- (a) 15,750 + 1,21,825 = 1__7_7_ (b) 2,05,197 + 8,999 = 21__9_
- (c) 99,999 + 1,99,999 = __999___ (d) 87,486 + 98,254 = __857___
- (e) 4,46,870 + 3,24,502 = 77 ____72 (f) 10,000 + 1,00,000 = 1___00__0

	Mental Maths			
Observe the patterns and complete them.				
10 + 89 = 99	10 + 1 = 11	1 + 9 = 10		
100 + 899 = 999	100 + 11 = 111	1 + 99 = 100		
1000 + 8999 = 9999	1000 + 111 = 1111	1 + 999 = 1000		
10,000 + 89,999 =	10,000 + 1111 =	1 + 9999 =		
1,00,000 + 8,99,999 =	_ 1,00,000 + 11,111 =	1 + 99,999 =		

WORD PROBLEMS ON ADDITION

Example 1: The savings of Preeti for two years are ₹58,750 and ₹69,950 respectively. Find her total savings.

Amount saved in the first year = ₹58,750

Amount saved in the second year = ₹69,950

Total amount saved by Preeti = 58750 + 69950

Therefore, the total amount saved by Preeti is ₹1,28,700.



Example 2: A small water reservoir had 1,62,915 litres of water. If 2,47,624 litres of water was added into the reservoir due to heavy rain, find the total quantity of water in the reservoir.

 $\begin{bmatrix} 1 & 1 & 1 \\ 5 & 8 & 7 & 5 & 0 \end{bmatrix}$

+6 9 9 5 01 2 8 7 0 0

Total quantity of water = 1,62,915 + 2,47,624

1 1	¹ 6	¹ 2	9	1	5
+ 2	4	7	6	2	4
4	1	0	5	3	9

Therefore, the total quantity of water is 4,10,539 litres.



Mental Maths to help practise calculation skills and deductive reasoning

PROPERTIES OF MULTIPLES

Observe the table with multiples of different numbers.

Number	Multiples
3	3, 6, 9, 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45
4	4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48, 52, 56, 60
6	6, 12, 18, 24, 30, 36, 42, 48, 54, 60, 66, 72, 78, 84, 90
7	7, 14, 21, 28, 35, 42, 49, 56, 63, 70, 77, 84, 91, 98, 105
8	8, 16, 24, 32, 40, 48, 56, 64, 72, 80, 88, 96, 104, 112, 120

Note that 3 is a multiple of 3. 4 is a multiple of 4. 6 is a multiple of 6.

Fact 1: Every number is a multiple of itself.

Fact 2: Every multiple of a number is greater than or equal to that number.

Fact 3: The number of multiples of a given number is infinite.

Cross-curricular Link: Find the meaning of the word 'infinite' and make some sentences with it.

Write first 5 multiples of 9 starting with 9.

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D Match the following.

Column A	Column B
(a) 15+3	(i) 36
(b) 14-9	(ii) 48
(c) 21+15	(iii) 41
(d) 72–24	(iv) 5
(e) 24 + 17	(v) 18

ASSESSMENT 2

Chapters 5-7

(Maximum Marks = 25)

Choose the correct option for each of the following. (10 × 1 = 10) 1. The number corresponding to the expanded form 700 + 30 + 8 is

(d) 0

(d) 899

- (a) 708 (b) 730 (c) 308 (d) 738
- 2. The place value of 8 in 680 is (a) 800 (b) 80 (c) 8

3. In a cricket match, Sachin scored 95 runs and Saurav scored 103 runs. The total runs scored by them is

4. The difference between the greatest and the smallest 3-digit numbers is

(a)
$$262$$
 (b) 267 (c) 272 (d) 277
6. $4 \times 7 =$
(a) 11 (b) 27 (c) 28 (d) 14
7 $3 \times 10 =$

- (a) 6×7 (b) 6×8 (c) 6×10 (d) 3×6 9. $7 \times 8 =$
- (a) 63 (b) 49 (c) 56 (d) 65 10. 24 = (a) 12×3 (b) 8×4 (c) 2×10 (d) 2×12

B Fill in the blanks.

- 1. 900 + _____ + 8 = 978
- 2. Fill in the blank using < or >. 405 _____ 450
- 3. There are ______ tens in a hundred.
- 4. ____ × ____ = 72
- 5. 75 × 5 = 3 ____ 5

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Exercises after each topic and Revision Exercises and Reasoning Worksheet at the end of each chapter for a comprehensive review of the concepts

 $(5 \times 1 = 5)$

 $(5 \times 1 = 5)$

Example 16: Write the Hindu-Arabic numbers for the following Roman numerals.

