums)

HALF YEARLY ASSESSMENT

1. Rational numbers
2. Exponents
3. Squares and square roots
4. Cubes and cube roots
5. Playing with numbers
6. Percentage and its application
7. Algebraic expressions and identities
8. Linear equations and inequations
9. Factorization
10. Understanding shapes

MID TERM 2

1. Percentage and its applications
2. Simple and compound interest
3. Factorization
4. Understanding shapes

FINAL TERM ASSESSMENT

Rational numbers
Exponents
Squares and square roots
Cubes and cube roots
Playing with numbers
Percentage and its application
Algebraic expressions and identities
Linear equations and inequations
Factorization
Understanding shapes

Simple and compound interest
Direct and inverse variation

Operation on Sets
Construction of quadrilaterals
Circle
Visualizing solid shapes
Symmetry, reflection and rotation
Mensuration
Data handling

Graphs and Coordinates (Solution of simultaneous equations graphically)

CLASS 8 MATHEMATICS – SCOPE OF SYLLABUS (NEP 2020 ALIGNED)

MID TERM 1 [Rational numbers, Exponents, Algebraic expressions and identities, Linear equation and inequation (only equation and problem sums)]

1. Rational Numbers

Concepts:

- Properties of rational numbers (closure, commutative, associative, distributive)
- Standard form and comparison
- Operations (addition, subtraction, multiplication, division)

Learning Objectives:

- The student should be able to represent rational numbers in standard form.
 - The student should be able to perform operations on rational numbers accurately.
 - The student should be able to verify properties of rational numbers using examples.
 - The student should be able to compare and order rational numbers logically.
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2. Exponents

Concepts:

- Laws of exponents (product, quotient, power of a power)
- Negative exponents
- Scientific notation (basic introduction)

Learning Objectives:

- The student should be able to apply laws of exponents to simplify expressions.
 - The student should be able to express numbers using negative exponents.
 - The student should be able to convert numbers into standard (scientific) form.
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3. Algebraic Expressions and Identities**Concepts:**

- Terms, factors, coefficients
- Addition and subtraction of expressions
- Standard identities

Learning Objectives:

- The student should be able to identify terms and coefficients in expressions.
 - The student should be able to simplify algebraic expressions.
 - The student should be able to apply algebraic identities to solve problems.
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4. Linear Equations**Concepts:**

- Solving linear equations in one variable
- Word problems based on equations

Learning Objectives:

- The student should be able to solve linear equations step-by-step.
 - The student should be able to translate word problems into equations.
 - The student should be able to verify solutions of equations.
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HALF YEARLY ASSESSMENT (inclusive of the revision concepts of - Rational numbers, Exponents, Algebraic expressions and identities, Linear equations and inequations)**5. Squares and Square Roots****Concepts:**

- Square numbers

- Finding square roots (factorization and division method)

Learning Objectives:

- The student should be able to identify perfect squares.
 - The student should be able to find square roots using appropriate methods.
 - The student should be able to apply square roots in problem-solving contexts.
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6. Cubes and Cube Roots

Concepts:

- Cube numbers
- Cube roots

Learning Objectives:

- The student should be able to identify perfect cubes.
 - The student should be able to compute cube roots using factorization.
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7. Playing with Numbers

Concepts:

- Factors and multiples
- Divisibility rules
- Number patterns

Learning Objectives:

- The student should be able to apply divisibility tests effectively.
 - The student should be able to analyze number patterns logically.
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8. Percentage and its Applications

Concepts:

- Conversion between fraction, decimal, percentage
- Profit, loss, discount
- Basic applications

Learning Objectives:

- The student should be able to convert between fractions, decimals, and percentages.

- The student should be able to solve real-life problems involving percentage.
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9. Factorization

Concepts:

- Common factor method
- Grouping method
- Factorization using identities

Learning Objectives:

- The student should be able to factorize algebraic expressions using different methods.
 - The student should be able to apply factorization in simplifying expressions.
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10. Understanding Shapes

Concepts:

- Properties of polygons
- Angle sum property
- Types of quadrilaterals

Learning Objectives:

- The student should be able to classify polygons based on properties.
 - The student should be able to apply angle sum properties to solve problems.
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MID TERM 2 (inclusive of the revision concepts of - Percentage and its applications, Factorization, Understanding shapes, and...)

11. Simple and Compound Interest

Concepts:

- Simple Interest (SI)
- Compound Interest (CI) (basic cases)

Learning Objectives:

- The student should be able to calculate simple interest using formula.
- The student should be able to calculate compound interest for basic cases.

- The student should be able to compare SI and CI in practical situations.
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FINAL TERM ASSESSMENT (inclusive of the revision concepts of - Rational numbers, Exponents, Squares and square roots, Cubes and cube roots, Playing with numbers, Percentage and its application, Algebraic expressions and identities, Linear equations and inequations, Factorization, Understanding shapes, Simple and compound interest, and ...)

12. Direct and Inverse Variation

Concepts:

- Direct proportion
- Inverse proportion

Learning Objectives:

- The student should be able to identify direct and inverse relationships.
 - The student should be able to solve problems using variation concepts.
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13. Operations on Sets

Concepts:

- Types of sets
- Union, intersection, complement
- Venn diagrams

Learning Objectives:

- The student should be able to represent sets using proper notation.
 - The student should be able to perform operations on sets.
 - The student should be able to interpret Venn diagrams.
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14. Construction of Quadrilaterals

Concepts:

- Construction using given conditions (specific properties of standard quadrilaterals)
- The sum of all angles is 360 degrees
- External angles and sum of external angles

Learning Objectives:

- The student should be able to construct quadrilaterals accurately using geometric tools.
 - The student should be able to evaluate the missing angles in a quadrilateral with specific co-relation with its properties (squares, rectangles, parallelograms etc)
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15. Circle**Concepts:**

- Parts of a circle
- Properties of chords and arcs

Learning Objectives:

- The student should be able to identify parts of a circle.
 - The student should be able to apply properties to solve problems.
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16. Visualizing Solid Shapes**Concepts:**

- 3D shapes
- Nets and views

Learning Objectives:

- The student should be able to identify and describe 3D shapes.
 - The student should be able to draw nets of solids.
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17. Symmetry, Reflection and Rotation**Concepts:**

- Line symmetry
- Rotational symmetry
- Reflection

Learning Objectives:

- The student should be able to identify symmetrical figures.
- The student should be able to perform transformations.

18. Mensuration

Concepts:

- Area and perimeter
- Surface area and volume

Learning Objectives:

- The student should be able to calculate area and volume of standard shapes.
 - The student should be able to apply mensuration formulas in real-life contexts.
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19. Data Handling

Concepts:

- Mean, median, mode
- Graphical representation (bar graphs, pie charts)

Learning Objectives:

- The student should be able to organize data systematically.
 - The student should be able to interpret graphs and charts.
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20. Graphs and Coordinates (focussed on Project based learning - IA)

Concepts:

- Cartesian plane
- Plotting points
- Graphical solution of simultaneous equations

Learning Objectives:

- The student should be able to plot points on a coordinate plane.
 - The student should be able to interpret graphs.
 - The student should be able to solve simultaneous equations graphically.
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NEP 2020 ALIGNMENT HIGHLIGHTS

- Focus on **competency-based learning**

- Emphasis on **application and problem-solving**
 - Integration of **real-life contexts**
 - Development of **logical reasoning and analytical thinking**
 - Encouragement of **mathematical communication and representation**
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