

Viva

START UP MATHEMATICS

Learn • Understand • Apply

Selected
NCERT
Questions
Included



VIVA EDUCATION

Android and iOS apps



Download Teacher's Support
material on www.vivadigital.in



Copyright © Viva Education



START UP MATHEMATICS

Monicaa Abhijit



VIVA EDUCATION

New Delhi • Mumbai • Chennai • Kolkata • Bengaluru • Hyderabad • Kochi • Guwahati

Copyright © Viva Education

All rights reserved. No part of this book may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recorded or otherwise, without the written permission of the publishers.

Information contained in this book has been obtained by its authors from sources believed to be reliable and is correct to the best of their knowledge. However, the publisher and its authors shall in no event be liable for any errors, omissions or damages arising out of use of this information and specifically disclaim any implied warranties or merchantability or fitness for any particular use.

Every attempt has been made to trace holders of copyright. Where the publishers have not heard from them at the time of going to press or where, in the absence of complete information, it has not been possible to identify the sources of materials used, the publishers would be grateful for any information that would enable them to make appropriate acknowledgements in future reprints/editions of this book.

First Published 2013; Reprinted 2013

Second Edition 2014; Reprinted 2014

Third Edition 2017



Viva Education

a unit of Viva Books Private Limited

4737/23, Ansari Road, Daryaganj, New Delhi 110 002
Tel. 011-42242200, Email: vivadelhi@vivagroupindia.net

76, Service Industries, Shirvane, Sector 1, Nerul, Navi Mumbai 400 706
Tel. 022-27721273, 27721274, Email: vivamumbai@vivagroupindia.net

Megh Tower, Old No. 307, New No. 165, Poonamallee High Road, Maduravoyal, Chennai 600 095
Tel. 044-23780991, 23780992, 23780994, Email: vivachennai@vivagroupindia.net

B-103, Jindal Towers, 21/1A/3, Darga Road, Kolkata 700 017
Tel. 033-22816713, Email: vivakolkata@vivagroupindia.net

7, Sovereign Park Aptts., 56-58, K.R. Road, Basavanagudi, Bengaluru 560 004
Tel. 080-26607409, Email: vivabangalore@vivagroupindia.net

101-102, Moghal Marc Apartments, 3-4-637 to 641, Narayanguda, Hyderabad 500 029
Tel. 040-27564481, Email: vivahyderabad@vivagroupindia.net

First Floor, Beevi Towers, SRM Road, Kaloor, Kochi 682 018
Tel. 0484-2403055, 2403056, Email: vivakochi@vivagroupindia.net

232, GNB Road, Beside UCO Bank, Silpukhuri, Guwahati 781 003
Tel. 0361-2666386, Email: vivaguwahati@vivagroupindia.net

www.vivagroupindia.com

ISBN: 978-81-309-????-?

Published by Vinod Vasishtha for Viva Education, a unit of Viva Books Private Limited
4737/23, Ansari Road, Daryaganj, New Delhi 110 002.

Printed and bound in China.

Preface

Start Up Mathematics is a sincere effort to fulfill the requirements and meet the expectations of students and teachers. Children should learn to enjoy Mathematics rather than fear it. They should pose and solve meaningful problems with ease. The content of the series has been designed keeping this in mind.

The series conforms to the latest NCF guidelines with careful grading of interdisciplinary and thematic linkages. The books are carefully planned to give comprehensive coverage to all the topics through clear explanations and sound supporting examples. There is ample focus on activities and exercises to develop logical thinking and reasoning.

The contents flow from known to unknown, simple to complex and concrete to abstract. Continuity from one level to another is maintained. A recall section is given at the beginning of every concept already taught because revision is a must before starting a new concept, particularly in Mathematics.

Vision of Start Up Mathematics

- To develop numerical ability in a child
- To make a child capable of deciding which approach is best for problem solving
- To pursue assumption to a child's logical conclusion
- To equip a child to co-relate the four fundamental operations in everyday life
- To allow a child to articulate reasons behind doing a particular exercise
- To nurture a child's mathematical thinking and systematic reasoning
- To help a child to observe relationships and to find connections
- To help a child to use the concepts confidently in day-to-day life
- To arouse a child's interest and curiosity in geometrical facts and figures
- To inspire critical thinking and widen a child's scope in problem solving

It is our belief that regular practice will not only inculcate interest in students, but also lay a strong foundation at an early stage.

A feedback from students and teachers for further improvement of the books will be highly appreciated.

Detailed Contents

| Chapter | Content | Activity/Worksheet |
|-----------------------|--|--|
| 1. Numbers beyond 999 | <ul style="list-style-type: none"> • 4-Digit Numbers • Counting by Thousands • Numbers and Number Names • Face Value and Place Value • Expanded Form and Short Form • Comparison of Numbers • Before, After and Between • Ordering of Numbers • Forming 4-Digit Numbers • Skip Counting • More Than and Less Than • Rounding Off Numbers • Even and Odd Numbers | <ul style="list-style-type: none"> • Group Activity—Team Spirit, Conceptual Understanding • Worksheet—Application of Concepts, Observation Skills |
| 2. Roman Numerals | <ul style="list-style-type: none"> • Symbols • Reading Roman Numerals • Roman Numerals up to 39 | <ul style="list-style-type: none"> • Group Activity—Team Spirit, Creativity, Application of Concepts |
| 3. Addition | <ul style="list-style-type: none"> • Addition of Two 4-Digit Numbers (without carry over) • Addition of Two 4-Digit Numbers (with carry over) • Addition of Three 4-Digit Numbers • Addition Facts • Addition Using Expanded Form • Estimating the Sum (by rounded off) • Solving Word Problems • Framing Word Problems | <ul style="list-style-type: none"> • Group Activity—Team Spirit, Conceptual Understanding |
| 4. Subtraction | <ul style="list-style-type: none"> • Subtraction of 4-Digit Numbers (without borrowing) • Subtraction of 4-Digit Numbers (with borrowing) • Subtraction Facts • Checking Subtraction • Finding the Missing Digits • Estimating Differences • Solving Word Problems • Framing Word Problems | <ul style="list-style-type: none"> • Worksheet—Observation Skills, Thinking Skills |
| 5. Multiplication | <ul style="list-style-type: none"> • Multiplication Tables • Multiplication Facts • Patterns in Tables • Multiplication of 3-Digit Number by 1-Digit Number • Multiplication by 10, 100 and 1000 • Multiplication of Two 2-Digit Numbers • Estimating Products • Solving Word Problems • Framing Word Problems • Mixed Problems | <ul style="list-style-type: none"> • Individual Activity—Thinking Skills, Conceptual Understanding • Worksheet—Observation Skills, Thinking Skills |

contd...

contd...

| Chapter | Content | Activity/Worksheet |
|-------------------------|---|---|
| 6. Division | <ul style="list-style-type: none">Sharing by GroupingDivision as Repeated SubtractionProperties of DivisionMultiplication and Division FactsLong DivisionConcept of RemainderDivision of a 3-Digit Number by a 1-Digit NumberSolving Word ProblemsFraming Word Problems | <ul style="list-style-type: none">Worksheet— Conceptual Understanding, Observation Skills |
| 7. Fractions | <ul style="list-style-type: none">Numerator and DenominatorSome Common FractionsFraction of a CollectionFinding Fractions of a CollectionWord Problems | <ul style="list-style-type: none">Pair Activity—Team Spirit, Observation Skills, Conceptual Understanding |
| 8. Measurement | <ul style="list-style-type: none">LengthConversion of Units (m into cm, cm into m, km into m, m into km)WeightConversion of Units (kg into g, g into kg)CapacityConversion of Units (L into mL, mL into L)Addition and SubtractionWord Problems | <ul style="list-style-type: none">Worksheet—Thinking Skills |
| 9. Time | <ul style="list-style-type: none">SecondsDuration of TimeCalculating TimeEstimating TimeCalendarLeap Year | <ul style="list-style-type: none">Worksheet—Application of Concepts |
| 10. Money | <ul style="list-style-type: none">Money ConversionCounting MoneyAddition of MoneySubtraction of MoneyMixed ProblemsMultiplication of MoneyDivision of MoneyWord ProblemsCalculating Rate Charts and Bills | <ul style="list-style-type: none">Worksheet—Thinking Skills, Conceptual Understanding |
| 11. Shapes and Patterns | <ul style="list-style-type: none">Corners and SidesDrawing Shapes on a Dot GridReading the PositionCorners, Edges and Faces of Solid FiguresPatternsSymmetryTilingsTangrams | <ul style="list-style-type: none">Individual Activity—Conceptual Understanding, Thinking Skills |
| 12. Data Handling | <ul style="list-style-type: none">PictographTally Marks | <ul style="list-style-type: none">Individual Activity—Observation Skills, Interpretation |

Contents

| | | |
|-----|------------------------|-----|
| 1. | Numbers beyond 999 | 1 |
| 2. | Roman Numerals | 22 |
| 3. | Addition | 26 |
| | Assessment Sheet 1 | 38 |
| 4. | Subtraction | 39 |
| 5. | Multiplication | 53 |
| 6. | Division | 73 |
| | Assessment Sheet 2 | 92 |
| | Let's Review – 1 | 93 |
| 7. | Fractions | 95 |
| 8. | Measurement | 108 |
| 9. | Time | 121 |
| | Assessment Sheet 3 | 133 |
| 10. | Money | 134 |
| 11. | Shapes and Patterns | 152 |
| 12. | Data Handling | 167 |
| | Assessment Sheet 4 | 178 |
| | Let's Review – 2 | 179 |
| | Vedic Mathematics | 182 |
| | Problem-Based Learning | 185 |
| | Answers | 188 |

Special Features of Start Up Mathematics 3–5

Let's Recall ...
Review exercises

Remember and Quick Tip
Important points and tips

Mental Maths
Questions to strengthen concepts

Scratch Your Brain
Question based on thinking skills

Let's Evaluate
Chapter-end exercises

Questions based on
Values and Life Skills

Concept-based Activities and Worksheet

Assessment Sheets and Let's Review
Term-wise evaluation

Vedic Mathematics
Tricks to sharpen Mathematical Skills

Practice Questions for Problem-Based Learning

Some NCERT textbook questions given

1



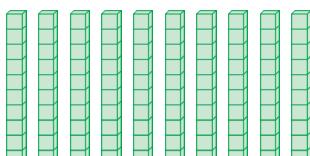
Numbers beyond 999



Let's Recall ...