- (a) MCDL = 1000 + (500 100) + 50 = 1000 + 400 + 50 = 1450
- (b) DCXXXII = 500 + 100 + 10 + 10 + 10 + 1 + 1 = 632
- (c) MMMDCXIV = 1000 + 1000 + 1000 + 500 + 100 + 10 + 4 = 3614 [XIV = 10 + (5 − 1) = 10 + 4]





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SUMMARY

Exercises after each topic and Revision Exercises and Reasoning Worksheet at the end of each chapter for a comprehensive review of the concepts

PRACTICE WORKSHEET 11

Money

Patrick had three coins and three notes that make ₹50. Fathima had three coins and five notes that also make ₹50. Before going out to play, they kept their money together in a box. When they came back, they could not find which notes and coins belonged to them. Help them find their money. Write the starting letter of their names ('P' for Patrick and 'F' for Fathima) below their currency in the box.





Exercises after each topic and Revision Exercises and Reasoning Worksheet at the end of each chapter for a comprehensive review of the concepts

Maths Lab Activity

Aim: To reinforce the skill of addition

Materials required: Number cards from 1 to 50

Procedure: Make students work in pairs. One pair should pick two cards at a time and add the numbers shown on them. Similarly, ask students of the other groups to pick two cards and find the sum of the numbers shown on them. Compare the sum of the two sets of cards and the pair of students with the greater number as the sum should give their cards to the other group. Repeat this activity until no card is left.

Project

Check the price tags of some items such as soap, toothpaste, toothbrush and chocolates. Take any two objects together and add their prices. Also, take three items together and add their prices to find the total price. Then, compare the added prices of the two sets of items.

Challenge

1. Fill the numbers 24, 36, 8, 13, 10, 18, 51, 7, 26, 17, 6, 40, 15, 21, 11 and 38 in the boxes in such a way that their sum is equal to the numbers given at the end of the boxes.

				81
				86
				89
				85
89	81	87	84	

2. Fill in the blanks.

(a)	T	0	(b)	Т	0	(c)	T	0	(d)	Т	0
	_	—		-	-		-	-		—	—
	_	6		2	0		1	_		2	_
+	5	—	+	_	-	+	—	3	+	—	5
	8	1	_	5	7	_	3	2	_	9	9

Summary (Classes 6 to 8) gives a snapshot of the chapter for quick recapitulation

Maths Lab Activity

Aim: To represent 5-digit and 6-digit numbers using spike abacus

Materials required: Spike abacus, beads and number flash cards

Procedure: Students should work in groups. Give a number and ask the students of each group to represent it on spike abacus. Ask each group to show their representation and correct if any group is wrong. Also, ask students to write the number name and its expanded form on the corresponding number card.



Similarly, give some more numbers to each group and repeat this.

Now, ask each group to think of a number and represent it on abacus. Ask them to show it to the class and ask the students to identify the number represented.

Examples:



Number: 24,758 Name: Twenty-four thousand seven hundred fifty-eight Expanded form: 20,000 + 4000 + 700 + 50 + 8



Number: 3,24,758Name: Three lakh twenty-four thousand seven hundred fifty-eight Expanded form: 3,00,000 + 20,000+ 4000 + 700 + 50 + 8

Maths Lab Activity to test skills of investigation, observation and deduction

WORKSHEET

Kritika, Khizar, Gopal and Franklin are playing a game with an elderly man. The man gave each one of them number cards showing numbers from 1 to 99. He told them that he would say a number in between 1 and 99 and each one of them has to make an addition fact for the number.

The numbers told by the elderly man are 42, 90, 21 and 59.







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The addition facts made by the kids are given here. Colour the number cards given below with the colour of the number it adds up to.

Kritika	Khizar
29 + 13	30 + 27 + 33
Gopal	Khizar
(24 + 5 + 30	13 + 46
Gopal	Kritika
(10 + 20 + 7 + 5)	8 + 6 + 7
Khizar	Gopal
(12 + 21 + 9)	(12 + 9
Franklin	Franklin
(24 + 20 + 15)	(54 + 36
Kritika	Khizar
(30 + 40 + 20)	2 + 9 + 10
Gopal	Franklin
(40 + 24 + 26)	8 + 9 + 4
Franklin	Kritika
(9 + 21 + 12	(34 + 19 + 6

WORKSHEET

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Worksheets to reinforce practice with fun exercises Consolidated Practice Worksheets and Reasoning Worksheet at the end of the book for further practice





DO NOT OPEN THIS BOOKLET UNTIL ASKED TO DO SO

Total Questions: 50 | Time: 1 hr.

