Mathematics

3

With the blessings of:

Our Parents

Mathematics (Part-3)

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Based on:

- National Education Policy 2020
- NCF 2022
- Activity Based Format
- Innovative Approach
- Learning with fun
- Eco-Friendly Paper

Preface

Mathematics, a well arranged series of Mathematics strictly confirms to the vision of National Curriculum Framework 2022 and also meets the requirement of the NCERT latest syllabus. It is an activity-based maths textbook created to give the students a National Education Policy 2020-based interactive learning foundation in mathematics while also fostering the holistic development of learners through critical thinking and creativity.

These traits will aid the students in better understanding the fundamental ideas through play. Core educational ideas are the foundation of this textbook. The goal is to encourage youngsters to look beyond the theoretical side of arithmetic and to learn about practical applications.

The book's design emphasises effectiveness and logical progression. Through teaching and interactive learning, NEP 2020 seeks to enhance higher order thinking.

The purpose of this book's design and presentation is to reinforce mathematical concepts through the use of simple games. This book includes enough questions in accordance with the NEP 2020 criteria.

Salient Features of the series:

Learning Objectives: Learning objective shows the right path of learning to the teacher as well as students. It determines the direction of learning for effective and quality learning outcomes.

Warm-Up: It aids pupils in remembering lessons learnt in previous years and lets them ready for new concepts. Also, allows learners to process and explore mathematical concepts while applying, extending, and analysing information within their own unique range of understanding.

Teacher's note: A "Teacher's Note" is a set of instructions laid out for the teachers to follow in the classroom in order to make class interactive and discussion based.

Quick Tip: It offers suggestions on how to quickly solve the questions.

Facts To know: The inclusion of it gives the learner plenty of chances to investigate the information regarding the topics..

Think Wisely: These questions have been included to encourage learners to think, analyse and apply.

Mental Maths: The main goal of teaching Mental Maths to the learners is to focus on improving their arithmetic abilities through memory, practice and number manipulation.

Maths Lab Activities: These are provided with the intention of making maths learning efficient, engaging, pleasant, and intellectually stimulating.

This series of Mathematics books from class 1-8 contains sufficient questions for practice on each topic.

I am very appreciative of the entire staff and the management for working so hard to get this book into such a wonderful arrangement.

The books are always open to suggestions and enhancements.

Author

Contents

1 Revision

Learning Objectives

At the end of this lesson, students will be able to:

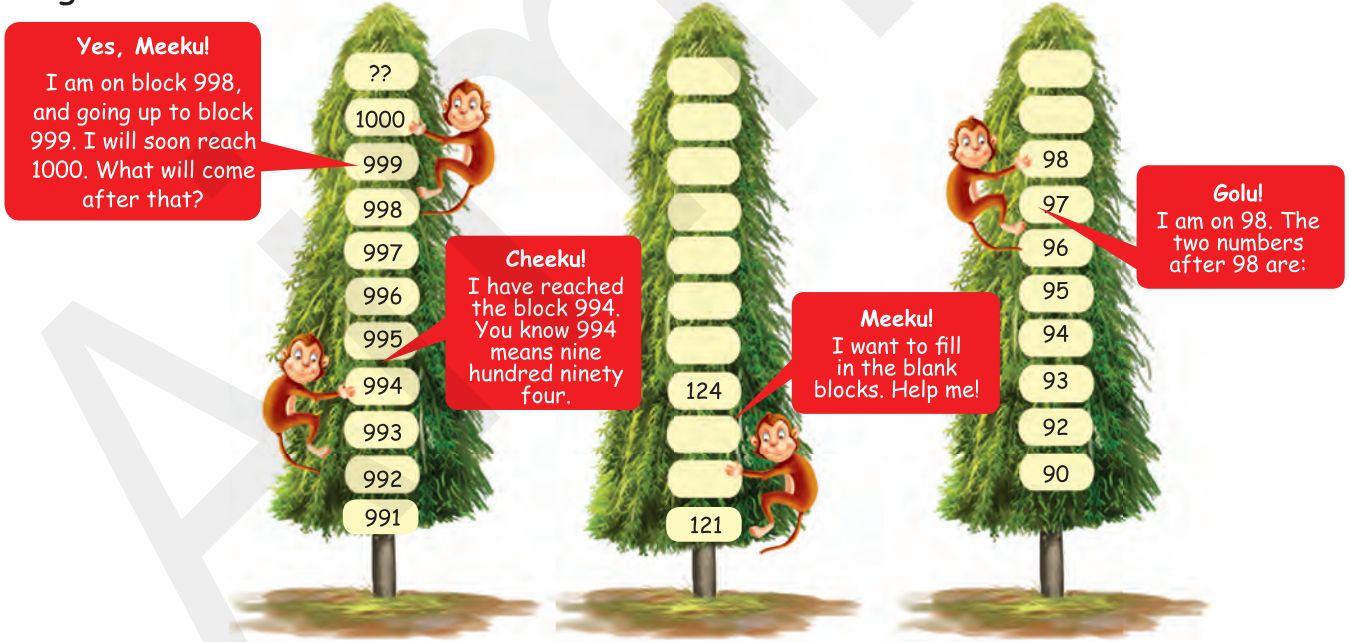
- Revise the place value upto hundreds.
- Arrange the numbers in ascending and descending order.
- Sort out even and odd numbers.
- Write multiplication and division facts.

Warm-Up

Let's revise

We have learnt to read and write 1 digit , 2 digit and 3 digit numbers using the digits 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9.

Cheeku and his friend Peeku are climbing on a palm tree with numbered blocks on each step. Meeku and Golu are also climbing trees, but different ones. Fill in the missing numbers.



Teacher's Note:

Elucidate the students that the largest three-digit number is 999. If you add 1 to this number, it becomes 1000, which is a four-digit number. So, 999 is the largest three digit number in the number system.

Let's Revise

Ones	Tens	Hundreds
5, 2, 4, 6, 8	10, 73, 82, 61, 95	226, 329, 782, 645, 985

	Hundreds	Tens	Ones
One-Digit Numbers (0 to 9)			1
Two-Digit Numbers (10 to 99)		1	0
Three-Digit Numbers (100 to 999)	1	0	0

Facts to Know

Only three cultures invented a place value numeration system: The Mayans, The Babylonians and The Hindu people of India.

Exercise 1.1

1. Write the number names for the following numerals:

(a) 125 ..... (b) 642 .....

(c) 721 ..... (d) 900 .....

2. **Write the following number names in figures:**

(a) Six hundred thirty two .....

(b) Seven hundred .....

(c) Two hundred one .....

(d) Three hundred forty .....

3. **Write the following numbers in ascending order:**

(a) 95, 62, 25, 73, 91 .....

(b) 986, 429, 536, 418, 721 .....

(c) 526, 321, 400, 308, 222 .....

(d) 986, 50, 146, 221, 700 .....

4. **Write the following numbers in descending order:**

(a) 532, 221, 645, 386, 118 .....

(b) 600, 400, 200, 900, 500 .....

(c) 444, 625, 155, 555, 71 .....

(d) 226, 431, 536, 429, 300 .....

5. **Fill in the boxes with the correct symbol <, > or =**

(a) 33 ☐ 21 (b) 46 ☐ 29

(c) 130 ☐ 160 (d) 108 ☐ 108

(e) 721 ☐ 482 (f) 245 ☐ 564

6. **Sort out the following as even numbers and odd numbers:**

20, 23, 44, 65, 49, 82, 136, 18, 7, 33, 58, 83, 27, 42, 102, 111

(a) Even Numbers .....

(b) Odd Numbers .....

Quick Tip

Ascending order:
If all the numbers have an equal number of digits, then the numbers whose first digit is greater will be a higher number.

7. Write the following numerals in expanded form:

(a) 329 = ... + ... + ...

(b) 621 = ... + ... + ...

(c) 518 = ... + ... + ...

(d) 213 = ... + ... + ...

8. Write the following in short form:

(a) 800 + 80 + 2 = ...

(b) 700 + 20 +9 = ...

(c) 500 + 3 = ...

(d) 200 + 20 + 5 = ...

9. Complete the following number patterns:

(a) 73, 74, ..., ..., ..., 78, ..., ...,

(b) 330, 331 ....., ..., ..., 335, ..., ...,

(c) 226, 228, ..., ..., ..., 236 ....., ...,

(d) 100, 110, 120, ..., ..., ..., ..., 170,

10. What comes AFTER in each of the following numerals?

(a) 321 ..... (b) 436 .....