=



=



One hundred (1 hundred)

1 Write the number names.

- (a) 199 _____
 (b) 304 _____
 (c) 888 _____

2 Write 26, 87, 19, 145, 52 in ascending order.

3 Write 43, 96, 132, 190, 12, 85 in descending order.

4 Sort out the following into even and odd numbers.

23, 45, 7, 9, 16, 82, 14, 98, 1, 3, 6, 20, 43, 80, 50

Even Numbers

Odd Numbers

5 Put the correct sign $>$, $<$ or $=$ in the box.

- | | | |
|----------------------------------|--------------------------------|---------------------------------|
| (a) 15 <input type="text"/> 23 | (b) 37 <input type="text"/> 18 | (c) 9 <input type="text"/> 16 |
| (d) 143 <input type="text"/> 140 | (e) 97 <input type="text"/> 97 | (f) 75 <input type="text"/> 216 |



6 Write in expanded form.

(a) $538 = \boxed{\quad} + \boxed{\quad} + \boxed{\quad}$

(b) $906 = \boxed{\quad} + \boxed{\quad} + \boxed{\quad}$

7 Write the number that comes before, after or between.

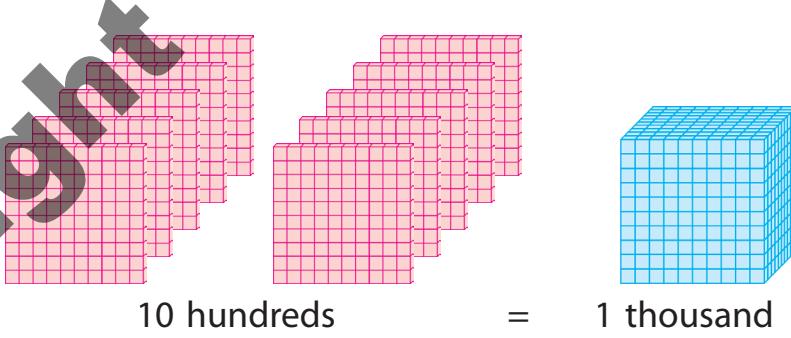
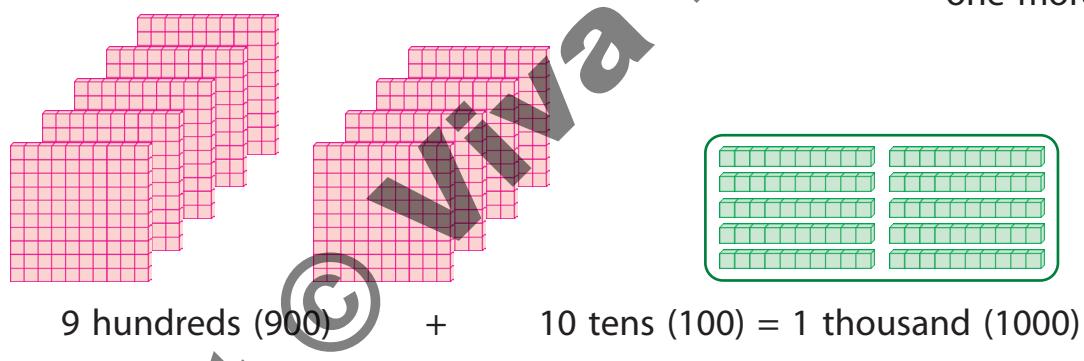
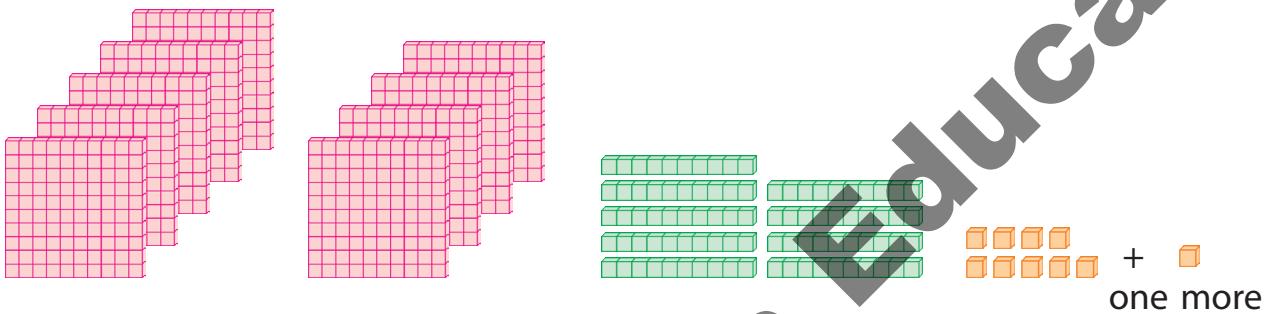
(a) ____ 399

(b) 870 ____

(c) 471 ____ 473

4-Digit Numbers

999 is the greatest 3-digit number. Let's see what happens when we add one more to it.



So, $999 + 1 = 1000$

We get 1000 which is the smallest 4-digit number.

Observe the following pattern.

On adding 1 to the largest 1-digit number, we get the smallest 2-digit number.

$$9 + 1 = 10$$

Quick Tip

If 1 is added to the largest number in the series, we get the smallest number of the next series.



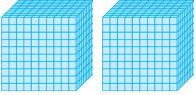
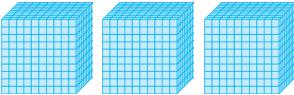
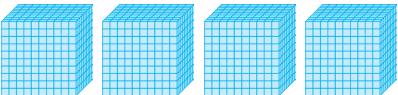
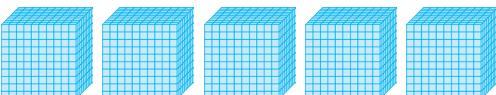
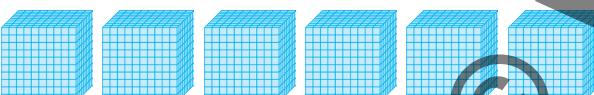
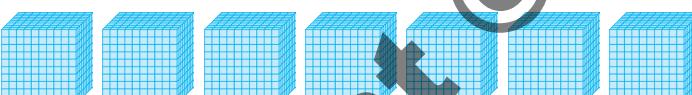
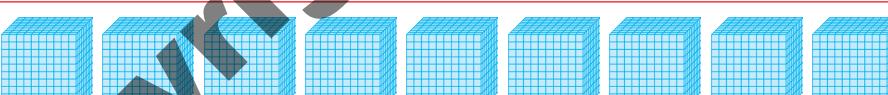
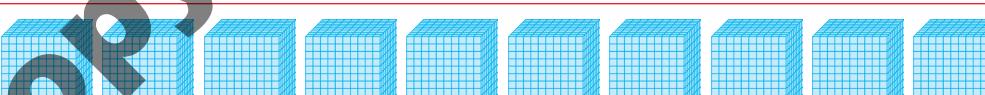
On adding 1 to the largest 2-digit number, we get the smallest 3-digit number.

$$99 + 1 = 100$$

On adding 1 to the largest 3-digit number, we get the smallest 4-digit number.

$$999 + 1 = 1000$$

Counting by Thousands

| | |
|--|-------------------------|
|  | 1000 One thousand |
|  | 2000 Two thousands |
|  | 3000 Three thousands |
|  | 4000 Four thousands |
|  | 5000 Five thousands |
|  | 6000 Six thousands |
|  | 7000 Seven thousands |
|  | 8000 Eight thousands |
|  | 9000 Nine thousands |
|  | 10000 Ten thousands |

Numbers and Number Names

We use any four digits from 0 to 9 to write a 4-digit number. These digits are written under Th (Thousands), H (Hundreds), T (Tens) and O (Ones).

Remember

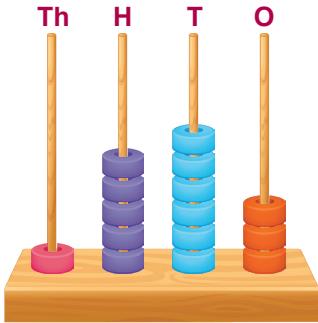
We cannot write 0 at the thousands place as it will then become a 3-digit number.



Th H T O

$$1 \quad 5 \quad 6 \quad 3 = 1 \text{ thousand} + 5 \text{ hundreds} + 6 \text{ tens} + 3 \text{ ones}$$

On an abacus, 1563 is shown as



Rod Th reads in thousands.

Rod H reads in hundreds.

Rod T reads in tens.

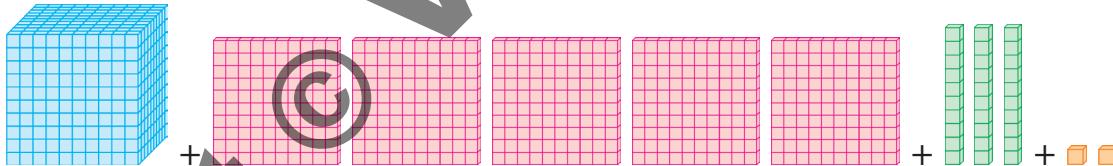
Rod O reads in ones.

To write the number name of a 4-digit number, we always write the thousands place first, followed by the hundreds place and then the tens and ones places together. Look at the given examples.

1563 is written as one thousand five hundred sixty-three.

3180 is written as three thousand one hundred eighty.

Example 1: Observe the pictorial blocks and write the number it represents with the number name.



Solution: $1 \text{ thousand} + 5 \text{ hundreds} + 3 \text{ tens} 2 \text{ ones} = 1000 + 500 + 30 + 2 = 1532$

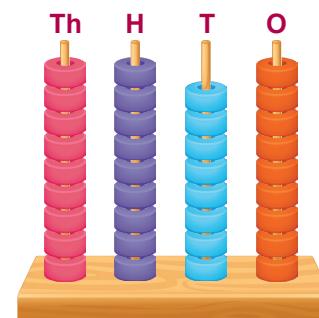
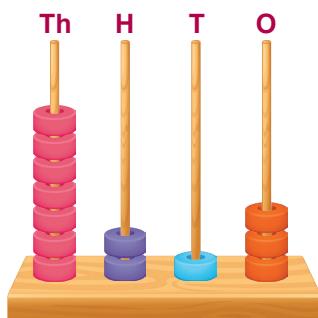
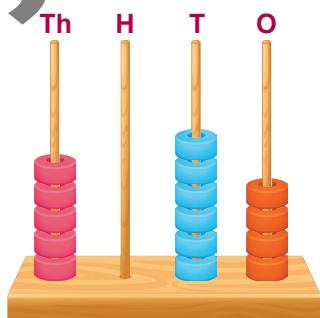
It is read as one thousand five hundred thirty-two.

Example 2: Represent (a) 5064, (b) 7213 and (c) 9989 on the abacus.

Solution: (a) 5064

(b) 7213

(c) 9989

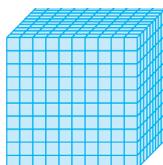
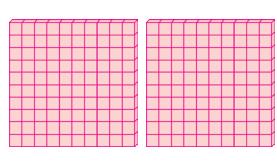
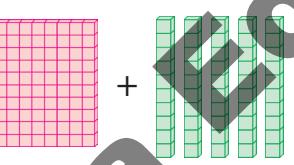
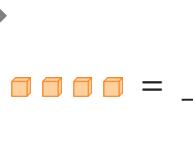


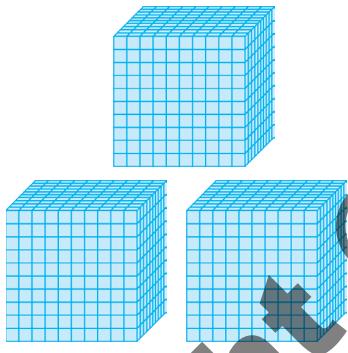
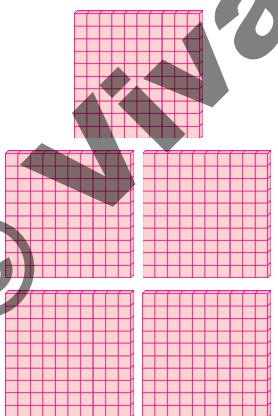
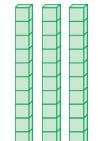
EXERCISE 1.1

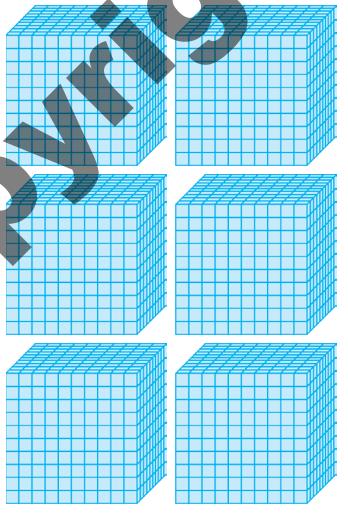
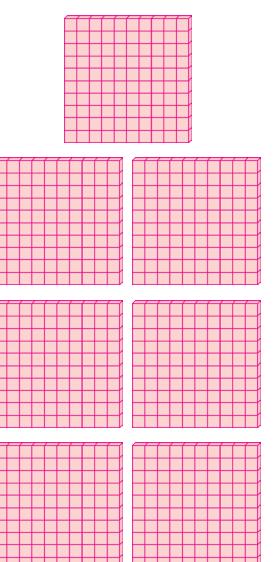
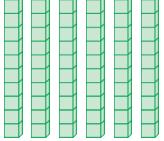
1. Complete the following.

