# **Subject: Mathematics**

# Grade: VII

Γ	Ch. No. Chapter Name		Subtopics	PT1 portion
				Total Marks: 40 Duration: 1 hour 30 minute
	1	Integers	1.1 Introduction	<ul> <li>1.3 Properties of Addition and Subtraction of Integers</li> <li>1.2.1 Class and a Addition</li> </ul>
			• 1.2 Recall	<ul> <li>1.3.1 Closure under Addition</li> </ul>
			1.3 Properties of Addition and Subtraction of Integers	<ul> <li>1.3.2 Closure under Subtraction</li> </ul>
-			<ul> <li>1.3.1 Closure under Addition</li> </ul>	<ul> <li>1.3.3 Commutative Property</li> </ul>
			<ul> <li>1.3.2 Closure under Subtraction</li> </ul>	<ul> <li>1.3.4 Associative Property</li> </ul>
			<ul> <li>1.3.3 Commutative Property</li> </ul>	<ul> <li>1.3.5 Additive Identity</li> </ul>
			<ul> <li>1.3.4 Associative Property</li> </ul>	<ul> <li>1.4 Multiplication of Integers</li> </ul>
			<ul> <li>1.3.5 Additive Identity</li> </ul>	<ul> <li>1.4.1 Multiplication of a Positive and a Negative</li> </ul>
			<ul> <li>1.4 Multiplication of Integers</li> </ul>	Integer
			• 1.4.1 Multiplication of a Positive and a Negative Integer	<ul> <li>1.4.2 Multiplication of two Negative Integers</li> </ul>
_			<ul> <li>1.4.2 Multiplication of two Negative Integers</li> </ul>	<ul> <li>1.5 Properties of Multiplication of Integers</li> </ul>
			<ul> <li>1.4.3 Product of three or more Negative Integers</li> </ul>	<ul> <li>1.5.1 Closure under Multiplication</li> </ul>
			<ul> <li>1.5 Properties of Multiplication of Integers</li> </ul>	<ul> <li>1.5.2 Commutativity of Multiplication</li> </ul>
-			<ul> <li>1.5.1 Closure under Multiplication</li> </ul>	<ul> <li>1.5.3 Multiplication by Zero</li> </ul>
			• 1.5.2 Commutativity of Multiplication	<ul> <li>1.5.4 Multiplicative Identity</li> </ul>
			<ul> <li>1.5.3 Multiplication by Zero</li> </ul>	<ul> <li>1.5.5 Associativity for Multiplication</li> </ul>
			<ul> <li>1.5.4 Multiplicative Identity</li> </ul>	• 1.5.6 Distributive Property
-			<ul> <li>1.5.5 Associativity for Multiplication</li> </ul>	<ul> <li>1.6 Division of Integers</li> </ul>
			<ul> <li>1.5.6 Distributive Property</li> </ul>	<ul> <li>1.7 Properties of Division of Integers</li> </ul>
			<ul> <li>1.5.7 Making Multiplication Easier</li> </ul>	
			<ul> <li>1.6 Division of Integers</li> </ul>	
			<ul> <li>1.7 Properties of Division of Integers</li> </ul>	
	2	Fractions and Decimals	2.1 Introduction	<ul> <li>2.3 Multiplication of Fractions</li> </ul>
			• 2.2 How Well Have You Learnt About Fractions?	• 2.3.1 Multiplication of a Fraction by a Whole
~			<ul> <li>2.3 Multiplication of Fractions</li> </ul>	Number
			• 2.3.1 Multiplication of a Fraction by a Whole Number	• 2.3.2 Multiplication of a Fraction by a Fraction
			• 2.3.2 Multiplication of a Fraction by a Fraction	<ul> <li>2.4 Division of Fractions</li> </ul>
-			<ul> <li>2.4 Division of Fractions</li> </ul>	• 2.4.1 Division of Whole Number by a Fraction
			• 2.4.1 Division of Whole Number by a Fraction	• 2.4.2 Division of a Fraction by a Whole Number
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# Grade: VII