(c) 225 ..... (d) 581 .....

11. What comes BEFORE in each of the following numerals?

(a) ..... 325 (b) 436

(c) ..... 221 (d) 580

12. What comes in BETWEEN in each of the following numerals?

(a) 333 ..... 335 (b) 426 428

(c) 500 ..... 502 (d) 729 731

13. Fill in the blanks:

(a) 3 + 0 = ... (b) 5 + ... = 5

(c) 20 – ..... = 20 (d) 26 - 26 = ...

14. Complete the following table:

Numbers	One-Digit	Two-Digit	Three-Digit
Largest			
Smallest			

15. Write the place value of the underlined digit in the following numerals:

(a) 62<u>5</u> ..... (b) 42<u>1</u> .....

(c) <u>6</u>35 ..... (d) 4<u>5</u>0 .....

16. Write the smallest 3-digit number formed by using the digits given below:

(a) 5, 2, 9 ..... (b) 6, 0, 8 .....

(c) 1, 2, 3 ..... (d) 8, 4, 6 .....

17. Write the largest 3-digit number formed by using the digits given below:

(a) 5, 2, 6 ..... (b) 7, 2, 8 .....

(c) 5, 0, 9 ..... (d) 2, 0, 8 .....

18. Add the following:

(a)
$$\begin{array}{r} 4\ 3 \\ +\ 2\ 1 \\ \hline \end{array}$$

(b)
$$\begin{array}{r} 2\ 9 \\ +\ 6\ 5 \\ \hline \end{array}$$

(c)
$$\begin{array}{r} 3\ 6 \\ 4\ 2 \\ +\ 9\ 0 \\ \hline \end{array}$$

(d)
$$\begin{array}{r} 1\ 7 \\ 2\ 9 \\ +\ 8\ 3 \\ \hline \end{array}$$

(e)
$$\begin{array}{r} 336 \\ +\ 421 \\ \hline \end{array}$$

(f)
$$\begin{array}{r} 829 \\ +\ 236 \\ \hline \end{array}$$

(g)
$$\begin{array}{r} 288 \\ 399 \\ +\ 108 \\ \hline \end{array}$$

(h)
$$\begin{array}{r} 130 \\ 249 \\ +\ 356 \\ \hline \end{array}$$

19. Subtract the following:

(a)
$$\begin{array}{r} 36 \\ -\ 29 \\ \hline \end{array}$$

(b)
$$\begin{array}{r} 42 \\ -\ 28 \\ \hline \end{array}$$

(c)
$$\begin{array}{r} 22 \\ -\ 19 \\ \hline \end{array}$$

(d)
$$\begin{array}{r} 936 \\ -\ 521 \\ \hline \end{array}$$

(e)
$$\begin{array}{r} 529 \\ -\ 422 \\ \hline \end{array}$$

(f)
$$\begin{array}{r} 600 \\ -\ 542 \\ \hline \end{array}$$

20. Write the multiplication facts for the following:

(a) $3 \times 2 =$ ..... (b) $5 \times 8 =$ .....

(c) $7 \times 6 =$ ..... (d) $9 \times 8 =$ .....

21. Multiply the following:

(a)
$$\begin{array}{r} 30 \\ \times\ 6 \\ \hline \end{array}$$

(b)
$$\begin{array}{r} 24 \\ \times\ 2 \\ \hline \end{array}$$

(c)
$$\begin{array}{r} 14 \\ \times\ 1 \\ \hline \end{array}$$

(d)
$$\begin{array}{r} 23 \\ \times\ 5 \\ \hline \end{array}$$

22. Write two division facts for each of the following multiplication facts:

(a) $7 \times 5 = 35$ ....., ...

(b) $3 \times 6 = 18$ ....., ...

(c) $4 \times 10 = 40$ ....., ...

(d) $9 \times 9 = 81$ ....., ...

23. Answer the following questions:

(a) How many 5-paise coins make a rupee? .....

(b) How many 10-paise coins make a rupee? .....

(c) How many 20-paise coins make a rupee? .....

(d) How many 25-paise coins make a rupee? .....

(e) How many 50-paise coins make a rupee? .....

(f) How many ₹ 1 notes make ₹ 10? .....

(g) How many ₹ 5 notes make ₹ 10? .....

(h) How many ₹ 10 notes make ₹ 20? .....

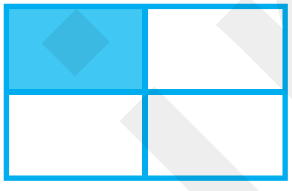
(i) How many ₹ 50 notes make ₹ 100? .....

(j) How many ₹ 100 notes make ₹ 500? .....

(k) How many ₹ 500 notes make ₹ 1000? .....

24. Write the fraction as is represented in the following shaded figures:

(a)



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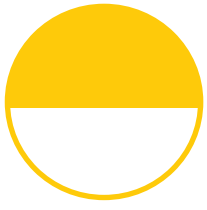
(b)



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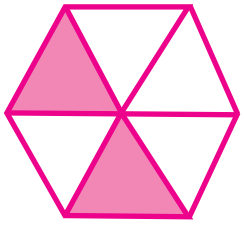
(c)

.....

(d)



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Think Wisely

Who am I ?

- If 100 is added to me, I am 936. _____
- If 1000 is subtracted from me, I am 333. _____
- I am the predecessor of the smallest 4 digit number. _____
- If I am added or subtracted from a number, the answer is the number itself. _____

Mental Maths

Solve mentally: call out the steps as you do

1. 6 + 17 = ...
2. 19 + 8 = ...
3. 9 + 15 = ...
4. 15 + 7 = ...
5. 4 + 17 = ...

Maths Lab Activity

Materials required: Flash cards of any 3 numbers from (0-9).

Steps:

1. Show the cards to the students.
2. Students need to make as many 3 digit numbers as possible with those numbers.
3. Students with maximum numbers will get the points.

2 Learning Numbers Upto 10000

Learning Objectives

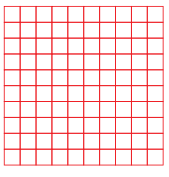
At the end of this lesson, students will be able to:

- Read and write the numbers upto 10000.
- Show the four-digit numbers on the abacus.
- Know about the successor and predecessor of a number.

Warm-Up

Let's revise

Count the boxes given below and write the number and the place value of its digit.



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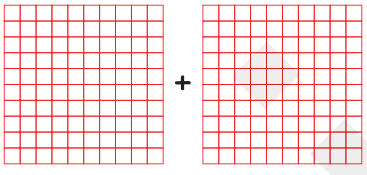
H	T	O



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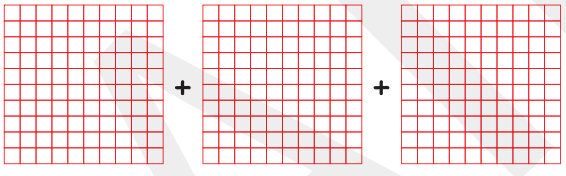
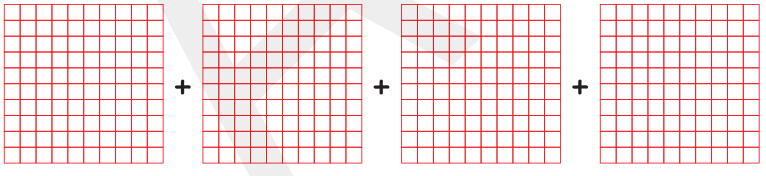
H	T	O



_____

H	T	O



_____

H	T	O

Teacher's Note: Ask the students to write the number name of the final number that comes up.

Let's Revise:

	Smallest	Largest
One-Digit Number	1	9
Two-Digit Number	10	99
Three-Digit Number	100	999
Four-Digit Number	1000	9999

1000 is read as One Thousand

9999 is read as Nine Thousand Nine Hundred Ninety Nine.

Let's Learn Place Value:

Th H T O

Th — Thousands H — Hundreds
T — Tens O — Ones

Numbers From 1001 to 10000

Numbers	Number Names
1001	One thousand one
1002	One thousand two
1003	One thousand three
1004	One thousand four
.....	.....
1010	One thousand ten
1011	One thousand eleven
.....	.....
1099	One thousand ninety-nine

1100	One thousand one hundred
1101	One thousand one hundred-one
.....	.....
1200	One thousand two hundred
.....	.....
1900	One thousand nine hundred
.....	.....
1999	One thousand nine hundred ninety-nine
2000	Two thousand
2001	Two thousand one
.....	.....
2999	Two thousand nine hundred ninety-nine
3000	Three thousand
.....	.....
9000	Nine thousand
.....	.....
9999	Nine thousand nine hundred ninety-nine
10000	Ten thousand

Facts to Know

10,000 is known as a Myriad in Ancient Greek.