- (a) 1001, 1002, 1003, , , ,
- (b) 2380, 2381, 2382, , , ,
- (c) 7056, 7057, 7058, , , ,
- (d) 9234, 9235, 9236, , , ,
- (e) 8996, 8997, 8998, , , ,

2. Observe the pictorial blocks and write the number they represent.

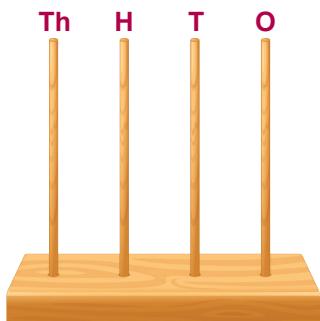
(a)  +  +  +  = _____

(b)  +  +  +  = _____

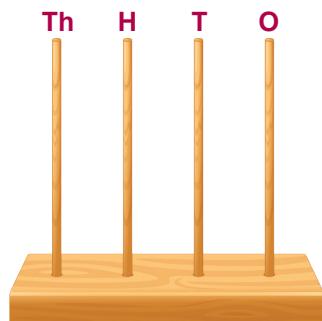
(c)  +  +  +  = _____

3. Draw beads to represent the following numbers on the abacus.

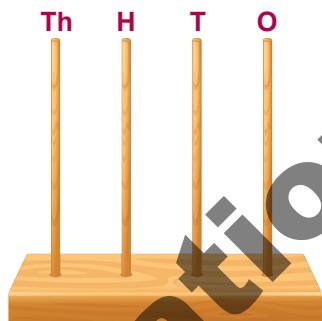
(a) 1064



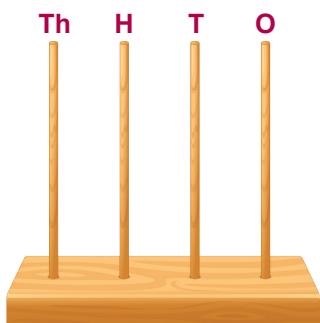
(b) 2731



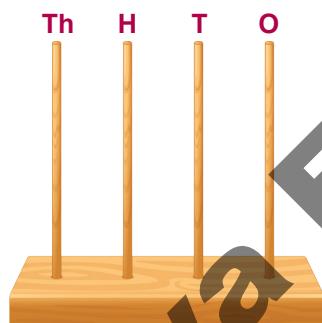
(c) 5608



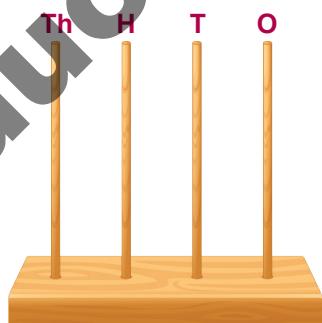
(d) 9890



(e) 7342

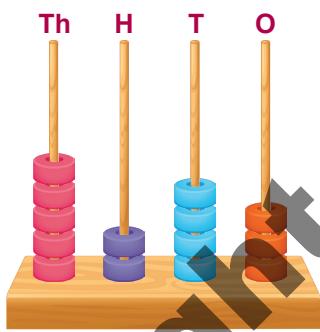


(f) 4576

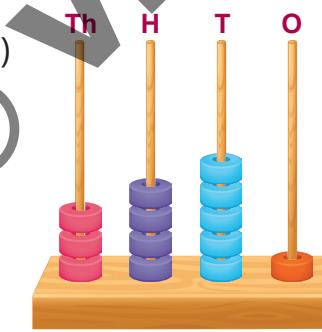


4. Write the numbers represented on the abacus.

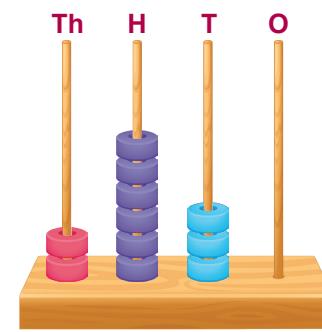
(a)



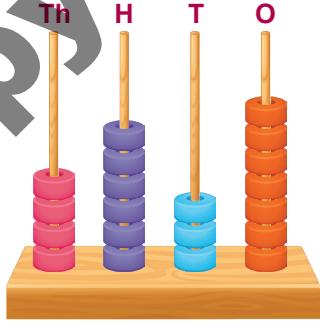
(b)



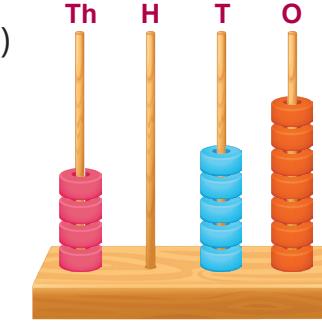
(c)



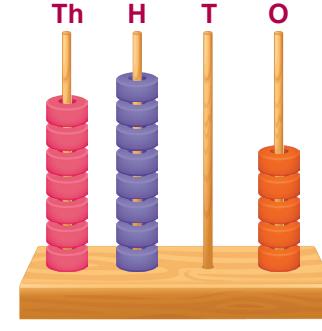
(d)



(e)



(f)



5. Write the number names.

- (a) 3463 = _____
- (b) 7018 = _____
- (c) 9920 = _____
- (d) 5409 = _____
- (e) 6999 = _____

Face Value and Place Value

The face value of a digit is the value of the digit itself.

The place value of a digit depends on its face value and its place or position in a number.

As we move to the left, the place value keeps on increasing 10 times.

Look at the given example.

| Th | H | T | O |
|----|---|---|---|
| 7 | 6 | 3 | 2 |

The face value of 2 is 2.
The place value of 2 is 2 ones or 2.

The face value of 3 is 3.
The place value of 3 is 3 tens or 30.

The face value of 6 is 6.
The place value of 6 is 6 hundreds or 600.

The face value of 7 is 7.
The place value of 7 is 7 thousands or 7000.

Expanded Form and Short Form

Expanded form of a number is the sum of the place values of its digits.

To write the short form of an expanded number, we write the face value of each digit in the correct place.

Look at the given example.

Short form

$$9516 = 9 \text{ Th} + 5 \text{ H} + 1 \text{ T} + 6 \text{ O} = 9000 + 500 + 10 + 6$$

Expanded form



EXERCISE 1.2

1. Fill in the boxes.

- (a) $3623 = \boxed{} \text{ Th} + \boxed{} \text{ H} + \boxed{} \text{ T} + \boxed{} \text{ O}$
- (b) $4780 = \boxed{} \text{ Th} + \boxed{} \text{ H} + \boxed{} \text{ T} + \boxed{} \text{ O}$
- (c) $6095 = \boxed{} \text{ Th} + \boxed{} \text{ H} + \boxed{} \text{ T} + \boxed{} \text{ O}$
- (d) $9909 = \boxed{} \text{ Th} + \boxed{} \text{ H} + \boxed{} \text{ T} + \boxed{} \text{ O}$

2. Write the number names in your notebooks. Then write their numbers.

- (a) $5 \text{ Th} + 3 \text{ H} + 7 \text{ T} + 1 \text{ O} = \underline{\hspace{2cm}}$
- (b) $6 \text{ Th} + 8 \text{ H} + 0 \text{ T} + 2 \text{ O} = \underline{\hspace{2cm}}$
- (c) $4 \text{ Th} + 9 \text{ H} + 2 \text{ T} + 4 \text{ O} = \underline{\hspace{2cm}}$
- (d) $8 \text{ Th} + 6 \text{ H} + 5 \text{ T} + 9 \text{ O} = \underline{\hspace{2cm}}$
- (e) $7 \text{ Th} + 0 \text{ H} + 1 \text{ T} + 8 \text{ O} = \underline{\hspace{2cm}}$
- (f) $3 \text{ Th} + 5 \text{ H} + 0 \text{ T} + 3 \text{ O} = \underline{\hspace{2cm}}$

3. Write in expanded form.

- (a) $1827 = \boxed{} + \boxed{} + \boxed{} + \boxed{}$
- (b) $9869 = \boxed{} + \boxed{} + \boxed{} + \boxed{}$
- (c) $8053 = \boxed{} + \boxed{} + \boxed{} + \boxed{}$
- (d) $5899 = \boxed{} + \boxed{} + \boxed{} + \boxed{}$

4. Write in short form.

- (a) $4000 + 300 + 10 + 9 = \underline{\hspace{2cm}}$ (b) $5000 + 700 + 80 + 6 = \underline{\hspace{2cm}}$
- (c) $8000 + 400 + 60 + 1 = \underline{\hspace{2cm}}$ (d) $6000 + 0 + 90 + 8 = \underline{\hspace{2cm}}$

5. Write the place value and face value of each circled digit of the given numbers in the table.

| | | | | | |
|-------------|---------|---------|---------|---------|---------|
| Number | 9 6 7 1 | 2 0 8 3 | 3 9 8 0 | 9 4 4 2 | 1 8 8 5 |
| Place Value | | | | | |
| Face Value | | | | | |

6. Complete the sequence.

- (a) 2035, , , , 2039,
- (b) 3210, , , , , 3215
- (c) 5995, , , 5998, ,
- (d) 9788, , , , 9792,

Comparison of Numbers

Different number of digits

The number with more digits is always greater.

Same number of digits

When the number of digits is same, start comparing from the leftmost digit, i.e., the digit at the thousands place.

Look at the given examples.

1. Compare 2685 and 798.

$$\begin{array}{r} 2685 \\ \text{(4 digits)} \end{array} \quad > \quad \begin{array}{r} 798 \\ \text{(3 digits)} \end{array}$$

2. Compare 2982 and 3105.

$$\begin{array}{r} 2 \ 9 \ 8 \ 2 \\ \swarrow \\ 2 \text{ at the thousands place} \end{array}$$

$$\begin{array}{r} 3 \ 1 \ 0 \ 5 \\ \swarrow \\ 3 \text{ at the thousands place} \end{array}$$

Since $2 < 3$, $2982 < 3105$.

3. Compare 4861 and 4539.

$$\begin{array}{r} 4 \ 8 \ 6 \ 1 \end{array}$$

$$\begin{array}{r} 4 \ 5 \ 3 \ 9 \end{array}$$

The digit at the thousands place is same in both the numbers. Thus, compare the digits at the hundreds place.

$$\begin{array}{r} 4 \ 8 \ 6 \ 1 \\ \swarrow \\ 8 \text{ at the hundreds place} \end{array}$$

$$\begin{array}{r} 4 \ 5 \ 3 \ 9 \\ \swarrow \\ 5 \text{ at the hundreds place} \end{array}$$

Since $8 > 5$, $4861 > 4539$.