			• 2.4.2 Division of a Fraction by a Whole Number	• 2.4.3 Division of a Fraction by Another Fraction
			• 2.4.3 Division of a Fraction by Another Fraction	<ul> <li>2.6 Multiplication of Decimal Numbers</li> </ul>
			• 2.5 How Well Have You Learnt About Decimal Numbers	<ul> <li>2.6.1 Multiplication of Decimal Numbers by 10,</li> </ul>
_			<ul> <li>2.6 Multiplication of Decimal Numbers</li> </ul>	100 and 1000
			• 2.6.1 Multiplication of Decimal Numbers by 10, 100 and	<ul> <li>2.7 Division of Decimal Numbers</li> </ul>
			1000	$\circ$ 2.7.1 Division by 10, 100 and 1000
_			<ul> <li>2.7 Division of Decimal Numbers</li> </ul>	o 2.7.2 Division of a Decimal Number by a Whole
			• 2.7.1 Division by 10, 100 and 1000	Number
			• 2.7.2 Division of a Decimal Number by a Whole Number	o 2.7.3 Division of a Decimal Number by another
			• 2.7.3 Division of a Decimal Number by another Decimal	Decimal Number
			Number	
	3	Data Handling	3.1 Introduction	3.4 Representative Values
			<ul> <li>3.2 Collecting Data</li> </ul>	<ul> <li>3.5 Arithmetic Mean</li> </ul>
			<ul> <li>3.3 Organisation of Data</li> </ul>	o 3.5.1 Range
			3.4 Representative Values	• 3.6 Mode
			3.5 Arithmetic Mean	<ul> <li>3.6.1 Mode of Large Data</li> </ul>
2.24			• 3.5.1 Range	<ul> <li>3.7 Median</li> </ul>
			• 3.6 Mode	<ul> <li>3.8 Use of Bar Graphs with a Different Purpose</li> </ul>
			<ul> <li>3.6.1 Mode of Large Data</li> </ul>	<ul> <li>3.8.1 Choosing a Scale</li> </ul>
		STATE OF STREET	• 3.7 Median	
~~~			• 3.8 Use of Bar Graphs with a Different Purpose	
			<ul> <li>3.8.1 Choosing a Scale</li> </ul>	
			<ul> <li>3.9 Chance and Probability</li> </ul>	
			• 3.9.1 Chance	

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### **Subject: Mathematics**

	PHASE 2				
Ch. No. Chapter Name Subtopics		Subtopics	HYE portion		
			Total Marks: 80 Duration: 3 hours		
			PT1 portion is included		
4	Simple Equations	4.1 A Mind-Reading Game!	• 4.1 A Mind-Reading Game!		
		• 4.2 Setting Up of an Equation	<ul> <li>4.2 Setting Up of an Equation</li> </ul>		
		<ul> <li>4.3 Review of What We Know</li> </ul>	• 4.3 Review of What We Know		
		• 4.4 What Equation Is?	• 4.4 What Equation Is?		
		• 4.4.1 Solving an Equation	<ul> <li>4.4.1 Solving an Equation</li> </ul>		
		4.5 More Equations	<ul> <li>4.5 More Equations</li> </ul>		
		<ul> <li>4.6 From Solution to Equation</li> </ul>	<ul> <li>4.7 Applications of Simple Equations to Practical</li> </ul>		
		• 4.7 Applications of Simple Equations to Practical Situations	Situations		
5	Lines and Angles	5.1 Introduction	<ul> <li>5.1 Introduction</li> </ul>		
		5.2 Related Angles	<ul> <li>5.2 Related Angles</li> </ul>		
		<ul> <li>5.2.1 Complementary Angles</li> </ul>	<ul> <li>5.2.1 Complementary Angles</li> </ul>		
		<ul> <li>5.2.2 Supplementary Angles</li> </ul>	<ul> <li>5.2.2 Supplementary Angles</li> </ul>		
		<ul> <li>5.2.3 Adjacent Angles</li> </ul>	• 5.3 Pairs of Lines		
		o 5.2.4 Linear Pair	<ul> <li>5.3.1 Intersecting Lines</li> </ul>		
		• 5.2.5 Vertically Opposite Angles	o 5.3.2 Transversal		
		<ul> <li>5.3 Pairs of Lines</li> </ul>	<ul> <li>5.3.3 Angles Made by A Transversal</li> </ul>		