Exercise 2.1

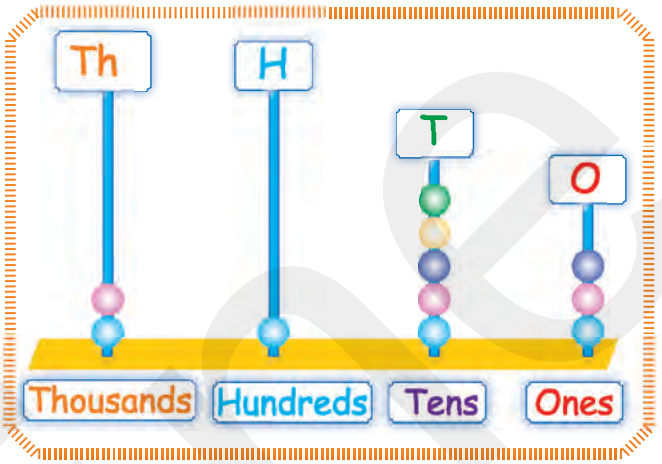
Complete the following number grids:

(a)	1054,			1057,		
(b)	1100,	1101,				
(c)	9762,			9765,		
(d)	8201,			8204,		

Learning Four-Digit Numbers On Abacus

Th- Thousands H - Hundreds

T - Tens O - Ones



Look at the abacus given above:

It shows the numeral: 2153

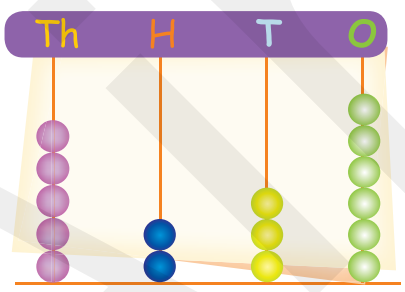
Th	H	T	O
2	1	5	3

Two thousand one hundred fifty-three.

exercise 2.2

1. Read the number on the abacus and write the number and number name:

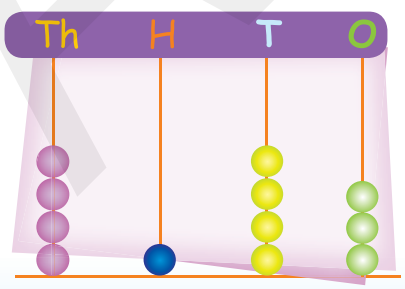
(a)



5 2 3 6

Five thousand two hundred thirty-six

(b)



.....

.....

.....

2. Write the numeral for the following number names:

(a) Two thousand five hundred seventy.

(b) Three thousand two hundred sixty-two.

(c) One thousand three hundred fifty-three.

(d) Nine thousand six hundred twenty.

(e) Two thousand four hundred one.

(f) Eight thousand fifty-three.

Th	H	T	O
2	5	7	0

3. Write the number names for the following numerals:

(a) 4065 .....

(b) 3002 .....

(c) 2791 .....

(d) 7356 .....

(e) 8000 .....

(f) 2015 .....

Face Value of A Digit

Face value of a digit is the actual value of the digit in a number.

Solved Examples

Example 1 : Find the face value of each digit in the numeral 3429.

Solution : Face value of 9 is 9.

Face value of 2 is 2.

Face value of 4 is 4.

Face value of 3 is 3.

Example 2 : Find the face value of each digit in the numeral 2054.

Solution : Face value of 4 is 4.

Face value of 5 is 5.

Face value of 0 is 0.

Face value of 2 is 2.

Exercise 2.3

Write the face value of encircled digits:

(a) 1 4 5 (9) ..... .

(b) 6 (4) 2 1 ..... .

(c) 2 8 (5) 7 ..... .

(d) (1) 2 3 6 ..... .

(e) 7 5 (0) 3 ..... .

Place Value (or Local Value) Of A Digit

Place value (or local value) of a digit in a number depends upon the value according to the place of a digit in a number.

Solved Examples

Example 1 : Write the place value of each digit in the numeral 2456.

Solution :

Th	H	T	O
2	4	5	6

Place value of 6 = 6 ones = 6

Place value of 5 = 5 tens = 50

Place value of 4 = 4 hundreds = 400

Place value of 2 = 2 thousands = 2000

Example 2 : Write the place value of each digit in the numeral 7029.

Solution :

Th	H	T	O
7	0	2	9

Place value of 9 = 9 ones = 9

Place value of 2 = 2 tens = 20

Place value of 0 = 0 hundreds = 0

Place value of 7 = 7 thousands = 7000

exercise 2.4

Write the place value of encircled digits:

(a) 2 0 4 (5) ..... .

(b) 6 (9) 2 1 ..... .

(c) (6) 8 2 5 ..... .

(d) 5 4 (3) 1 ..... .

(e) 7 5 (0) 2 ..... .

Expansion Of Numbers

When a numeral is expressed as a sum of the place values of its digits, then it is said to be in expanded form.

Quick Tip

The place value of 0 is always 0.

Solved Example

Example 1 : Write the number 2856 in expanded form.

Solution :

Th	H	T	O
2	8	5	6

2856 = 2 thousands + 8 hundreds + 5 tens + 6 ones

2856 = 2000 + 800 + 50 + 6

Expanded form of 2856 is,

2000 + 800 + 50 + 6.

Also, the short form of

2000 + 800 + 50 + 6 is 2856.

Exercise 2.5

1. Write the expanded form of following numerals:

(a) 2859 = ... + ... + ... + ...

(b) 7628 = ... + ... + ... + ...

2. Write the short form of the following:

(a) 3000 + 50 + 6 = ...

(b) 8000 + 600 + 20 + 5 = ...

Think Wisely

1. How many odd numbers are there from 4000 to 5001?

   _____

2. Write the greatest and smallest 3 digit numbers using the digits 9 , 8, 6, 8, or 0.

   _____

Skip Counting

When we write some numbers with a fixed gap between two successive numbers, then such counting is known as skip counting.

Solved Examples

Example 1 : Counting by two's, write five numerals from 6052 onwards.

Solution : Starting from 6052, we add 2.

The required numerals are:

6052, 6054, 6056, 6058, 6060

Example 2 : Counting by five's, write five numerals from 3056 onwards.

Solution : Starting from 3056, we add 5.

The required numerals are:

3056, 3061, 3066, 3071, 3076

Example 3 : Counting by ten's, write five numerals from 4015 onwards.

Solution : Starting from 4015, we add 10.

The required numerals are:

4015, 4025, 4035, 4045, 4055

Example 4 : Counting by hundred's, write five numerals from 2056 onwards.

Solution : Starting from 2056, we add 100.

The required numerals are:

2056, 2156, 2256, 2356, 2456

Exercise 2.6

1. Counting by two's, write the numerals from:

   (a) 3059, ...

   (b) 1022, ...

   (c) 2030, ...

   (d) 4056, ...

2. Counting by three's, write the numerals from:

   (a) 1023, ...

   (b) 7328, ...

   (c) 2059, ...

   (d) 2002, ...

3. Counting by five's, write the numerals from:

   (a) 556, ...

   (b) 1525, ...

   (c) 7621, ...

   (d) 2150, ...

4. Counting by twenties, write the numerals from:

   (a) 1030, ...

   (b) 5042, ...

   (c) 6721, ...

   (d) 5892, ...

5. Counting by fifties, write the numerals from:

(a) 1050, ...

(b) 2065, ...

(c) 3012, ...

(d) 1029, ...

Successor And Predecessor

The number just after the given number, is called its successor.

Add 1 to a given number to get its successor.

Subtract 1 from a given number to get its predecessor.

The number just before the given number, is called its predecessor.