4. Compare 5861 and 5875.

$$\begin{array}{r} 5 \ 8 \ 6 \ 1 \end{array}$$

$$\begin{array}{r} 5 \ 8 \ 7 \ 5 \end{array}$$

The digits at the thousands and hundreds place are same in both the numbers.



Thus, compare the digits at the tens place.

5 8 6 1

6 at the tens place

5 8 7 5

7 at the tens place

Since $6 < 7$, $5861 < 5875$.

5. Compare 7861 and 7865.

7 8 6 1

7 8 6 5

The digits at the thousands, hundreds and tens place are same in both the numbers. Thus, compare the digits at the ones place.

7 8 6 1

1 at the ones place

7 8 6 5

5 at the ones place

Since $1 < 5$, $7861 < 7865$.

Remember

If all the digits in both the numbers are same then the numbers are equal and we use the sign '='.



Mental Maths

Which of these is greater?

(a) 6289 6298



(b) 7341 7340

Before, After and Between

The numbers which follow one after the other are called **consecutive numbers**. For example, 1316, 1317, 1318, 1319, 1320 are consecutive numbers.

A number one less than a given number comes just before it and is called its **predecessor**.

A number one more than a given number comes just after it and is called its **successor**.

Consider a 4-digit number 5863.

Its predecessor = $5863 - 1 = 5862$ and its successor = $5863 + 1 = 5864$.

5862



predecessor

5863



is between 5862 and 5864

5864



successor

Ordering of Numbers

We can arrange numbers in a sequence from smaller to bigger or from bigger to smaller.

Writing numbers in order from smaller to bigger is called **ascending order** and from bigger to smaller is called **descending order**.

Mental Maths

Is 4271, 4281, 4396, 4402 an ascending or descending sequence?



- 6089, 6190, 7191, 8792 are in ascending order.
- 9791, 8790, 7787, 4688 are in descending order.

EXERCISE 1.3

1. Put the correct sign <, > or =.

(a) 237 1201

(b) 3645 98

(c) 5421 5412

(d) 9781 9871

(e) 1212 1212

(f) 8064 7065

2. Arrange the following in ascending order.

(a) 3285, 4061, 298, 3469

| | | | |
|----------------------|----------------------|----------------------|----------------------|
| <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
|----------------------|----------------------|----------------------|----------------------|

(b) 1892, 1982, 1289, 1189

| | | | |
|----------------------|----------------------|----------------------|----------------------|
| <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
|----------------------|----------------------|----------------------|----------------------|

(c) 9099, 9909, 9990, 999

| | | | |
|----------------------|----------------------|----------------------|----------------------|
| <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
|----------------------|----------------------|----------------------|----------------------|

(d) 6341, 6143, 6431, 6314

| | | | |
|----------------------|----------------------|----------------------|----------------------|
| <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
|----------------------|----------------------|----------------------|----------------------|

3. Arrange the following in descending order.

(a) 7649, 7496, 7549, 7459

| | | | |
|----------------------|----------------------|----------------------|----------------------|
| <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
|----------------------|----------------------|----------------------|----------------------|

(b) 8291, 8192, 8091, 8129

| | | | |
|----------------------|----------------------|----------------------|----------------------|
| <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
|----------------------|----------------------|----------------------|----------------------|

(c) 1123, 1312, 1213, 1321

| | | | |
|----------------------|----------------------|----------------------|----------------------|
| <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
|----------------------|----------------------|----------------------|----------------------|

(d) 4523, 5619, 4807, 5032

| | | | |
|----------------------|----------------------|----------------------|----------------------|
| <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
|----------------------|----------------------|----------------------|----------------------|

4. Write the number that comes between the given numbers.

(a) 698, , 700

(b) 4039, , 4041

(c) 1287, , 1289

(d) 8500, , 8502



5. Write the predecessor and successor of the given numbers.

| Predecessor | Number | Successor |
|-------------|--------|-----------|
| (a) _____ | 889 | _____ |
| (b) _____ | 2341 | _____ |
| (c) _____ | 7038 | _____ |
| (d) _____ | 9000 | _____ |

6. Choose and write the largest number from the given numbers.

- (a) 3124, 2689, 708, 4925, 4259
(b) 1987, 2000, 2999, 2001, 399
(c) 6023, 6203, 6302, 6320, 6032
(d) 9989, 9819, 9899, 9879, 9897

Forming 4-Digit Numbers

We can form numbers using the given digits by arranging them in different order.

- To form the greatest 4-digit number, arrange the given digits in descending order.
- To form the smallest 4-digit number, arrange the given digits in ascending order.

Example 3: Write the greatest and the smallest 4-digit numbers using the digits 2, 9, 0 and 5.

Solution: The greatest 4-digit number is 9520.

(on arranging the digits in descending order)

The smallest 4-digit number is 2059.

(on arranging the digits in ascending order)

Quick Tip

Note that the smallest 4-digit number is 2059 and not 0259 as 0 in the beginning of a number has no value. So to form the smallest 4-digit number, place 0 at the hundreds place.



Skip Counting

You have already learnt skip counting in 2s, 3s, 5s and 10s in the previous class. Now let's learn skip counting in 100s and 1000s.

Skip count in 100s means skipping 100 places (digits at the tens and ones places remain the same).

For example, 7108, 7208, 7308, 7408, 7508

Skip count in 1000s means skipping 1000 places (digits at the hundreds, tens and ones places remain the same).

For example, 2845, 3845, 4845, 5845, 6845, 7845

Remember

For skip counting, we fix a number to skip, start the count from a number, skip the fixed number and continue counting.



More Than and Less Than

Consider the number 8135.

To find a number 2 more than 8135, we add 2 to 8135, i.e., $8135 + 2 = 8137$.

To find a number 3 less than 8135, we subtract 3 from 8135, i.e., $8135 - 3 = 8132$.

EXERCISE 1.4

1. Build the greatest and the smallest numbers with the given digits, using each digit only once.

Digits

- (a) 3, 8, 2, 1
(b) 5, 6, 0, 3
(c) 9, 5, 8, 7
(d) 0, 2, 4, 6

Greatest Number

| |
|--|
| |
| |
| |
| |
| |

Smallest Number

| |
|--|
| |
| |
| |
| |
| |

2. Skip count in 100s and complete the pattern.

- (a) 4531, 4631, , , ,
(b) 5287, 5387, , , ,
(c) 1872, 1972, , , ,
(d) 6594, 6694, , , ,

3. Skip count in 1000s and complete the pattern.

- (a) 1045, 2045, , , ,
(b) 3986, 4986, , , ,

- (c) 2105, 3105, , , ,
- (d) 4999, 5999, , , ,

4. Match the following.

Column A

- (a) 4 more than 2096
- (b) 1 less than 4000
- (c) 10 less than 9989
- (d) 100 more than 7685
- (e) 100 less than 3175
- (f) 1000 more than 5893
- (g) 1000 less than 6940

Column B

- (i) 3999
- (ii) 7785
- (iii) 2100
- (iv) 3075
- (v) 5940
- (vi) 6893
- (vii) 9979

Rounding Off Numbers

When we are not sure of the exact number, we use the word about. It gives a rough estimation of the number. We can also say that the number has been rounded off. We can round off a number to the nearest 10, 100 or 1000.

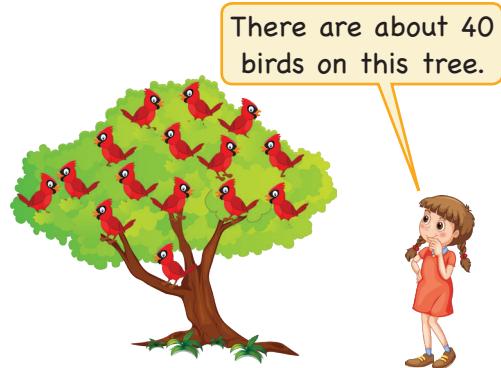
Rounding off to the nearest 10

To round off a number to the nearest ten, look at the digit at the ones place.

- If the digit at the ones place is 4 or less, then place a zero at the ones place and let the digit at the tens place remain as it is.
- If the digit at the ones place is 5 or more, then place a zero at the ones place. Also add 1 to the digit at the tens place.

Example 4: Round off (a) 43, (b) 87 and (c) 65 to the nearest 10.

Solution: (a) 43 is rounded off to 40 since the digit at the ones place is 3 which is less than 5.



- (b) 87 is rounded off to 90 since the digit at the ones place is 7 which is more than 5.
- (c) 65 is rounded off to 70 since the digit at the ones place is 5.

Rounding off to the nearest 100

To round off a number to the nearest hundred, look at the digit at the tens place.

- If the digit at the tens place is 4 or less, then place zeros at the tens and ones place. The digit at the hundreds place remains the same.
- If the digit at the tens place is 5 or more, then place zeros at the tens and ones place. Add 1 to the digit at the hundreds place.

Example 5: Round off (a) 243 and (b) 1887 to the nearest 100.

Solution: (a) 243 is rounded off to 200 because the digit at the tens place is 4.
(b) 1887 is rounded off to 1900 because the digit at the tens place is 8.

Rounding off to the nearest 1000

To round off a number to the nearest thousand, look at the digit at the hundreds place.

- If the digit at the hundreds place is 4 or less, then place zeros at the hundreds, tens and ones place. Keep the digit at the thousands place as it is.
- If the digit at the hundreds place is 5 or more, then place zeros at the hundreds, tens and ones place. Also, add 1 to the digit at the thousands place.

Example 6: Round off (a) 6253 and (b) 7923 to the nearest 1000.

Solution: (a) 6253 is rounded off to 6000 as the digit at the hundreds place is 2.
(b) 7923 is rounded off to 8000 as the digit at the hundreds place is 9.

Even and Odd Numbers

You have already studied that numbers which can be put in pairs are called **even numbers** and numbers which cannot be put in pairs are called **odd numbers**.

For example, 238, 1746, 3280, 7632 are even numbers and 413, 685, 7981, 9377 are odd numbers.

Numbers ending in

0 2 4 6 8

are even numbers.

Numbers ending in

1 3 5 7 9

are odd numbers.