16. **B C D**

Guidelines for the Candidate

- 1. You will get additional ten minutes to fill up information about yourself on the OMR Sheet, before the start of the exam.
- 2. Write your Name, School Code, Class, Section, Roll No. and Mobile Number clearly on the OMR Sheet and do not forget to sign it. We will share with you your marks / result on your mobile number.
- 3. The Question Paper comprises four sections:

Logical Reasoning (15 Questions), Mathematical Reasoning (20 Questions), Everyday Mathematics (10 Questions) and Achievers Section (5 Questions)

Each question in Achievers Section carries 3 marks, whereas all other questions carry one mark each.

- 4. All questions are compulsory. There is no negative marking. Use of calculator is not permitted.
- 5. There is only ONE correct answer. Choose only ONE option for an answer.
- 6. To mark your choice of answers by darkening the circles on the OMR Sheet, use HB Pencil or Blue / Black ball point pen only. E.g.

Q.16: Rahul bought 4 kg 90 g of apples, 2 kg 60 g of grapes and 5 kg 300 g of mangoes. The total weight of all the fruits he bought is_____.

A. 11.450 kg B. 11.000 kg

C. 11.350 kg D. 11.250 kg

As the correct answer is option A, you must darken the circle corresponding to option A in the OMR Sheet.

- 7. Rough work should be done in the blank space provided in the booklet.
- 8. Return the OMR Sheet to the invigilator at the end of the exam.
- 9. Please fill in your personal details in the space provided on this page before attempting the paper.



Name:	
Section:	SOF Olympiad Roll No.: Contact No.:

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206

Latest International Mathematics Olympiad paper to help students prepare for competitive exams

Chapters 1-10 (Maximum Marks = 50) A Choose the correct option for each of the following. $(10 \times 1 = 10)$ 1. If 4A571 is divisible by 3, then how many possible answers are there for A? (b) 4 (a) 1 (c) 2 (d) 3 2. A number which is divisible by 5 but not by 10 is (a) 78941255 (b) 10000010 (d) 3697840 (c) 120 3. $[5^{-6} \times 5^3]^{-3} \div [5^2 \times 5^{-5}]^3 =$ (b) 5¹⁸ (a) 5⁹ (c) 1 (d) 5⁻⁹ 4. The smallest square number which is divisible by 9, 10, 15 and 20 is (a) 980 (b) 180 (c) 900 (d) 800 5. The number of digits in the square root of 996004 is (a) 2 (b) 3 (c) 6 (d) 4 6. To convert 864 into a perfect cube we have to (a) divide it by 2 (b) divide it by 3 (c) multiply it by 3 (d) multiply it by 2 7. The cube root of the cube number 357911 is (a) 51 (b) 61 (c) 71 (d) 81 8. After allowing a discount of 8% on a book, it is sold for ₹828. Then, the marked price of the book is (a) ₹835 (b) ₹890 (c) ₹900 (d) ₹850 9. GST is charged on the (a) cost price (b) marked price (c) selling price (d) discounted price 10. Find the compound interest on ₹5000 for 2 years at the rate of 8% per annum, when the interest is compounded annually. (a) ₹832 (b) ₹800 (c) ₹5800 (d) ₹5832 **B** Fill in the blanks. $(5 \times 1 = 5)$ 7XY -XZ5 then Z=_____. Here, XZ5 is a 3-digit number. 1. 612 2. Positive exponent is a repeated multiplication, whereas negative exponent is a repeated

- 3. The number 169 is expressed in terms of the sum of odd natural numbers as ______.
- 4. If the marked price an article is ₹750 and it is sold for ₹525, then the discount is _____
- 5. When interest is calculated half yearly, we calculate time by ______ years.

C Answer the following questions briefly.

1. The difference between a 2-digit number and the number obtained by reversing the digits is 36. Also, the sum of its digits is 4. Find the number.

 $(5 \times 2 = 10)$

- 2. Find the square root of 5476 by the long division method.
- 3. Verify the commutative property of rational numbers for subtraction for $a = \frac{4}{3}$ and $b = \frac{3}{5}$.

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Latest International Mathematics Olympiad paper to help students prepare for competitive exams

Give and Take

One day Cheeku's dad came home feeling very happy. Cheeku met Meeku on the way and the two set out happily to buy candies.