Solved Examples

Example 1 : Write the successor of the following numerals:
(a) 329, (b) 462, (c) 1521, (d) 2497, (e) 8000

Solution : Add 1 to the given number,

(a)	Successor of 329	=	329 + 1	=	330
(b)	Successor of 462	=	462 + 1	=	463
(c)	Successor of 1521	=	1521 + 1	=	1522
(d)	Successor of 2497	=	2497 + 1	=	2498
(e)	Successor of 8000	=	8000 + 1	=	8001

Example 2 : Write the predecessor of the following numerals:
(a) 421, (b) 645, (c) 1295, (d) 7321, (e) 7000

Solution : Subtract 1 to the given number:

(a) Predecessor of 421 = 421 – 1 = 420
(b) Predecessor of 645 = 645 – 1 = 644
(c) Predecessor of 1295 = 1295 – 1 = 1294
(d) Predecessor of 7321 = 7321 – 1 = 7320
(e) Predecessor of 7000 = 7000 – 1 = 6999

Exercise 2.7

1. Write the successor of the following numerals:

(a) 7990 ..... (b) 4321 .....
(c) 5625 ..... (d) 1429 .....
(e) 8462 ..... (f) 7469 .....

2. Write the predecessor of the following numerals:

(a) 1435 ..... (b) 6425 ..... (c) 1421 .....
(d) 1008 ..... (e) 2098 ..... (f) 8962 .....

3. Complete the following table:

Predecessor	Numbers	Successor
.....	4165	.....
.....	2986	.....
.....	1453	.....
.....	2009	.....
.....	1081	.....

Comparison Of Numbers

We have already learnt the comparison of numbers upto 3-digits. Now follow the same rule for 4-digit numbers.

Comparing numbers having different number of digits:

Number with more digits is the greater number

1057	>	256
298	>	56
9	>	5

Comparing numbers having same number of digits:

Step 1 : To compare numbers, always begin with the left most digit (or place).
Step 2 : First compare thousands. If they are same, then compare hundreds.
Step 3 : If hundreds are same, then compare tens, and so on.

Solved Examples

Example 1 : Compare 2459 and 2457

Solution : Arrange the numbers in place value chart:

Th	H	T	O
2	4	5	9
2	4	5	7
↑ Same	↑ Same	↑ Same	↑ Different

At ones place,

9 > 7

So,

2459	>	2457

Exercise 2.8

1. Write the correct symbol (> or <) in the placeholders:

(a) 2059 ☐ 2561

(b) 129 ☐ 586

(c) 1029 ☐ 929

(d) 2110 ☐ 2119

(e) 2765 ☐ 2760

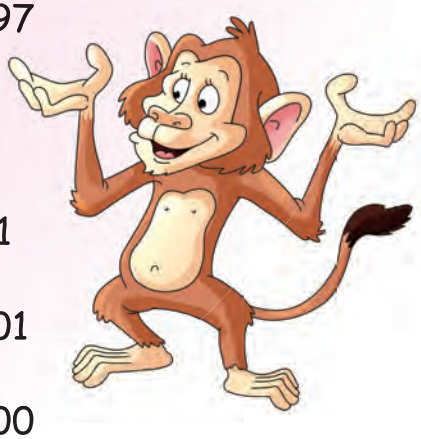
2. Encircle the smallest number:

(a) 236, 941, 535, 642, 156

(b) 1028, 5465, 2091, 9862, 2491

(c) 1200, 1201, 9262, 1001, 2962

(d) 1295, 1293, 1292, 1298, 1297



3. Encircle the largest number:

(a) 276, 142, 596, 172, 981

(b) 1296, 1275, 1283, 1200, 1201

(c) 9800, 9865, 9700, 9200, 1000

(d) 7654, 7601, 7691, 7650, 8800

4. **Write the smallest and greatest 4-digit numbers, with the help of given digits:**

S.No.	Digits	Smallest	Greatest
(a)	7, 2, 0, 9	2079	9720
(b)	5, 4, 3, 6		
(c)	6, 8, 1, 2		
(d)	7, 3, 6, 1		
(e)	5, 6, 2, 0		
(f)	2, 8, 9, 3		
(g)	4, 3, 2, 0		
(h)	7, 2, 9, 5		

Ordering Of Numbers

Ordering of numbers means 'to arrange the numbers in either ascending or descending order'

Ascending order means to arrange the numbers from the smallest to the greatest number.

Descending order means to arrange the numbers from the greatest to the smallest number.

Solved Examples

Example 1 : Arrange the following numbers in ascending order:

2496, 5421, 108, 2965, 980

Solution : Arrange these numbers in place value chart:

Th	H	T	O
2	4	9	6
5	4	2	1
	1	0	8
2	9	6	5
	9	8	0

Clearly,

108 < 980 < 2496 < 2965 < 5421.

So, ascending order of given numbers is:

108, 980, 2496, 2965, 5421.

Example 2 : Arrange the following numbers in descending order:

1095, 985, 4265, 129, 2892

Solution : Arrange these numbers in place value chart:

Th	H	T	O
1	0	9	5
	9	8	5
4	2	6	5
	1	2	9
2	8	9	2

Clearly,

4265 > 2892 > 1095 > 985 > 129

So, descending order of given numbers is:

4265, 2892, 1095, 985, 129.

Exercise 2.9

1. Arrange the following numbers in ascending order:

(a) 4265, 9341, 285, 962, 1298

(b) 1095, 9121, 4365, 129 784

(c) 9865, 7321, 865, 1295 5829

(d) 7695, 8321, 5463, 7321, 280

2. **Arrange the following numbers in descending order:**

(a) 7321, 5469, 9296, 480, 9866

(b) 1465, 7320, 776, 121, 4366

(c) 9865, 9989, 4321, 929, 1000

(d) 9000, 8800, 4000, 5000, 7700

Mental Maths

Fill in the blanks:

(a) The smallest 4 digits number is _____.

(b) The place value of a digits _____ ten times as you move one place from right to left.

(c) The number just after the given number , is called its _____.

(d) The greatest 4 digit number is _____.

Maths Lab Activity

Materials required: Sets of blue, red, orange and green coloured cards numbers from 0 to 9.

Steps:

1. Divide the students into groups of 5 (with one of them as the coordinator).
2. Provide each group with all sets of cards.

a. The green cards stand for ones place.

b. The blue cards stand for tens place.

c. The orange cards stand for hundreds place.

d. The red cards stand for thousand place .

3. The coordinator chooses a 4 digit number randomly and asks his/her group to represent the number with the help of cards.

4. Continue this exercise till all groups have presented at least 4 numbers.

5. Let the students learn the difference between place value and face value.

Example: 5762

3 Roman Numbers

Learning Objectives

At the end of this lesson, students will be able to:

- Identify the Roman numbers.
- Convert the Hindu-Arabics numbers to Roman numbers.

Warm-Up **Let's revise**

Have you ever noticed these symbols in the clock?

What time is it? _____

Teacher's Note: Use the actual clock and show the roman numbers to the students.

People in Ancient India developed ten digits 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9 to represent all numbers.

Arabs spread them to other countries. Therefore, the number formed by these digits are known as Hindu-Arabic numbers or International numbers.

Facts to Know

The Roman number system was developed by the Romans thousands of years ago.
They used only 7 symbols to write numbers.

These symbols are:

I, V, X, L, C, D and M. Each letter has its own different value.

Roman Symbols	I	V	X	L	C	D	M
Value	1	5	10	50	100	500	1000

Roman numbers have no symbol for zero.

Note: In this class, we will discuss the usage of three symbols: I, V and X.

Rules For Writing Roman Numerals

Quick Tip

The only symbols I and X can be repeated to form a number.
No symbol can be repeated more than 3 times.
Symbol V is never repeated.

Rule 1 : Repetition of a roman number means addition.

Examples

II = 1 + 1 = 2
III = 1 + 1 + 1 = 3
XX = 10 + 10 = 20
XXX = 10 + 10 + 10 = 30

Rule 2 : When a smaller number is written on the right of a larger number, we add smaller to the larger one.

Examples

VI = 5 + 1 = 6
VII = 5 + 1 + 1 = 7
XII = 10 + 1 + 1 = 12
XXII = 10 + 10 + 1 + 1 = 22
XXV = 10 + 10 + 5 = 25

Rule 3 : When a smaller number is written on the left of a larger number, we subtract smaller from the larger one.