EXERCISE 1.5

1. Round off the following numbers to the nearest 10.

(a) 63

(b) 922

(c) 95

(d) 94

(e) 11

(f) 68

2. Round off the following numbers to the nearest 100.

(a) 586

(b) 934

(c) 1177

(d) 750

(e) 222

(f) 909

3. Round off the following numbers to the nearest 1000.

(a) 6119

(b) 7999

(c) 2534

(d) 3099

(e) 5800

(f) 6155

4. Separate and write the even and odd numbers into their respective boxes.

46

83

175

220

1643

2040

9891

687

1849

7514

6322

9295

5040

4783

Even Numbers

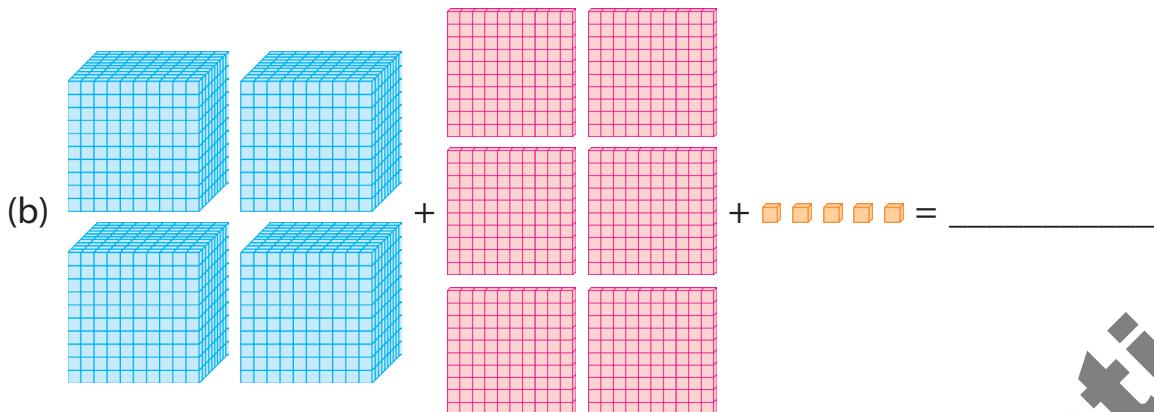
Odd Numbers



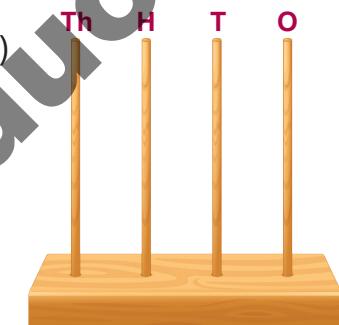
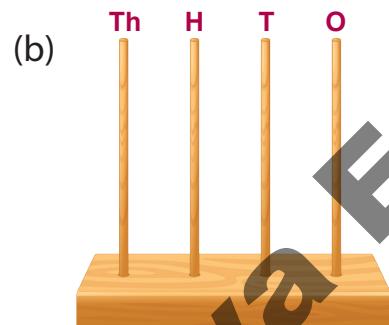
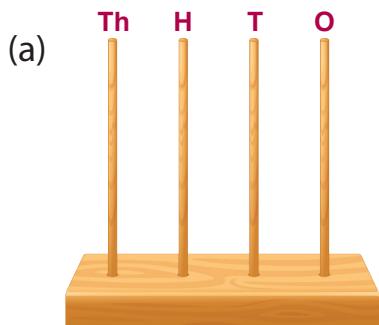
1. Observe the pictorial blocks and write the numbers they represent.

(a)

| | | |
|--|---------|-----------------------------|
| | $+$ | $+$ |
| | $+$ | $=$ <input type="text"/> |



2. Draw beads to represent the numbers given in the boxes.



3. Fill in the boxes.

(a) $7982 = \boxed{} \text{Th} + \boxed{} \text{H} + \boxed{} \text{T} + \boxed{} \text{O}$

(b) $2805 = \boxed{} \text{Th} + \boxed{} \text{H} + \boxed{} \text{T} + \boxed{} \text{O}$

(c) $\boxed{} = 6 \text{ Th} + 0 \text{ H} + 1 \text{ T} + 9 \text{ O}$

(d) $\boxed{} = 8 \text{ Th} + 9 \text{ H} + 2 \text{ T} + 7 \text{ O}$

4. Write in expanded form.

(a) $4208 = \boxed{} + \boxed{} + \boxed{} + \boxed{}$

(b) $8976 = \boxed{} + \boxed{} + \boxed{} + \boxed{}$

(c) $1635 = \boxed{} + \boxed{} + \boxed{} + \boxed{}$

5. Write the place value of the circled digit in the given numbers.

(a) $4 \circ 3 2 7$ _____

(b) $8 5 \circ 0 1$ _____

6. Write five consecutive numbers for the given numbers.

(a) 3186, _____, _____, _____, _____, _____

(b) 9247, _____, _____, _____, _____, _____

7. Put the correct sign $<$, $>$ or $=$.

(a) 2531 1235

(b) 1607 1507

(c) 9875 9872

(d) 2304 2430

(e) 6287 6293

(f) 3195 3195

8. Arrange 5624, 5426, 4571, 6245, 6345, 6340 in ascending order.

, , , , ,

9. Arrange 1843, 1934, 1624, 1857, 1846, 1924 in descending order.

, , , , ,

10. Colour the largest number blue and the smallest number pink.

(a) 9003

9130

9821

9128

9009

9812

(b) 5613

5420

5375

5289

5280

5614

11. Write True or False.

(a) The predecessor of 2090 is 2091.

(b) 4896 is an even number.

(c) The successor of 7819 is 7820.

(d) 2437 lies in between 2435 and 2436.

(e) 62 rounded off to its nearest 10 is 70.

(f) In words 9038 is written as nine thousand thirty-eight.

12. Write five numbers backward from the given numbers.

(a) 5643, _____, _____, _____, _____, _____

(b) 9289, _____, _____, _____, _____, _____

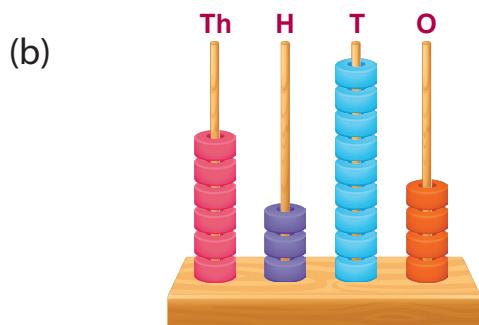
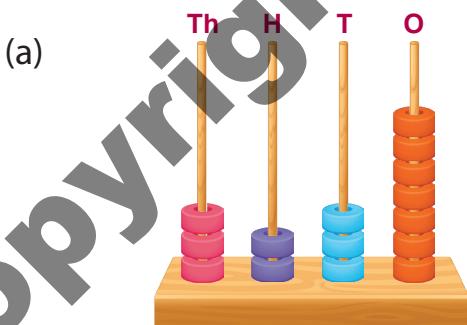
13. There are 2015 students in a school. Write the number of students in words.

14. A school X has 1986 students and another school Y has 1896 students. Which school has more students?





Write the number names of the numbers represented on the abacus.



Do you think abacus helps you to understand numbers better? In what all ways does it help you?



SCRATCH YOUR BRAIN

- What is the difference between the largest 3-digit number and the smallest 2-digit number?
- 4087 stands for RANK, 5128 stands for STUN and 9073 stands for CAKE. What do the following numbers stand for?
(a) 5904 (b) 1248 (c) 1307 (d) 4381



GROUP ACTIVITY

To reinforce the concept of forming the smallest and the greatest 4-digit numbers using the given digits and check the understanding of number names

Things We Need: White sheets of paper and a pencil

How To Do:

- Make 10 slips of paper. Write digits 0 to 9 on them, one digit on each slip. Fold the slips and shuffle them.
- Divide the class into groups of 4–5 children.
- A child from a group will come and pick 4 slips. The child will unfold the slips and write the digits obtained.
- From the digits obtained, the group will form the greatest and the smallest 4-digit numbers and write their number names.
- Repeat the same activity with each group.

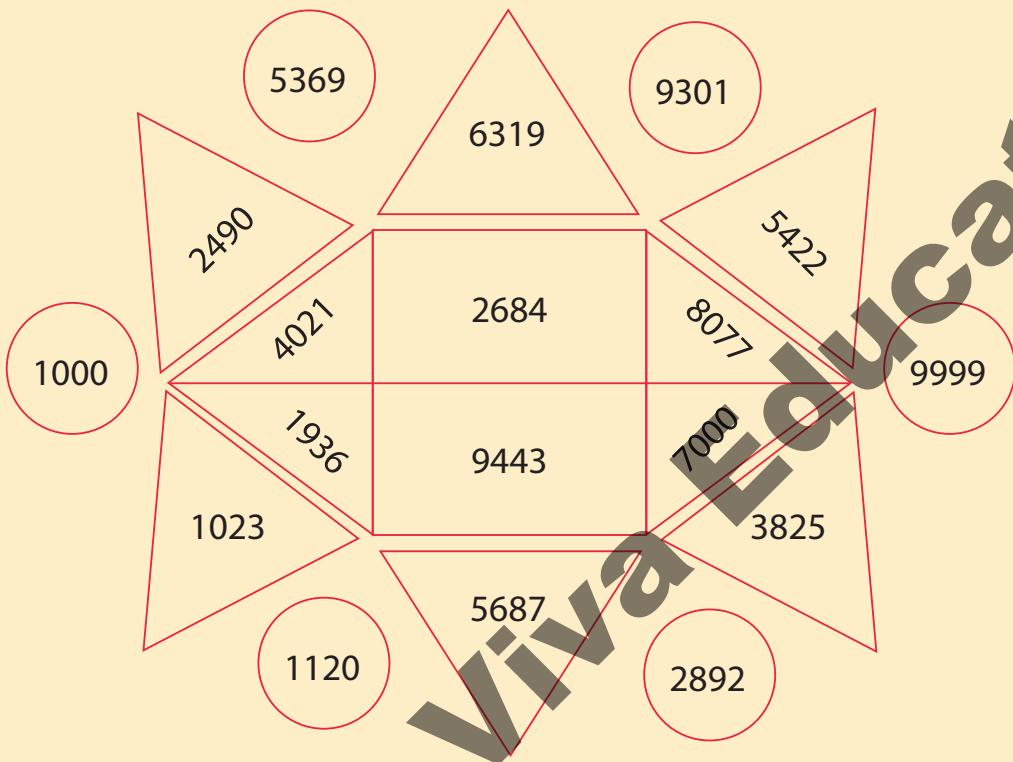
| Digits obtained | Greatest 4-digit number | Smallest 4-digit number |
|-----------------|-------------------------|-------------------------|
| | | |

Number name of the greatest 4-digit number: _____

Number name of the smallest 4-digit number: _____

Worksheet

Numbers



1. Colour the smallest 4-digit number green.
2. Colour the largest 4-digit number orange.
3. Colour the numbers which are the predecessors of the following numbers red.
(a) 5370 (b) 1121
4. Colour the numbers which are the successors of the following numbers yellow.
(a) 2891 (b) 9300
5. Colour the numbers greater than 6000 pink.
6. Colour the odd numbers in the triangles purple.
7. Are all the numbers coloured? _____
8. Which odd number is not coloured? _____



Roman Numerals

In earlier times, there were many numeral systems like the Indian, Chinese, Arabic, etc. Some of them are still in use like the Hindu-Arabic numeral system which uses the numerals 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9. Another such system of numeration is the Roman numeral system.

The Roman numeral system, developed by the Romans thousands of years ago, is based on seven letters of the alphabet. All the numbers are written using either one of the letters or combinations of letters.

Symbols

The seven letters used in the Roman numeral system and their corresponding values in Hindu-Arabic numeral system are given in the following table.

| Symbol | I | V | X | L | C | D | M |
|--------|---|---|----|----|-----|-----|------|
| Value | 1 | 5 | 10 | 50 | 100 | 500 | 1000 |

In this class we will learn only about the first three symbols, i.e., I, V and X.

Reading Roman Numerals

We have seen that there are symbols for numbers 1, 5, 10, 50, 100, 500 and 1000. To make the rest of the numbers of the Hindu-Arabic numeral system, we either add the numbers or subtract them according to the rules given below.

Rule 1: When a symbol is repeated, it means the value of each symbol is added. The sum is equal to the number formed. But, any symbol cannot be repeated more than 3 times.