		<ul> <li>5.3.1 Intersecting Lines</li> </ul>	<ul> <li>5.3.4 Transversal of Parallel Lines</li> </ul>		
		• 5.3.2 Transversal	<ul> <li>5.4 Checking For Parallel Lines</li> </ul>		
		<ul> <li>5.3.3 Angles Made by A Transversal</li> </ul>			
		<ul> <li>5.3.4 Transversal of Parallel Lines</li> </ul>			
		5.4 Checking For Parallel Lines			
6	The Triangle and its	6.1 Introduction	6.1 Introduction		
	Properties	• 6.2 Medians of a Triangle	• 6.2 Medians of a Triangle		
		<ul> <li>6.3 Altitudes of a Triangle</li> </ul>	• 6.3 Altitudes of a Triangle		
		6.4 Exterior Angle of a Triangle and Its Property	• 6.4 Exterior Angle of a Triangle and Its Property		
		6.5 Angle Sum Property of a Triangle	• 6.5 Angle Sum Property of a Triangle		
		6.6 Two Special Triangles: Equilateral and Isosceles	6.6 Two Special Triangles: Equilateral and Isosceles		
		<ul> <li>6.7 Sum of The Lengths of Two Sides of a Triangle</li> </ul>	6.7 Sum of The Lengths of Two Sides of a Triangle     Mount Litera		

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		-	6.8 Right-Angled Triangles and Pythagoras Property	-	6.8 Right-Angled Triangles and Pythagoras Property
7	Congruence of triangle*	-	7.1 Introduction	•	Not for Assessment
		•	7.2 Congruence of Plane Figures		
		-	7.3 Congruence Among Line Segments		
		•	7.4 Congruence of Angles		
		-	7.5 Congruence of Triangles		
		-	7.6 Criteria for Congruence Of Triangles		
		-	7.7 Congruence Among Right-Angled Triangles		

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### **Subject: Mathematics**

### Grade: VII

	PHASE 3					
Ch. No.	Chapter Name	Subtopics	PT2 portion			
			Total Marks: 40Duration: 1 hour 30 minutes			
8	<b>Comparing Quantities</b>	8.1 Introduction	8.3 Percentage – Another Way of Comparing			
		8.2 Equivalent Ratios	Quantities			
		8.3 Percentage – Another Way of Comparing Quantities	• 8.3.1 Meaning of Percentage			
		• 8.3.1 Meaning of Percentage	<ul> <li>8.3.2 Converting Fractional Numbers to</li> </ul>			
		• 8.3.2 Converting Fractional Numbers to Percentage	Percentage			
		• 8.3.3 Converting Decimals to Percentage	<ul> <li>8.3.3 Converting Decimals to Percentage</li> </ul>			
		• 8.3.4 Converting Percentages to Fractions or Decimals	<ul> <li>8.3.4 Converting Percentages to Fractions or</li> </ul>			
		<ul> <li>8.3.5 Fun with Estimation</li> </ul>	Decimals			
		8.4 Use of Percentages	<ul> <li>8.3.5 Fun with Estimation</li> </ul>			
		<ul> <li>8.4.1 Interpreting Percentages</li> </ul>	<ul> <li>8.4 Use of Percentages</li> </ul>			
		<ul> <li>8.4.2 Converting Percentages to "How Many"</li> </ul>	<ul> <li>8.4.1 Interpreting Percentages</li> </ul>			
		<ul> <li>8.4.3 Ratios to Percents</li> </ul>	<ul> <li>8.4.2 Converting Percentages to "How Many"</li> </ul>			
		• 8.4.4 Increase or Decrease as Percent	<ul> <li>8.4.3 Ratios to Percents</li> </ul>			
		8.5 Prices Related To An Item Or Buying And Selling	• 8.4.4 Increase or Decrease as Percent			
		• 8.5.1 Profit or Loss as a Percentage	8.5 Prices Related To An Item Or Buying And Selling			