Examples

IV = 5 – 1 = 4

IX = 10 – 1 = 9

Roman Numbers Table

Hindu-Arabic Numerals	Roman Numerals	Hindu-Arabic Numerals	Roman Numerals	Hindu-Arabic Numerals	Roman Numerals
1	I	15	XV	29	XXIX
2	II	16	XVI	30	XXX
3	III	17	XVII	31	XXXI
4	IV	18	XVIII	32	XXXII
5	V	19	XIX	33	XXXIII
6	VI	20	XX	34	XXXIV
7	VII	21	XXI	35	XXXV
8	VIII	22	XXII	36	XXXVI
9	IX	23	XXIII	37	XXXVII
10	X	24	XXIV	38	XXXVIII
11	XI	25	XXV	39	XXXIX
12	XII	26	XXVI	40	XL
13	XIII	27	XXVII		
14	XIV	28	XXVIII		

Since we cannot repeat X more than 3 times, so we cannot write 40 as XXXX.

So, we write, 40 = 50 – 10 = X L

40 = X L

Exercise 3.1

1. Match the following:

S. No.	Hindu-Arabic Numerals	Roman Numerals
(a)	5	XII
(b)	9	XXVII
(c)	15	V
(d)	12	XXXIII
(e)	25	IX
(f)	33	XV
(g)	27	XVI
(h)	20	XXXVIII
(i)	16	XX
(j)	38	XXV

2. Write the Roman numerals for the following:

(a) 4 ..... (b) 29 .....

(c) 6 ..... (d) 10 .....

(e) 17 ..... (f) 36 .....

3. Write the Hindu-Arabic numerals for the following:

(a) XX ..... (b) IX .....

(c) XIV ..... (d) XXIV .....

(e) IV ..... (f) XXIX .....

4. Which of the following are meaningless? Mark (×) or (✓).

(a) XIIX ..... (b) XXXI .....

(c) XXIX ..... (d) VX .....

(e) XVII ..... (f) XXIVV .....

5. Fill in the placeholders with the correct sign (> or <):

(a) XXVI ▢ XXIV (b) X ▢ XI

(c) XX ▢ XXXIV (d) XXV ▢ XXIV

(e) IX ▢ XII (f) IV ▢ VI

6. Solve the following and write the answer in Hindu-Arabic numerals:

(a) XI + XI = ... (b) XI - XI = ...

(c) XXX + XX = ... (d) XXX - XX = ...

(e) XXI + X = ... (f) XXII - XI = ...

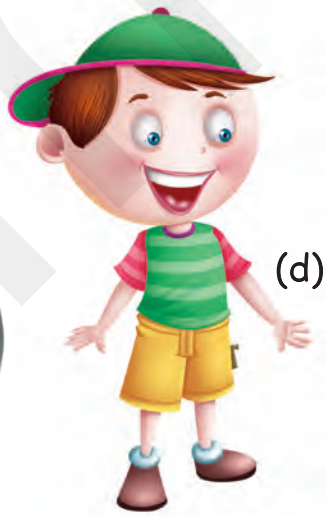
7. Draw the minute hand and hour hand to show the time given below:

(a)

5 o'clock

(b)

Quater past 4



(c)

Quater to 8

(d)

Half past 10

Think Wisely

Arrange the following roman number in ascending order:

XX	XXVI	VI	XXV	XXII

Mental Maths

A. Tick (✓) the correct answer:

1. Roman numeral for 50 is

   i. L ☐ ii. X ☐ iii. C ☐

2. XXII represents

   i. 22 ☐ ii. 32 ☐ iii. 52 ☐

3. 40 is written as

   i. VIII ☐ ii. XL ☐ iii. XXXV ☐

B. Fill in the blanks with Hindu-Arabic numerals.

1. V + _____ = VIII
2. VI + _____ = X
3. XXV - _____ = IX
4. VII + _____ = XV
5. XXX - _____ = XVIII
6. XVIII - _____ = X

Maths Lab Activity

Materials required: Paper sheet with pencil.

Steps:

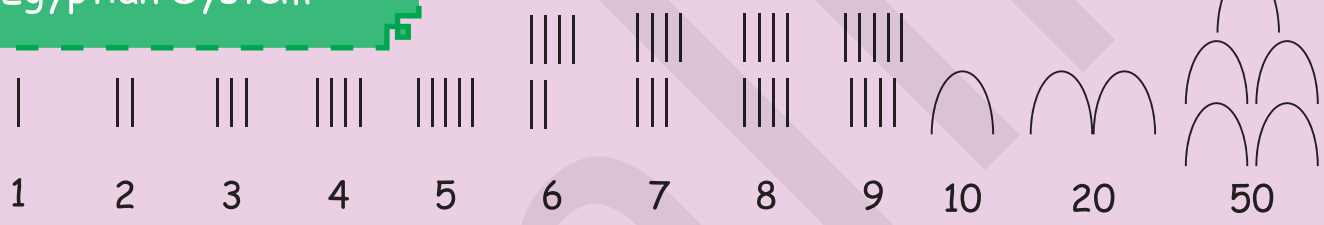
1. Divide the class into groups of 4-5 students.

2. Ask the students about the Hindu Arabic and Roman Numerals. Discuss the differences between the two numerals:

   The Hindu - Arabic numeral system is based on place values, while the roman system uses combinations of symbols to depict a number.

3. Also share and discuss various other number systems such as.

Egyptian System



Hindi System

१	२	३	४	५	६	७	८	९	१०
1	2	3	4	5	6	7	8	9	10

4. Now let the students work in groups and create their system of numbers. They should be encouraged to create a symbol for each digit and give each digit and the number a unique name.

4 Addition

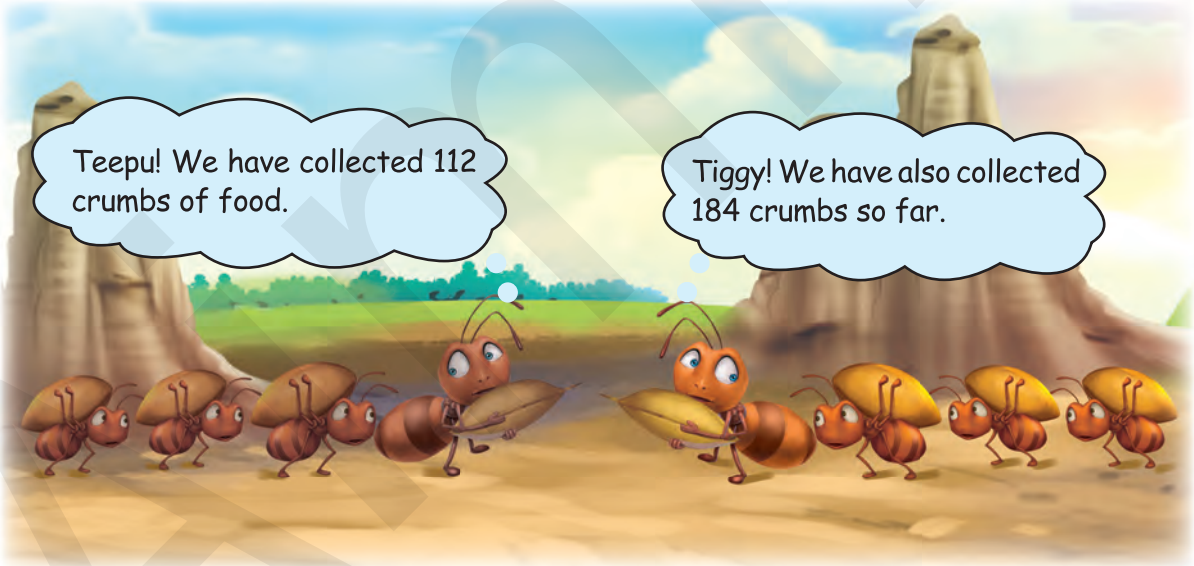
Learning Objectives

At the end of this lesson, students will be able to:

- Add numbers up to 4 digits with or without regrouping.
- Know the properties of addition.
- Solve the story sums based on addition.

Warm-Up

The worker ants are busy collecting food to store in their anthills. Tiggy with her army of ants meet Teepu and her associates on the way.



H	T	O

Total numbers of food crumbs collected = _____

Addition of 4-digit numbers is same as 3-digit numbers.

Addition of 4-Digit Numbers Without Carry Over

Solved Examples

Example 1 : Add: 2054 and 1523

Solution :

Step 1 : Write the numbers in correct column.

Step 2 : First add ones

4 + 3 = 7

Step 3 : Add tens

5 + 2 = 7

Step 4 : Add hundreds

0 + 5 = 5

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

	Th	H	T	O
	2	0	5	4
+	1	5	2	3
				7

	Th	H	T	O
	2	0	5	4
+	1	5	2	3
			7	7

	Th	H	T	O
	2	0	5	4
+	1	5	2	3
		5	7	7

Teacher's Note:

Apprise the students that we can add numbers in any order, for say: 184 + 16 = 16 + 184. The result will be the same, i.e. 200.