For example, II = $1 + 1 = 2$, III = $1 + 1 + 1 = 3$,

XX = $10 + 10 = 20$, XXX = $10 + 10 + 10 = 30$

Rule 2: When a smaller symbol or symbols are written after a larger one, then their values are added to get the number.

For example, VI = $5 + 1 = 6$, XV = $10 + 5 = 15$, VII = $5 + 1 + 1 = 7$, VIII = $5 + 1 + 1 + 1 = 8$, XIII = $10 + 1 + 1 + 1 = 13$

Remember

The Roman numeral system does not have a symbol for zero.



Remember

Roman numeral V cannot be repeated at all.



Rule 3: When a smaller symbol is written before a larger one, then the value of the smaller symbol is subtracted from the value of the larger symbol.

For example, $IV = 5 - 1 = 4$, $IX = 10 - 1 = 9$

Rule 4: When three or more symbols are written together in such a way that a smaller symbol lies between two greater symbols, then we subtract the smaller symbol from the greater symbol placed after it.

For example, $XIV = 10 + (5 - 1) = 10 + 4 = 14$,

$XIX = 10 + (10 - 1) = 10 + 9 = 19$, $XXIV = 10 + 10 + (5 - 1) = 20 + 4 = 24$,

$XXXIX = 10 + 10 + 10 + (10 - 1) = 30 + 9 = 39$

Mental Maths

Write the time shown in the clock.



Roman Numerals up to 39

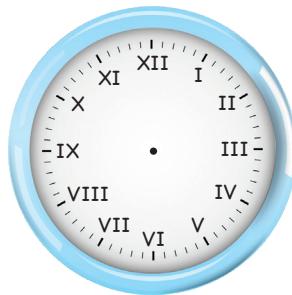
| Hindu-Arabic | Roman | Hindu-Arabic | Roman | Hindu-Arabic | Roman | Hindu-Arabic | Roman |
|--------------|-------|--------------|-------|--------------|--------|--------------|---------|
| 1 | I | 11 | XI | 21 | XXI | 31 | XXXI |
| 2 | II | 12 | XII | 22 | XXII | 32 | XXXII |
| 3 | III | 13 | XIII | 23 | XXIII | 33 | XXXIII |
| 4 | IV | 14 | XIV | 24 | XXIV | 34 | XXXIV |
| 5 | V | 15 | XV | 25 | XXV | 35 | XXXV |
| 6 | VI | 16 | XVI | 26 | XXVI | 36 | XXXVI |
| 7 | VII | 17 | XVII | 27 | XXVII | 37 | XXXVII |
| 8 | VIII | 18 | XVIII | 28 | XXVIII | 38 | XXXVIII |
| 9 | IX | 19 | XIX | 29 | XXIX | 39 | XXXIX |
| 10 | X | 20 | XX | 30 | XXX | | |



LET'S EVALUATE

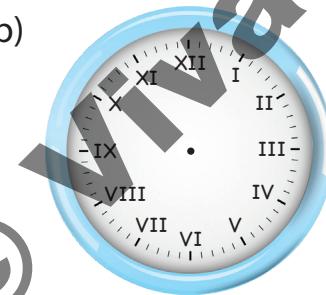
1. Give two examples from daily life where you see Roman numerals.
2. Write the following in the Hindu-Arabic numeral system. The first one is done for you.
(a) $\text{III} = 3$ (b) $\text{IV} = \underline{\hspace{2cm}}$ (c) $\text{XV} = \underline{\hspace{2cm}}$ (d) $\text{XXVII} = \underline{\hspace{2cm}}$
(e) $\text{XXX} = \underline{\hspace{2cm}}$ (f) $\text{XXXIII} = \underline{\hspace{2cm}}$ (g) $\text{XXXV} = \underline{\hspace{2cm}}$ (h) $\text{XXXIX} = \underline{\hspace{2cm}}$
3. Write the following in the Roman numeral system. The first one is done for you.
(a) $9 = \text{IX}$ (b) $24 = \underline{\hspace{2cm}}$ (c) $36 = \underline{\hspace{2cm}}$ (d) $18 = \underline{\hspace{2cm}}$
(e) $13 = \underline{\hspace{2cm}}$ (f) $27 = \underline{\hspace{2cm}}$ (g) $30 = \underline{\hspace{2cm}}$ (h) $33 = \underline{\hspace{2cm}}$
4. Draw the hour hand and the minute hand to show the time written in the box.

(a)



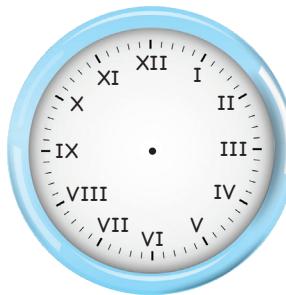
4 o'clock

(b)



7 o'clock

(c)



10 o'clock

5. Write True or False.

(a) The Roman numeral for 25 is XXV.

(b) The Roman numeral XXVIII represents the number 27.

(c) 34 can be written in Roman numeral as XXXVI.

(d) The Roman numeral I can be repeated a maximum of three times.

(e) The Roman numeral system uses seven letters of the alphabet.



SCRATCH YOUR BRAIN



Solve the following and write your answer in Roman numerals.

(a) $2 + 5 + 6$

(b) $12 + 13 + 4$

(c) $20 - 11$



GROUP ACTIVITY



To reinforce the concept of Roman numerals

Things We Need: A cardboard, a pair of scissors, ice cream sticks, glue stick, a chartpaper, a pencil and a thumb pin

How To Do:

1. Cut the cardboard in the shape of a circle.
2. Use ice cream sticks to make Roman numerals 1 to 12.
3. Paste the numerals so formed on the cardboard as shown in the sample figure.
4. Use a chartpaper to make two hands—short and long.
5. Put the hands of the clock one on top of the other and pin them in the centre of the cardboard using the thumb pin. Your clock with Roman numerals is ready.



3



Addition



Let's Recall ...

Find the sum.

(a)

| H | T | O |
|---|---|---|
| 7 | 8 | 2 |
| + | 4 | 6 |
| | | |

(b)

| H | T | O |
|---|---|---|
| 2 | 6 | 9 |
| 0 | 2 | 6 |
| | | |

(c)

| H | T | O |
|---|---|---|
| 8 | 3 | 8 |
| 2 | 0 | |
| 4 | 5 | |
| | | |

(d)

| H | T | O |
|---|---|---|
| 3 | 8 | |
| 2 | 9 | |
| 7 | 5 | |
| | | |

(e)

| T | O |
|---|---|
| 6 | 7 |
| + | 2 |
| 5 | |

Expanded form

$$\boxed{} + \boxed{}$$

$$\boxed{} + \boxed{}$$

$$\boxed{} + \boxed{}$$

| T | O |
|---|---|
| | |
| | |
| | |

So, $67 + 25 = \boxed{}$.

(f)

| H | T | O |
|---|---|---|
| 5 | 1 | 6 |
| + | 2 | 4 |
| 5 | | |

Expanded form

$$\boxed{} + \boxed{} + \boxed{}$$

$$\boxed{} + \boxed{} + \boxed{}$$

$$\boxed{} + \boxed{} + \boxed{}$$

| H | T | O |
|---|---|---|
| | | |
| | | |
| | | |

So, $516 + 245 = \boxed{}$.

(g)

| H | T | O |
|---|---|---|
| 1 | 2 | 4 |
| 3 | 0 | 1 |
| 4 | 5 | 2 |
| | | |

Expanded form

$$\boxed{} + \boxed{} + \boxed{}$$

| H | T | O |
|---|---|---|
| | | |
| | | |
| | | |

So, $124 + 301 + 452 = \boxed{}$.

Addition of Two 4-Digit Numbers (without carry over)

To add 4-digit numbers, first add the ones, then the tens, the hundreds and finally the thousands.

Example 1: Add 4302 and 2683.

Solution:

| Th | H | T | O |
|----|---|---|---|
| 4 | 3 | 0 | 2 |
| + | 2 | 6 | 8 |
| | | | 5 |

Step 1: Add the ones.
 $2 + 3 = 5$

| Th | H | T | O |
|----|---|---|---|
| 4 | 3 | 0 | 2 |
| + | 2 | 6 | 8 |
| | | | 5 |

Step 2: Add the tens.
 $0 + 8 = 8$

| Th | H | T | O |
|----|---|---|---|
| 4 | 3 | 0 | 2 |
| + | 2 | 6 | 8 |
| | 9 | 8 | 5 |

Step 3: Add the hundreds.
 $3 + 6 = 9$

| Th | H | T | O |
|----|---|---|---|
| 4 | 3 | 0 | 2 |
| 2 | 6 | 8 | 3 |
| 6 | 9 | 8 | 5 |

Step 4: Add the thousands.
 $4 + 2 = 6$

So, $4302 + 2683 = 6985$.

Similarly, you can add 5-digit and bigger numbers.

Remember

The numbers which are added are called **addends**. For example, in $12 + 10 = 22$, 12 and 10 are the addends and 22 is the sum.



EXERCISE 3.1

1. Add the following.

| Th | H | T | O |
|----|---|---|---|
| 9 | 7 | 1 | 6 |
| + | | | |
| | | 5 | 3 |

| Th | H | T | O |
|----|---|---|---|
| 5 | 8 | 2 | 5 |
| + | | | |
| | 1 | 4 | 2 |

| Th | H | T | O |
|----|---|---|---|
| 7 | 5 | 9 | 1 |
| + | | | |
| | 2 | 3 | 0 |

| Th | H | T | O |
|----|---|---|---|
| 6 | 7 | 1 | 2 |
| + | 2 | 1 | 5 |
| | | | 6 |

| Th | H | T | O |
|----|---|---|---|
| 4 | 9 | 2 | 7 |
| + | 5 | 0 | 4 |
| | | | 0 |

| Th | H | T | O |
|----|---|---|---|
| 5 | 4 | 5 | 4 |
| + | 3 | 1 | 1 |
| | | | 2 |

| Th | H | T | O |
|-----|---|---|---|
| 1 | 4 | 3 | 2 |
| + 5 | 0 | 2 | 6 |
| | | | |

| Th | H | T | O |
|----|---|---|---|
| 2 | 0 | 0 | 6 |
| | 8 | 5 | 2 |
| | | | |

| Th | H | T | O |
|-----|---|---|---|
| 3 | 5 | 4 | 2 |
| + 6 | 2 | 1 | 3 |
| | | | |

2. Add the following numbers.

- (a) $6214 + 2073$ (b) $7876 + 2012$ (c) $3461 + 2228$ (d) $6291 + 6507$

Addition of Two 4-Digit Numbers (with carry over)

Example 2: Add 8254 and 7918.

Solution:

| Th | H | T | O |
|-----|---|---|----|
| 8 | 2 | 5 | 4 |
| + 7 | 9 | 1 | 8 |
| | | | 12 |

| Th | H | T | O |
|-----|---|---|---|
| 8 | 2 | 5 | 4 |
| + 7 | 9 | 1 | 8 |
| | | 7 | 2 |

| Th | H | T | O |
|-----|---|---|---|
| 8 | 2 | 5 | 4 |
| + 7 | 9 | 1 | 8 |
| 1 | 7 | 2 | |

| TTh | Th | H | T | O |
|-----|----|---|---|---|
| 1 | 8 | 2 | 5 | 4 |
| 7 | 9 | 1 | 8 | |
| 1 | 7 | 2 | | |

Quick Tip

This method is also called "Addition by regrouping."