		8.6 Charge Given On Borrowed Money or Simple Interest	<ul> <li>8.5.1 Profit or Loss as a Percentage</li> </ul>			
		• 8.6.1 Interest for Multiple Years	8.6 Charge Given On Borrowed Money or Simple			
			Interest			
			8.6.1 Interest for Multiple Years			
9	Rational Numbers	9.1 Introduction	9.1 Introduction			
		9.2 Need for Rational Numbers	<ul> <li>9.2 Need for Rational Numbers</li> </ul>			
		9.3 What are Rational Numbers?	9.3 What are Rational Numbers?			
		9.4 Positive and Negative Rational Numbers	9.4 Positive and Negative Rational Numbers			
		9.5 Rational Numbers on a Number Line	9.5 Rational Numbers on a Number Line			
		9.6 Rational Numbers in Standard Form	9.6 Rational Numbers in Standard Form			
		9.7 Comparison of Rational Numbers	9.7 Comparison of Rational Numbers			
		9.8 Rational Numbers Between Two Rational Numbers	9.8 Rational Numbers Between Two Rational			
		9.9 Operations on Rational Numbers	Numbers			

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F						4
			o 9.9.1 Addition	•	9.9 Operations on Rational Numbers	
			<ul> <li>9.9.2 Subtraction</li> </ul>		o 9.9.1 Addition	
			<ul> <li>9.9.3 Multiplication</li> </ul>		<ul> <li>9.9.2 Subtraction</li> </ul>	
			o 9.9.4 Division		<ul> <li>9.9.3 Multiplication</li> </ul>	
					<ul> <li>9.9.4 Division</li> </ul>	
	10	Practical Geometry*	<ul> <li>10.1 Introduction</li> </ul>	-	Not for Assessment	
			<ul> <li>10.2 Construction of A Line Parallel to A Given Line,</li> </ul>			
			Through A Point Not On the Line			
			<ul> <li>10.3 Construction of Triangles</li> </ul>			
			• 10.4 Constructing A Triangle When the Lengths of Its Three			
			Sides Are Known (SSS Criterion)			
			• 10.5 Constructing A Triangle When the Lengths of Two			
			Sides and The Measure of the Angle Between Them Are			
			Known. (SAS Criterion)			
			• 10.6 Constructing A Triangle When the Measures of Two of			
			Its Angles and The Length of the Side Included Between			
			Them Is Given. (ASA Criterion)			
			<ul> <li>10.7 Constructing A Right-Angled Triangle When The</li> </ul>			
			Length of One Leg and Its Hypotenuse Are Given (RHS			
			Criterion)			
	12	Algebraic Expressions	<ul> <li>12.1 Introduction</li> </ul>		12.1 Introduction	
	14	Ingestuie Expressions	<ul> <li>12.1 Introduction</li> <li>12.2 How are Expressions Formed?</li> </ul>		12.2 How are Expressions Formed?	
			<ul> <li>12.2 How are Expressions Formed:</li> <li>12.3 Terms of an Expression</li> </ul>		12.3 Terms of an Expression	
			<ul> <li>12.5 Terms of an Expression</li> <li>12.4 Like and Unlike Terms</li> </ul>		12.3 Terms of an Expression 12.4 Like and Unlike Terms	
			<ul> <li>12.5 Monomials, Binomials, Trinomials and Polynomials</li> <li>12.6 Addition and Subtraction of Algobraic Environmental</li> </ul>	-	12.5 Monomials, Binomials, Trinomials and	
			12.6 Addition and Subtraction of Algebraic Expressions		Polynomials	
			<ul> <li>12.7 Finding the Value of an Expression</li> </ul>	-	12.7 Finding the Value of an Expression	
			<ul> <li>12.8 Using Algebraic Expressions – Formulas and Rules</li> </ul>			

### **Subject: Mathematics**

# Grade: VII

PHASE 4				
Ch. No.	Chapter Name	Subtopics	YE portion	
			Т	otal Marks: 80 Duration: 3 hours
			•	Ch. 4 & Ch. 6 of HYE are included
			•	PT2 portion is included
11	Perimeter and Area	11.1 Introduction	-	11.3 Area of A Parallelogram
		<ul> <li>11.2 Squares and Rectangles</li> </ul>	•	11.4 Area of A Triangle
	The second se	• 11.2.1 Triangles as Parts of Rectangles	-	11.5 Circles
		• 11.2.2 Generalising for other Congruent Parts of		• 11.5.1 Circumference of a Circle