Step 5 : Add thousands

2 + 1 = 3

So, 2054 + 1523 = 3577

Addends, Sum

	Th	H	T	O
	2	0	5	4
+	1	5	2	3
	3	5	7	7

Quick Tip

The numbers which are to be added are known as addends.
The result obtained after the addition is known as the sum.

Example 2 : Add: 2051, 3221 and 1304

Solution :

Step 1 : Write in correct column.

Step 2 : Add ones, 1 + 1 + 4 = 6

Step 3 : Add tens, 5 + 2 + 0 = 7

Step 4 : Add hundreds, 0 + 2 + 3 = 5

Step 5 : Add thousands, 2 + 3 + 1 = 6

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

So, 2051 + 3221 + 1304 = 6576

Addends, Sum

exercise 4.1

1. Find the sum:

(a)

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

(b)

	Th	H	T	O
	5	4	2	9
+	3	2	5	0

(c)

	Th	H	T	O
	7	3	2	1
+	2	4	5	6

(d)

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

(e)

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

(f)

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

2. Arrange the numbers in columns and then find the sum:

(a) 8532, 1231 and 205

(b) 3142, 2251 and 2001

(c) 7206, 151 and 50

(d) 2224, 3110, 140 and 101

(e) 1234, 2012, 120 and 23

Addition of 4-Digit Numbers With Carry Over

Solved Examples

Example 1 : Add: 4327 and 2894

Solution :

Step 1 : Write the numbers in correct column.

Th	H	T	O
4	3	2	7
+ 2	8	9	4

Step 2 : Add ones

7 ones + 4 ones = 11 ones

= 1 tens + 1 ones

Th	H	T	O	
		1		← Carry
4	3	2	7	
+ 2	8	9	4	
			1	

Step 3 : Add tens

1 tens + 2 tens + 9 tens

= 12 tens

= 1 hundreds + 2 tens

Th	H	T	O	
	1	1		← Carry
4	3	2	7	
+ 2	8	9	4	
		2	1	

Step 4 : Add hundreds

1 hundreds + 3 hundreds + 8 hundreds

Th	H	T	O	
1	1	1		← Carry
4	3	2	7	
+ 2	8	9	4	
	2	2	1	

= 12 hundreds

= 1 thousands + 2 hundreds

Step 5 : Add thousands

1 thousands + 4 thousands + 2 thousands

= 7 thousands

So, 4327 + 2894 = 7221

	Th	H	T	O
Carry	1	1	1	
	4	3	2	7
+	2	8	9	4
	7	2	2	1

Example 2 : Add: 2396, 1765 and 4321

Solution :

Step 1 : Write in correct column.

Step 2 : Add ones

Step 3 : Add tens

Step 4 : Add hundreds

Step 5 : Add thousands

So, 2396 + 1765 + 4321 = 8482

	Th	H	T	O
	1	1	1	← Carry
	2	3	9	6
	1	7	6	5
+	4	3	2	1
	8	4	8	2

Facts to Know

The earliest discovered artefacts suggest that addition was used between 20,000 and 18,000 years BC.

Exercise 4.2

1. Find the sum:

(a)

	Th	H	T	O
	7	6	2	2
+	1	7	8	5

(b)

	Th	H	T	O
	8	3	2	1
+	1	9	8	9

(c)

	Th	H	T	O
	9	7	6	0
+		3	8	9

(d)

	Th	H	T	O
	9	7	6	5
		1	0	4
+		1	2	9

(e)

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

(f)

	Th	H	T	O
	5	4	3	6
		2	0	9
+	1	9	0	2

2. Arrange the numbers in columns and then find the sum:

(a) 4562, 2789 and 1076

(b) 1097, 276 and 2954

(c) 3721 and 4986

(d) 5436, 2981 and 109

(e) 7642, 983 and 706

Estimation

Estimation means rounding to an approximate value.

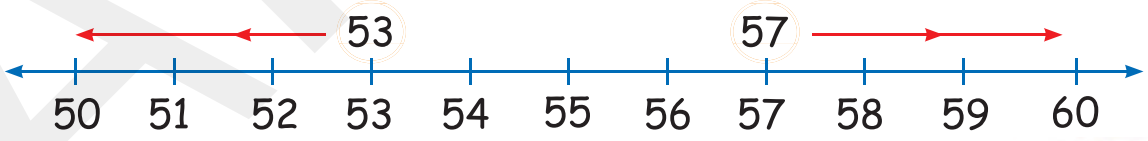
Rounding Numbers

We can round the numbers with the help of a number line.

Solved Examples

Example 1 : Round 53 and 57 to the nearest ten.

Solution :

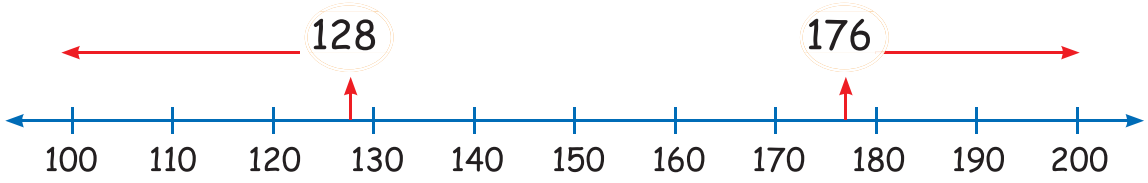


53 is closer to 50. So, 53 is rounded down to 50.

57 is closer to 60. So, 57 is rounded up to 60.

Example 2 : Round 128 and 176 to the nearest hundred.

Solution :



128 is closer to 100. So, 128 is rounded down to 100

176 is closer to 200. So, 176 is rounded up to 200.

Estimation of Sum

Estimation of sum means to get approximate value of sum.

Solved Examples

Example 1 : Estimate the sum of 52 and 68 to the nearest ten.

Solution :

52 is rounded down to 5 0

68 is rounded up to 7 0

Estimated sum

$$\begin{array}{r} 5\ 0 \\ +\ 7\ 0 \\ \hline 1\ 2\ 0 \end{array}$$

Example 2 : Estimate the sum of 124 and 196 to the nearest hundred.

Solution :

124 is rounded down to 100

196 is rounded up to 200

Estimated sum

$$\begin{array}{r} 1\ 0\ 0 \\ +\ 2\ 0\ 0 \\ \hline 3\ 0\ 0 \end{array}$$

Exercise 4.3

1. Round the following numbers to the nearest ten:

(a) 42 ☐ (b) 58 ☐ (c) 21 ☐

(d) 85 ☐ (e) 82 ☐ (f) 9 ☐

2. Round the following numbers to the nearest hundred:

(a) 102 ☐ (b) 186 ☐ (c) 495 ☐

(d) 620 ☐ (e) 535 ☐ (f) 666 ☐

3. Estimate the sum of the following numbers to the nearest ten:

(a) 23 and 56 (b) 82 and 91

(c) 12 and 89 (d) 16, 25 and 36

4. Estimate the sum of the following numbers to the nearest hundred:

(a) 126 and 542 (b) 229 and 658

(c) 721 and 456 (d) 889, 720 and 541

Addition Facts (Properties of Addition):

1. Adding Zero (Additive Property for Zero)

Adding zero to a number is equal to the number itself.

Examples,

86 + 0 = 86

53 + 0 = 53

0 + 79 = 79

0 + 110 = 110

2. Adding numbers that end in zero.

First add the digits and then put the zeros.

For example,

500 + 200 = 700

(5 + 2 = 7)

Now put zeros 700

3. Adding 1:

Adding 1 to a number, increases the value of the one's place digit by 1.

It means it gives its successor.

Examples,

20 + 1 = 21

51 + 1 = 52

169 + 1 = 170

1296 + 1 = 1297

4. Adding 10:

Adding 10 to a number, increases the value of the ten's place digit by 1.

Examples,

425 + 10 = 435

60 + 10 = 70

4381 + 10 = 4391

170 + 10 = 180

5. Adding 100:

Adding 100 to a number, increases the value of the hundred's place digit by 1.

Examples,

326 + 100 = 426

58 + 100 = 158

1295 + 100 = 1395

1400 + 100 = 1500

6. Adding 1000:

Adding 1000 to a number, increases the value of the thousand's place digit by 1.