Step 1: Add the ones.

$$4 + 8 = 12$$

Step 2: 12 is a 2-digit number. Write 2 in the ones place and carry over 1 to the tens place. Add the tens including the 1 carried over.

$$1 + 5 + 1 = 7$$

Step 3: Add the hundreds (there is no carry over).

$$2 + 9 = 11$$

Step 4: 11 is a 2-digit number. Write 1 in the hundreds place and carry over 1 to the thousands place. Add the thousands including the 1 carried over.

$$1 + 8 + 7 = 16$$

| TTh | Th | H | T | O |
|-----|----|---|---|---|
| 8 | 2 | 5 | 4 | |
| + 7 | 9 | 1 | 8 | |
| 1 6 | 1 | 7 | 2 | |

$$\text{So, } 8254 + 7918 = 16172.$$

Step 5: 16 is a 2-digit number. Write 6 in the thousands place and carry over 1 to the ten thousands place. As there is no number in the ten thousands place, keep the 1 carried over.

Common Mistake!

Always remember to add the carried over digit.

| Th | H | T | O |
|----|---|----|---|
| 6 | 3 | ①4 | 7 |
| 1 | 8 | 5 | 9 |
| 8 | 1 | ⑨ | 6 |

Carry over is not added



Mental Maths

What will be 7400 added to 3150?



Addition of Three 4-Digit Numbers

We add three 4-digit numbers in the same way as we add two 4-digit numbers.

Example 3: Add 4913, 5062 and 7428.

Solution:

| TTh | Th | H | T | O |
|-----------|----|----|----|---|
| ① | ①4 | ①9 | ①1 | 3 |
| | 5 | 0 | 6 | 2 |
| + 7 | 4 | 2 | 8 | |
| 1 7 4 0 3 | | | | |

$$\text{So, } 4913 + 5062 + 7428 = 17403.$$

Addition Facts

Let's revise the addition facts by taking bigger numbers.

- Two or more numbers can be added in any order.

For example, $7460 + 3321 = 10781$

and $3321 + 7460 = 10781$

- Adding '0' to a number gives the same number.

For example, $3891 + 0 = 3891$

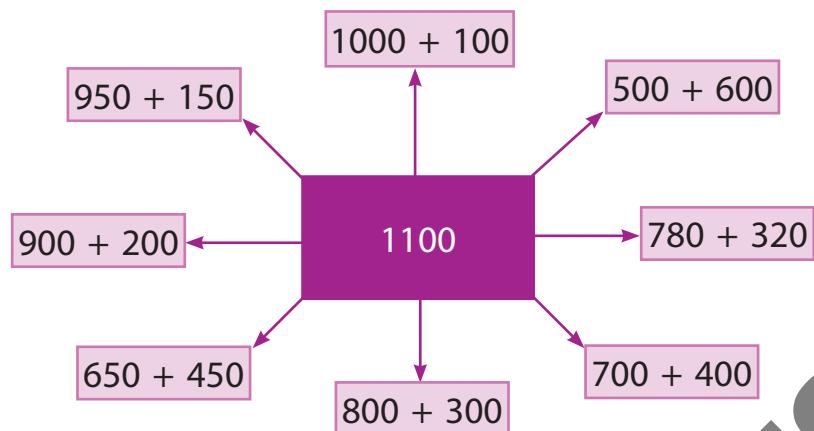
and $0 + 7243 = 7243$

Mental Maths

$300 + 2000 + 4500 = ?$



3. A number can be written as the sum of two numbers in many different ways.
For example, 1100 can be written in the following ways.



EXERCISE 3.2

1. Find the following sums.

(a)

| Th | H | T | O |
|----|---|---|---|
| 3 | 8 | 6 | 3 |
| + | 4 | 9 | 7 |
| | | | |

(b)

| Th | H | T | O |
|----|---|---|---|
| 6 | 7 | 0 | 6 |
| + | 1 | 1 | 9 |
| | | | |

(c)

| Th | H | T | O |
|----|---|---|---|
| 5 | 9 | 3 | 7 |
| + | 2 | 4 | 9 |
| | | | |

(d)

| Th | H | T | O |
|----|---|---|---|
| 7 | 9 | 8 | 7 |
| + | 1 | 5 | 3 |
| | | | |

(e)

| TTh | Th | H | T | O |
|-----|----|---|---|---|
| | 6 | 6 | 6 | 6 |
| | 9 | 8 | 7 | 6 |
| | | | | |

(f)

| TTh | Th | H | T | O |
|-----|----|---|---|---|
| | 7 | 8 | 7 | 1 |
| | 3 | 2 | 6 | 8 |
| | | | | |

2. Add.

(a) $3469 + 1829$ (b) $4262 + 3555$ (c) $6148 + 8790$ (d) $7262 + 3198$

3. Find the following sums.

(a)

| Th | H | T | O |
|----|---|---|---|
| 2 | 6 | 8 | 5 |
| 1 | 3 | 4 | 0 |
| + | 2 | 1 | 3 |
| | | | |

(b)

| Th | H | T | O |
|----|---|---|---|
| 2 | 6 | 1 | 7 |
| 3 | 8 | 7 | 2 |
| + | 2 | 6 | 4 |
| | | | |

(c)

| TTh | Th | H | T | O |
|-----|----|---|---|---|
| | 6 | 3 | 3 | 3 |
| | 8 | 7 | 6 | 0 |
| | 5 | 2 | 4 | 9 |
| | | | | |

| Th | H | T | O |
|----|---|---|---|
| 2 | 8 | 4 | 3 |
| 1 | 3 | 8 | 9 |
| 5 | 2 | 0 | 4 |
| | | | |

| TTh | Th | H | T | O |
|-----|----|---|---|---|
| | 3 | 8 | 9 | 5 |
| | 1 | 2 | 0 | 6 |
| | 7 | 3 | 8 | 1 |
| | | | | |

| TTh | Th | H | T | O |
|-----|----|---|---|---|
| | 1 | 7 | 9 | 5 |
| | 6 | 3 | 2 | 7 |
| | 8 | 7 | 4 | 1 |
| | | | | |

4. Add the following numbers.

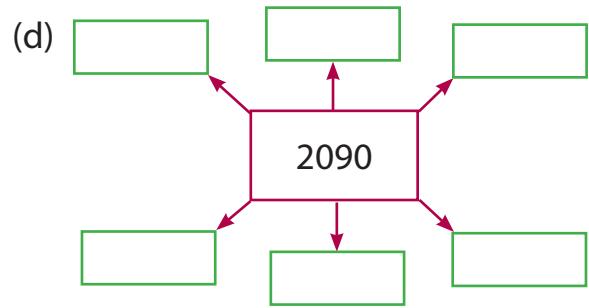
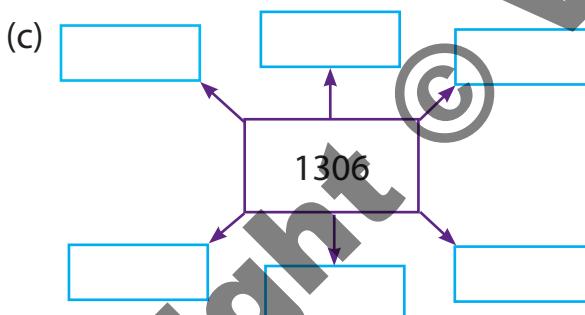
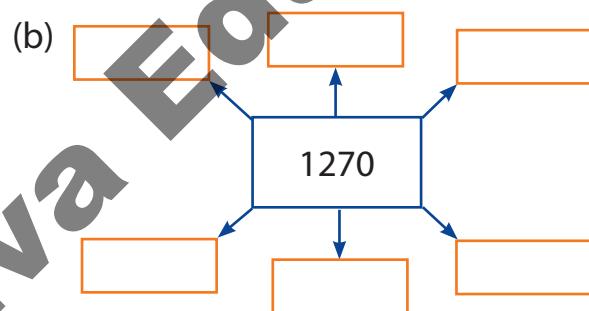
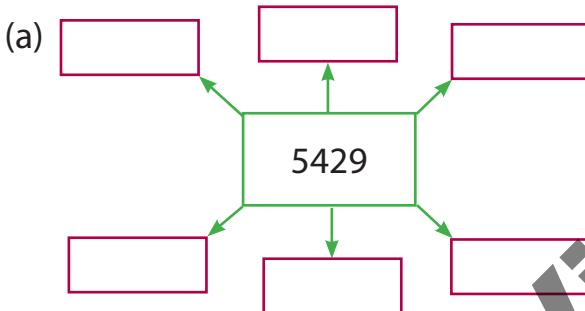
(a) 9237, 1085, 4827

(b) 1326, 2108, 9046

(c) 2658, 2196, 1929

(d) 3013, 1580, 2607

5. Complete the boxes by writing the number given in the centre as the sum of two numbers in different ways.



Addition Using Expanded Form

| Th | H | T | O |
|----|---|---|---|
| 6 | 3 | 1 | 4 |
| + | 5 | 8 | 9 |
| | | | |

Expanded form

$$\begin{array}{r}
 6000 + 300 + 10 + 4 \\
 5000 + 800 + 90 + 7 \\
 \hline
 11000 + 1100 + 100 + 11
 \end{array}$$

| TTh | Th | H | T | O |
|-----|----|---|---|---|
| 1 | 1 | 0 | 0 | 0 |
| | 1 | 1 | 0 | 0 |
| | | 1 | 0 | 0 |
| | | | 1 | 1 |
| | 1 | 2 | 2 | 1 |

So, $6314 + 5897 = 12211$.



Estimating the Sum (by rounding off)

Estimation gives a rough or approximate value of the sum. To estimate the given sum, round off the numbers and add.

Example 4: Twinkle has 4536 stamps of India, 2102 stamps of USA and 1938 stamps of UK. Estimate the number of stamps she has if she rounds off all the numbers to the nearest 10.

Solution: Twinkle has approximately

Stamps of India = 4540 (4536 gets rounded off to 4540)

Stamps of USA = 2100 (2102 gets rounded off to 2100)

Stamps of UK = 1940 (1938 gets rounded off to 1940)

So, total stamps with Twinkle = $4540 + 2100 + 1940$

= 8580 (estimated value)

| Th | H | T | O |
|----|---|---|---|
| 1 | 4 | 5 | 4 |
| 2 | 1 | 0 | 0 |
| + | 1 | 9 | 4 |
| | 8 | 5 | 8 |
| | | | 0 |

EXERCISE 3.3

1. Add using the expanded form.

| Th | H | T | O |
|----|---|---|---|
| 4 | 8 | 2 | 6 |
| + | 2 | 7 | 9 |
| | | | 5 |

Expanded form

$$\begin{array}{r} \textcircled{C} \\ + \quad \boxed{} \quad + \quad \boxed{} \quad + \quad \boxed{} \\ \hline \boxed{} \quad + \quad \boxed{} \quad + \quad \boxed{} \quad + \quad \boxed{} \\ \hline \boxed{} \quad + \quad \boxed{} \quad + \quad \boxed{} \quad + \quad \boxed{} \end{array}$$

| Th | H | T | O |
|----|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| Th | H | T | O |
|----|---|---|---|
| 3 | 7 | 9 | 4 |
| + | 5 | 8 | 6 |
| | | | 3 |

Expanded form

$$\begin{array}{r} \boxed{} \quad + \quad \boxed{} \quad + \quad \boxed{} \quad + \quad \boxed{} \\ \hline \boxed{} \quad + \quad \boxed{} \quad + \quad \boxed{} \quad + \quad \boxed{} \\ \hline \boxed{} \quad + \quad \boxed{} \quad + \quad \boxed{} \quad + \quad \boxed{} \end{array}$$

| Th | H | T | O |
|----|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

| | | | | Expanded form | | | | | | | | |
|-----|----|---|---|---------------|--|--|--|--|----|---|---|---|
| (c) | Th | H | T | O | | | | | Th | H | T | O |
| | 4 | 3 | 6 | 2 | | | | | | | | |
| + | 1 | 5 | 4 | 7 | | | | | | | | |
| | | | | | | | | | | | | |

2. Write in expanded form and add.
- (a) $6325 + 3784$ (b) $5637 + 2983$ (c) $7845 + 2930$ (d) $3620 + 2048$
3. Estimate the following sums by rounding off the addends as mentioned.
- (a) $4627 + 3781 + 1215$ (to the nearest hundred)
 (b) $2875 + 6496 + 1324$ (to the nearest thousand)

Solving Word Problems

Example 5: Sukhpreet deposited ₹ 4550 in his account on Monday. He deposited ₹ 2765 on Wednesday and ₹ 3096 on Friday. How much money did he deposit in his account by Saturday?