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Maths Tales (Classes 1 to 5) at the end of the book give colourful cartoon spreads



Multiplication by All from 9 and the last from 10

For multiplication of two numbers which are both close to the numbers of 10, 100, 1000 etc., use the quick method of **All from 9 and the last from 10** sutra.

When you apply this sutra to any number, it gives the complement of that number. For the last number (digit in the ones place), the complement should be calculated from 10. For all the remaining digits, the complement should be calculated from 9.

The complement of one-digit number should be calculated as the difference from 10; the complement of a 2-digit number should be calculated as the difference from 100; the complement of a 3-digit number should be calculated as the difference from 1000 and so on.

For example, the complement of 6 is 4; the complement of 78 is 22; and the complement of 825 is 175.

Once the concept of **All from 9 and the last from 10** is understood properly, multiplication of numbers using complements is very easy to understand.

Example 1: Multiply 108 by 122.

Write down the two numbers and their complements to the right of the number.

122 + 22	Step 1: Complement of 122 is 22. Write it as + 22 to show that it is 22 more than 100.
×108 + 08	Complement of 108 is 8. Write it as + 8 to show that it is 8 more than 100.
131 / 76	Step 2: Multiply the complements. Place a stroke line to show two parts of the answer.
1 1	Carry-over digits are written as shown. $+22 \times +8 = +176$.

Step 3: Cross-add (or cross-subtract, as per the case) 122 + 8 (also 108 + 22) = 130 + 1 (carried over)

= 131.

So, the answer is 13176.

Example 2: Multiply 1006 by 993.

Write down the two numbers and their complements to the right of the number.

1006 + 6	Step 1:	Complement of 1006 is 6. Write it as + 6 (1000 + 6 = 1006)
× 993-7		Complement of 993 is 7. Write it as -7 to show that it is 7 less than 1000.
999 / 42	Step 2:	Multiply the complements. Place a stroke line to show two parts of the answer.
		No carry-over digits in this case; but $+6 \times -7 = -42$
998 / 958	Step 3:	To remove the vinculum bar from 42, take 1 away from the digit immediately to the left of the vinculum digits; that is 9 to the left of 42; then apply the All from 9 and the last from 10 sutra: $9 - 1 = 8$; $9 - 4 = 5$; $10 - 2 = 8$. There is one more important rule (applicable in this case): The number of digits to the right of the remainder stroke should be equal to the number of zeros in the base number.
		Here, the base is 1000. So, subtracting 42 from 1000, we get $1000 - 42 = 958$.
So, the answ	er is 998	958.

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Vedic Maths (Classes 3 to 8) to master shortcut techniques which aid in faster calculations

•4 Multiplication of Numbers

Textbook: Refer to Pages 60 to 78

Learning Objectives

· To multiply 2-digit and 3-digit numbers by 1-digit and 2-digit numbers

• To solve word problems

VOCABULARY

- 1. Multiplication: It is the process of finding the product of two numbers.
- 2. Estimation: A rough calculation of the value of numbers by rounding off the given numbers.

LESSON PLAN

Recall: Take two 12-faced dice and write 1-digit numbers (0 to 9) in one of them (any two numbers can be repeated) and 2-digit numbers on the other (any 2-digit numbers). Divide the class into different groups such that 2 students represent a group. Provide one student representing a group with the dice containing 1-digit numbers and give the other student the dice containing 2-digit numbers. Ask students to roll the dice and note down the numbers on both the dice and find the product of the numbers. Repeat this for 5 to 10 times and tabulate the answers as follows:

SI no.	Dice 1	Dice 2	Product
1	3	12	12 x 3 = 36
2	8	15	15 x 8 = 120
3			
4			
5			

Note: Dice 1 represents 1-digit numbers and Dice 2 represents 2-digit numbers

Main Activities

Concepts	Strategies
Multiplication of 2-digit number by a 1-digit	Demonstrate a problem on multiplication of 2-digit number by a 1-digit number by regrouping ones and tens as discussed on page 60 of the textbook.
number	Note: Teacher can use flashcards with problems on multiplication of 2-digit number by a 1-digit number to give more practice.
Multiplication of 3-digit number by a 1-digit number	Demonstrate a problem on multiplication of 3-digit number by a 1-digit number by regrouping ones and tens as discussed on page 61 of the textbook.
	Note: Teacher can use flashcards with problems on multiplication of 3-digit number by a 1-digit number to give more practice.