Examples,

6459 + 1000 = 7459
729 + 1000 = 1729
85 + 1000 = 1085
8000 + 1000 = 9000

7. Commutative Property:

Adding two numbers in any order does not change their sum.

For example, 53 + 22 = 75

22 + 53 = 75

1. Fill in the blanks:

(a) 129 + 0 = ☐ (b) 0 + 721 = ☐

(c) 20 + 10 = ☐ (d) 126 + 10 = ☐

(e) 7325 + 10 = ☐ (f) 26 + 1 = ☐

2. Guess the addends for the following:

(a) 200 + ☐ = 800

(b) 500 + ☐ = 600

(c) ☐ + 100 = 200

Think Wisely **Who am I?**

If 500 is added to me, the answers is 700 = _____

If 300 is added to me, the answer is 450 = _____

If 100+ 160 is added to me, the answers is 500= _____

Word Problems

Example 1 : There are 725 boys and 698 girls in a school. What is the total strength of that school?

Solution : Number of boys in a school = 725

Number of girls in a school = 698

Total strength of the school

= 725 + 698 = 1423

	H	T	O	
	(1)	(1)		← Carry
	7	2	5	
+	6	9	8	
1	4	2	3	

Hence, the total strength of the school is 1423.

Example 2 : Vinay purchased a mobile phone for ₹ 5321 and a cyber shot for ₹ 4265. How much money did he spend?

Solution : Cost of a mobile phone = ₹ 5321

Cost of a cyber shot = ₹ 4265

Total money Vinay spend

= ₹ (5321 + 4265) = ₹ 9586

	Th	H	T	O
	5	3	2	1
+	4	2	6	5
	9	5	8	6

Hence, Vinay spend ₹ 9586.

Exercise 4.5

1. There are 4056 men, 2598 women and 1254 children lives in a village. What is the total population of that village?

2. Kavita had 4625 envelopes. She bought 985 more. How many envelopes does she have now?

3. There are 1025 passengers in a train. 285 more passengers get into the train. How many passengers are there in the train now?

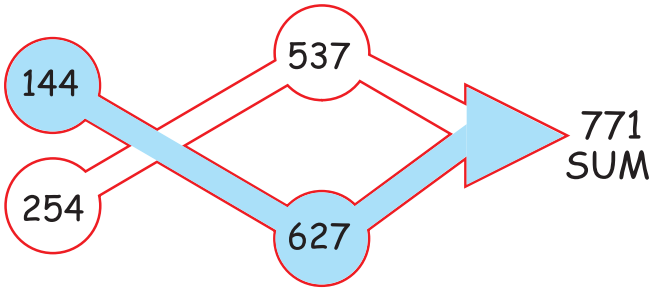
4. Mr. Goyal bought a TV for ₹ 5432, a washing machine for ₹ 3799 and a fan for ₹ 899 from the sale. How much did he pay in all?

5. A number exceeds 5431 by 2650. What is that number?

Mental Maths

Find the two numbers that when added, give you the sum. Then colour the path that leads to the answer. One has been done for you.

1.



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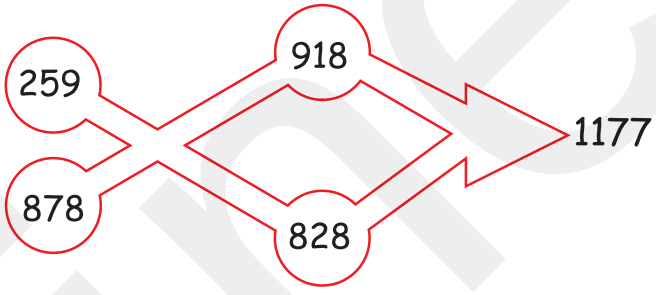

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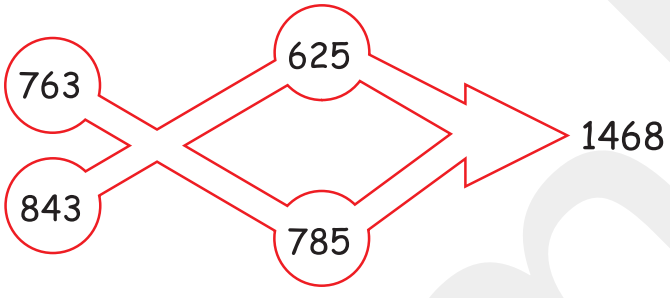

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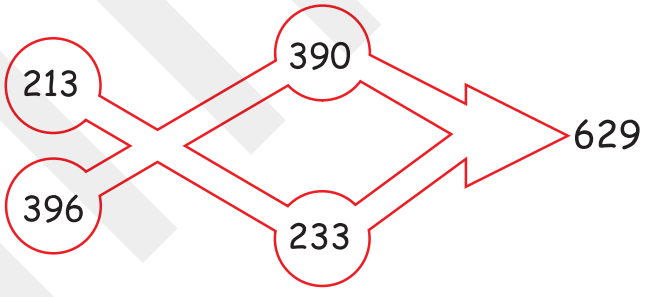

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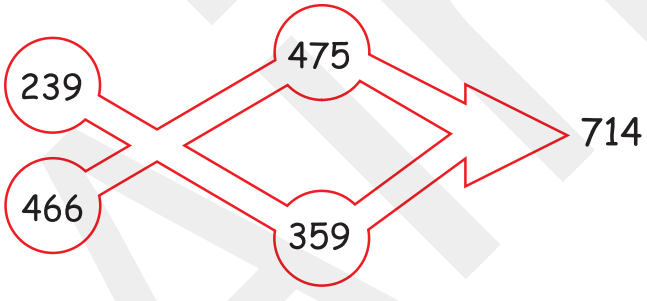

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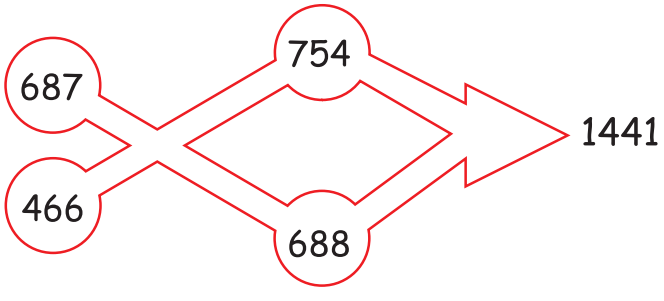


Maths Lab Activity

Materials required:

- 4 sets of cards in 4 different colours with numbers 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9 written on them.
- 4 containers for keeping them.
- Each set of cards to be placed in a separate container. Red cards for 1000s, purple for 100s , pink for 10s and green for 1s.
- Crayons of the same colour for each child.

Steps:

1. The class will be divided into groups of 4 students.
2. 4 children from a group are asked to pick up a card from each container as shown.
3. Another group of children also pick up 4 cards in the same way as shown.
4. Children from both the groups note the numbers and add them as shown.
5. Other groups of 4+4 children are asked to pick up the cards and add as shown in steps 1 - 3 above.
6. At least 4 such sums should be done. More practice will help the children understand the problem better.
7. The children should be asked to use the same colour code for the different digits shown.