Solution:

| | | |
|--|---|--------------------|
| Money deposited on Monday | = | <u>₹ 4 5 5 0</u> |
| Money deposited on Wednesday | = | ₹ 2 7 6 5 |
| Money deposited on Friday | = | <u>₹ 3 0 9 6</u> |
| Total money in his account by Saturday | = | <u>₹ 1 0 4 1 1</u> |

Sukhpreet deposited ₹ 10411 by Saturday in his account.

Framing Word Problems

So far we have learnt how to solve word problems. Now, we will learn how to frame word problems.

Example 6: Frame 3 word problems for $19 + 35 = \underline{\hspace{2cm}}$.

Solution: Word problems for the given fact can be as follows:

1. 19 boys and 35 girls participated in an interschool competition.
How many children participated in the competition?
2. Kirti has 19 marbles. Her friend Chinki gives her 35 marbles more.
How many marbles does Kirti have now?

3. Nikhil buys 19 toffees and 35 chocolates for his birthday. How many sweets does he have?

Similarly, you can frame word problems with 3-digit and 4-digit numbers.

EXERCISE 3.4

1. Solve the following problems.

- Which number is 6582 more than 9276?
- In an orchard, there are 1025 apple trees, 1100 mango trees and 9806 orange trees. How many trees in all are there in the orchard?
- In a factory, the workers packed 3725 packets of chocolates in the morning, 1968 packets in the afternoon and 2560 packets in the evening. How many packets of chocolates did the workers pack in a day?
- Shruti got ₹ 1100 from her uncle on her birthday. Her aunt gave her ₹ 5450 and her grandparents gave her ₹ 2500. How much money did Shruti get on her birthday?
- John gave 6036 coins to Anne and 8712 coins to Jack. If John had 3514 coins left, how many coins did he have in the beginning?

2. Frame one word problem for each of the following.

(a) $63 + 6$

(d) $108 + 969$

(b) $45 + 22$

(e) $486 + 312$

(c) $13 + 76$

(f) $1010 + 2900$

LET'S EVALUATE

1. Find the following sums.

(a)

| Th | H | T | O |
|----|---|---|---|
| 3 | 1 | 2 | 7 |
| + | 2 | 4 | 1 |
| | | | |

(b)

| Th | H | T | O |
|----|---|---|---|
| 4 | 4 | 6 | 6 |
| + | 5 | 3 | 9 |
| | | | |

(c)

| Th | H | T | O |
|----|---|---|---|
| 6 | 2 | 0 | 4 |
| 1 | 5 | 7 | 8 |
| + | 2 | 1 | 3 |
| | | | |

| Th | H | T | O |
|-----|---|---|---|
| 2 | 5 | 4 | 0 |
| 1 | 0 | 3 | 5 |
| + 3 | 3 | 1 | 4 |
| | | | |

| TTh | Th | H | T | O | | | | |
|-----|----|---|---|---|--|--|--|--|
| | 4 | 3 | 0 | 2 | | | | |
| | 2 | 9 | 8 | 3 | | | | |
| + 7 | 2 | 4 | 7 | | | | | |
| | | | | | | | | |

| TTh | Th | H | T | O | | | | |
|-----|----|---|---|---|--|--|--|--|
| | 3 | 4 | 9 | 0 | | | | |
| | 5 | 1 | 8 | 8 | | | | |
| + 9 | 2 | 9 | 6 | | | | | |
| | | | | | | | | |

2. Add the following numbers.

(a) 4326 and 3132

(b) 6852 and 2135

(c) 6485 and 2946

(d) 2085, 6984 and 9470

(e) 8942, 6125 and 1893

(f) 5045, 1963 and 8275

3. Add using expanded form.

(a) $4621 + 6666$

(b) $1002 + 9779$

(c) $2658 + 8567$

4. Estimate the following sums by rounding off the addends as mentioned in the brackets.

(a) $2876 + 4905 + 9056$ (to the nearest 100)

(b) $1111 + 6590 + 8744$ (to the nearest 10)

5. A library has 1000 English books, 1240 Hindi books and 1687 Mathematics books. How many books are there in the library?

6. Find the number 246 more than 7582.

7. Write True or False.

(a) 1 added to a number gives a number less than the given number.

(b) 0 added to a number gives the same number.

(c) The sum of 2789 and 1000 is 2889.

(d) The sum of 9 thousands, 9 hundreds and 9 ones is 9999.

8. Choose the correct answer.

(a) 4361 rounded to the nearest 100 is:

(i) 4360

(ii) 4300

(iii) 4400

(iv) 4460

(b) 520 more than 3125 is:

(i) 3645

(ii) 3725

(iii) 3655

(iv) 3755

(c) 1390 rounded to the nearest 1000 is:

(i) 1400

(ii) 1000

(iii) 1490

(iv) 1200



(d) A school has 2 libraries. There are 2456 books in one library and 1987 books in the other. The total number of books in the school library is:

- (i) 4344 (ii) 4343 (iii) 4433 (iv) 4443



1. A school has three branches in different places. Its branch A has 2650 students, branch B has 1975 students and branch C has 2463 students. The school decides to take all the students from all its branches for a picnic. How many students will go to the picnic? How often does your school organize picnics? What all you do when you go for a picnic?
2. There are 6235 people in village A and 9743 people in village B. How many people are there in both the villages? Have you ever visited a village? How is it different from the place where you live?



1. Aditya has 3420 stamps. Sunanda has 145 more than Aditya. Kini has 180 more than Sunanda. Manav has 155 stamps more than Aditya. How many stamps do Sunanda, Kini and Manav have? Who has the most number of stamps?
2. A merchant gives 2175 kg sugar to shopkeeper A, 650 kg more than shopkeeper A to shopkeeper B and 125 kg more than shopkeeper B to shopkeeper C. He is still left with 1065 kg of sugar. How much sugar did he have in the beginning?



To understand the concept of forming and adding numbers

Things We Need: White sheets of paper and a pencil

How To Do:

1. Make a set of 10 slips. Write digits 0 to 9 on them, one digit on each slip. Fold the slips and shuffle them.
2. Divide the class into groups of four.
3. A child from a group will come and pick up 4 slips. Unfold the slips and note the digits obtained.
4. First child will form the greatest 4-digit number from the digits obtained.
5. Second child will form the smallest 4-digit number from the given digits.
6. Third child will form any 4-digit number from the given digits except the greatest and the smallest numbers.
7. Fourth child will add all the three numbers and find their sum.
8. The group with the greatest sum will be the winner.

| Group A |
|---------------------------------|
| Digits obtained = _____ |
| Greatest 4-digit number = _____ |
| Smallest 4-digit number = _____ |
| Other 4-digit number = + _____ |
| Sum = _____ |

I. Choose the correct answer.

1. The place value of 9 in 8953 is:
(a) 900 (b) 90 (c) 9 (d) none of these
2. The smallest 4-digit number that can be formed using the digits 9, 0, 8, 1 is:
(a) 9018 (b) 9801 (c) 1809 (d) 1089
3. The roman numeral for 36 is:
(a) XXVI (b) XXXVI (c) XVI (d) XXXII
4. Ms Khan has 2148 envelopes. Mr Sharma has 346 envelopes more than Ms Khan. Number of envelopes Mr Sharma has is:
(a) 2384 (b) 2594 (c) 2494 (d) 2584
5. 7924 rounded to the nearest 1000 is:
(a) 8000 (b) 7900 (c) 8100 (d) 7920
6. The Hindu-Arabic numeral for XXXIX is:
(a) 28 (b) 29 (c) 38 (d) 39
7. The face value of 6 in 92653 is:
(a) 6 (b) 60 (c) 600 (d) 6000
8. The largest 5-digit number is:
(a) 1000 (b) 9999 (c) 10000 (d) 99999

II. Solve mentally and answer.

1. The expanded form of 6902 is _____.
2. The largest number than can be formed using the digits 6, 2, 4, 3 is _____.
3. The Hindu-Arabic numeral for XXVIII is _____.
4. The Roman Numeral X can be repeated only _____.
5. $6208 + 1943 + 782 =$ _____.
6. $9305 \square 9035$ (put the correct sign)
7. $0 + 3133 =$ _____.
8. $8000 + 50 + 4 =$ _____.
9. The place value of 2 in 2045 is _____.
10. The predecessor of 4230 is _____.

Copyright © Viva Education



START UP MATHEMATICS



Start Up Mathematics conforms to the latest NCF guidelines with careful grading of interdisciplinary and thematic linkages. The books are carefully planned to give comprehensive coverage to all the topics through clear explanations and sound supporting examples. There is ample focus on activities and exercises to develop logical thinking and reasoning.

Special Features of *Start Up Mathematics* for Classes 3 to 5

- Based on the latest NCF guidelines
- Carefully graded content
- Review of concepts done in the previous class through *Let's Recall* section
- Exercises given after every topic within each lesson
- Important points and tips included in *Remember* and *Quick Tip*
- Plenty of exercises at the end of every lesson in *Let's Evaluate*
- Questions to strengthen concepts given in *Mental Maths*
- Questions based on Thinking Skills given in *Scratch Your Brain*
- Some questions from NCERT textbook
- Various concept-based Activities and Worksheets
- Evaluation done through *Let's Review* and Assessment Sheets
- Tricks to sharpen mathematical skills in *Vedic Mathematics*
- Practice questions for Problem-Based Learning

Monicaa Abhijit, with teaching experience of over 22 years, is currently teaching in St. Thomas School, Mandir Marg, New Delhi.

Additional Teacher's Support

Teacher's Manual

- Comprehensive lesson plan
- Solutions of selected questions
- Worksheets

Digital Support (www.vivadigital.in)

- | | |
|--|--|
| <ul style="list-style-type: none">• Flip book• Solutions of selected questions• Worksheets | <ul style="list-style-type: none">• Test generator• Comprehensive lesson plan |
|--|--|

VIVA EDUCATION

4737/23 Ansari Road, Daryaganj, New Delhi 110 002
New Delhi • Mumbai • Chennai • Kolkata • Bengaluru • Hyderabad • Kochi • Guwahati