		Rectangles		o 11.5.2 Area of Circle
		<ul> <li>11.3 Area of A Parallelogram</li> </ul>		
		• 11.4 Area of A Triangle		
		• 11.5 Circles		
		• 11.5.1 Circumference of a Circle		
		• 11.5.2 Area of Circle		
		<ul> <li>11.6 Conversion of Units</li> </ul>		
		11.7 Applications		
13	Exponents and Powers	13.1 Introduction	•	13.1 Introduction
		• 13.2 Exponents	-	13.2 Exponents
		<ul> <li>13.3 Laws of Exponents</li> </ul>	-	13.3 Laws of Exponents
		• 13.3.1 Multiplying Powers with the Same Base		<ul> <li>13.3.1 Multiplying Powers with the Same Base</li> </ul>
		• 13.3.2 Dividing Powers with the Same Base		<ul> <li>13.3.2 Dividing Powers with the Same Base</li> </ul>
		• 13.3.3 Taking Power of a Power		<ul> <li>13.3.3 Taking Power of a Power</li> </ul>
		• 13.3.4 Multiplying Powers with the Same Exponents		<ul> <li>13.3.4 Multiplying Powers with the Same</li> </ul>
		• 13.3.5 Dividing Powers with the Same Exponents		Exponents
		• 13.4 Miscellaneous Examples Using the Laws of Exponents		• 13.3.5 Dividing Powers with the Same Exponents
		<ul> <li>13.5 Decimal Number System</li> </ul>	-	13.4 Miscellaneous Examples Using the Laws of
		<ul> <li>13.6 Expressing Large Numbers in the Standard Form</li> </ul>		Exponents
			-	13.5 Decimal Number System
			-	13.6 Expressing Large Numbers in the Standard Form
14	Symmetry	14.1 Introduction	•	14.1 Introduction
		<ul> <li>14.2 Lines of Symmetry for Regular Polygons</li> </ul>		14.2 Lines of Symmetry for Regular Polygons

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			<ul> <li>14.3 Rotational Symmetry</li> </ul>	<ul> <li>14.3 Rotational Symmetry</li> </ul>
			<ul> <li>14.4 Line Symmetry and Rotational Symmetry</li> </ul>	<ul> <li>14.4 Line Symmetry and Rotational Symmetry</li> </ul>
	15	Visualizing Solid Shapes	15.1 Introduction: Plane Figures and Solid Shapes	• 15.1 Introduction: Plane Figures and Solid Shapes
			<ul> <li>15.2 Faces, Edges and Vertices</li> </ul>	<ul> <li>15.2 Faces, Edges and Vertices</li> </ul>
			<ul> <li>15.3 Nets for Building 3-D Shapes</li> </ul>	<ul> <li>15.3 Nets for Building 3-D Shapes</li> </ul>
			<ul> <li>15.4 Drawing Solids On a Flat Surface</li> </ul>	<ul> <li>15.4 Drawing Solids On a Flat Surface</li> </ul>
			<ul> <li>15.4.1 Oblique Sketches</li> </ul>	<ul> <li>15.4.1 Oblique Sketches</li> </ul>
			o 15.4.2 Isometric Sketches	<ul> <li>15.4.2 Isometric Sketches</li> </ul>
			<ul> <li>15.4.3 Visualising Solid Objects</li> </ul>	<ul> <li>15.4.3 Visualising Solid Objects</li> </ul>
			<ul> <li>15.5 Viewing Different Sections of a Solid</li> </ul>	<ul> <li>15.5 Viewing Different Sections of a Solid</li> </ul>
			$\circ$ 15.5.1 One Way to View an Object is by Cutting or	• 15.5.1 One Way to View an Object is by Cutting or
			Slicing	Slicing
			<ul> <li>15.5.2 Another Way is by Shadow Play</li> </ul>	<ul> <li>15.5.2 Another Way is by Shadow Play</li> </ul>
_			$\circ$ 15.5.3 A Third Way is by Looking at it from Certain	• 15.5.3 A Third Way is by Looking at it from Certain
			Angles to Get Different Views	Angles to Get Different Views
	16	Sets*	16.1 Concept of Sets	Not for Assessment
			<ul> <li>16.2 Representation of Sets</li> </ul>	
			16.3 Cardinal Number of a Set	
			16.4 Types of Sets Based on Cardinal Number of Sets	
			• 16.5 Types of Sets Based on Relation Between the Sets	
-			<ul> <li>16.6 Subset and Superset of Set</li> </ul>	
			16.7 Proper and Improper Subset	
			<ul> <li>16.8 Operations on Sets</li> </ul>	

\*Chapter excluded/dropped by the CBSE from the Syllabus hence these chapters will not be assessed.

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