Th	H	T	O
2	7	4	3

Th	H	T	O
5	2	8	1

	Th	H	T	O
	2	7	4	3
+	8	0	2	4

5 Subtraction

Learning Objectives

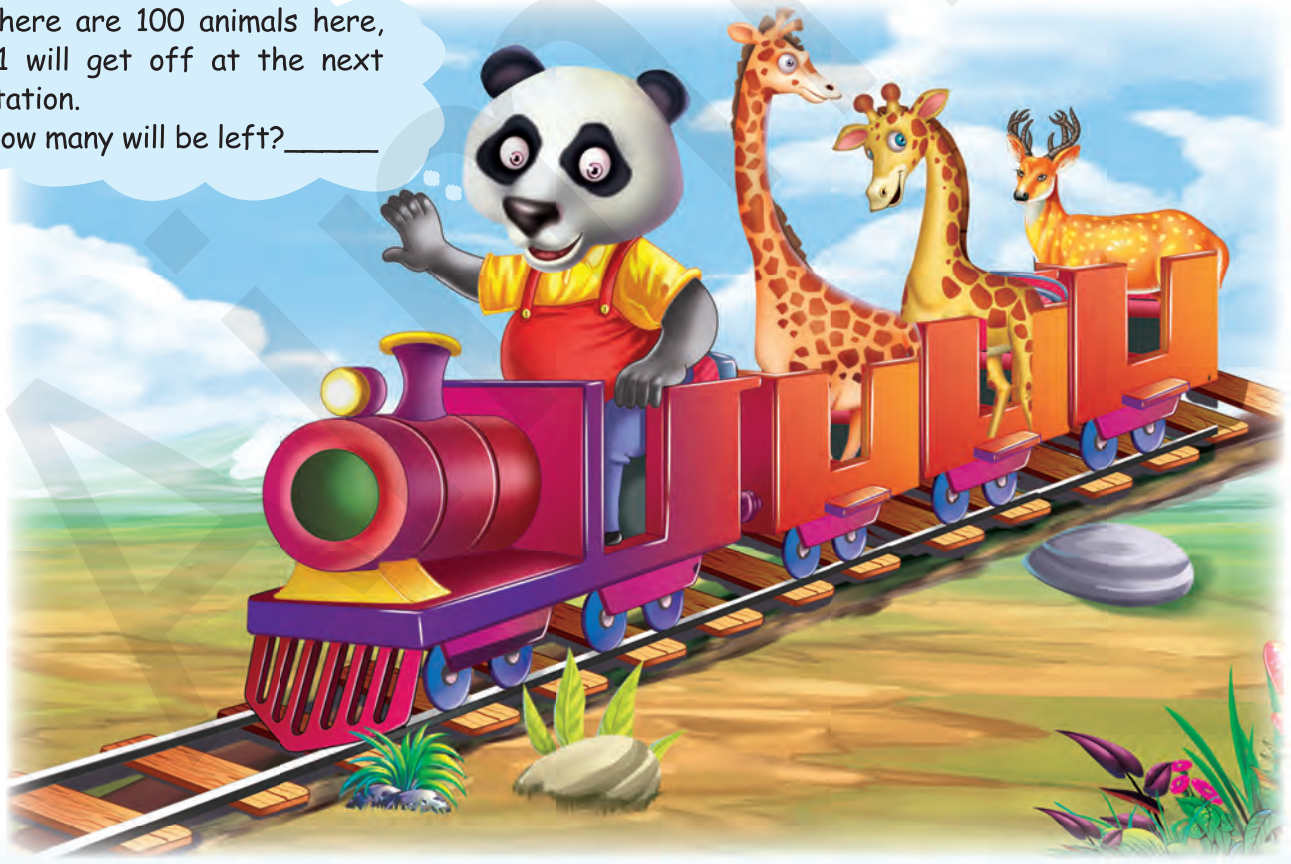
At the end of this lesson, students will be able to:

- Subtract up to 4-digit numbers with and without borrowing.
- Estimate the difference.
- Know the properties of subtraction.

Warm-Up

Dodo and Duggu are giraffes. They were going to visit their grandmother's village by train. The train was managed by a Panda.

There are 100 animals here, 31 will get off at the next station.
How many will be left?_____



Subtraction of 4-digit numbers is same as 3-digit numbers.

Subtraction of 4-Digit Numbers Without Borrow

Solved Examples

Example 1 : Subtract 8562 from 9784.

Solution :

Step 1 : Write the numbers in correct column.

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

Step 2 : First subtract ones.

4 – 2 = 2

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

Step 3 : Subtract tens.

8 – 6 = 2

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

Step 4 : Subtract hundreds.

7 – 5 = 2

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

Teacher's Note:

Explain to the students that when we subtract two numbers, the difference can be positive, negative, or zero, depending on the specific numbers being subtracted.

Step 5 : Subtract thousands.

9 – 8 = 1

So, 9784 – 8562 = 1222

Minuend Subtrahend Difference

	Th	H	T	O
	9	7	8	4
–	8	5	6	2
	1	2	2	2

Example 2 : Find the difference between 5402 and 7564.

Solution : Clearly,

7564 > 5402

So, 7564 – 5402

Step 1 : Write the numbers in correct column.

Step 2 : First subtract ones. 4 – 2 = 2

Step 3 : Subtract tens, 6 – 0 = 6

Step 4 : Subtract hundreds, 5 – 4 = 1

Step 5 : Subtract thousands, 7 – 5 = 2

So, 7564 – 5402 = 2162

Minuend Subtrahend Difference

	Th	H	T	O
	7	5	6	4
–	5	4	0	2
	2	1	6	2

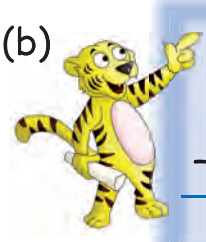
Exercise 5.1

1. Subtract the following:

(a)

	Th	H	T	O
	7	3	2	1
–	5	2	1	0

(b)



	Th	H	T	O
	9	7	6	5
–	4	3	2	2

(c)

	Th	H	T	O
	7	7	7	6
–	6	6	6	5

(d)

	Th	H	T	O
	8	9	4	0
–	8	2	3	0

2. Arrange the numbers in columns and then find the difference between:

(a) 8465 and 7321

(b) 4762 and 3540

(c) 5462 and 4251

(d) 3465 and 2154

(e) 9839 and 7602

Subtraction of 4-Digit Numbers With Borrow

Solved Examples

Example 1 : Subtract 1485 from 6374.

Solution :

Step 1 : Write the numbers in correct column.

Th	H	T	O
6	3	7	4
- 1	4	8	5

Step 2 : First subtract ones.

4 < 5

Take borrow from tens column.

14 - 5 = 9

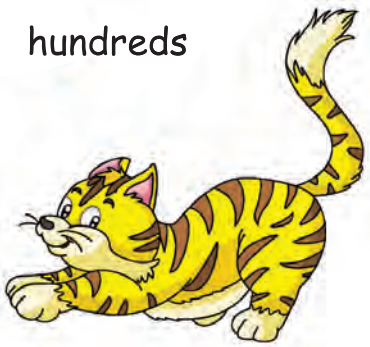
Th	H	T	O
		6	14
6	3	~~7~~	~~4~~
- 1	4	8	5
			9

Step 3 : Subtract tens.

6 < 8

Take borrow from hundreds column.

16 - 8 = 8



Th	H	T	O
	2 16	6	14
6	~~3~~	~~7~~	~~4~~
- 1	4	8	5
		8	9

Step 4 : Subtract hundreds.

2 < 4

Take borrow from thousands column.

12 - 4 = 8

Th	H	T	O
5 12	~~2~~ 16	~~6~~	14
~~6~~	~~3~~	~~7~~	~~4~~
- 1	4	8	5
	8	8	9

Step 5 : Subtract thousands.

5 > 1

So, 5 – 1 = 4

So, 6374 – 1485 = 4889

Th	H	T	O
5 12	2 16	6	14
~~6~~	~~3~~	~~7~~	~~4~~
– 1	4	8	5
4	8	8	9

Example 2 : Subtract 4562 from 8000.

Solution :

Step 1 : Write in correct column.

Step 2 : No Ones, No Tens, No Hundreds.

Let us borrow from thousands.

So, 8000 – 4562 = 3438

Th	H	T	O
7	9	9 10	10
~~8~~	~~0~~	~~0~~	~~0~~
– 4	5	6	2
3	4	3	8

exercise 5.2

1. Find the difference:

(a)

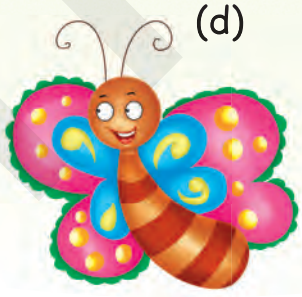
Th	H	T	O
8	3	6	1
– 6	5	8	2

(b)

Th	H	T	O
9	8	4	0
– 7	9	7	2

(c)

Th	H	T	O
7	3	4	5
– 6	4	8	9



(d)

Th	H	T	O
6	0	0	0
– 4	3	2	1

2. Find the difference between:

(a) 4695 and 7390

(b) 6000 and 5321

(c) 8345 and 7987

(d) 3492 and 4007

Estimation of Difference

Solved Examples

Examples 1: Estimate the difference of 67 and 42 to the nearest ten.

Solution :

67 is rounded up to 70

42 is rounded down to 40

Estimated difference =

$$\begin{array}{r} 70 \\ -\ 40 \\ \hline 30 \end{array}$$

Example 2 : Estimate the difference of 909 and 768 to the nearest hundred.

Solution :

909 is rounded down to 900

768 is rounded up to 800

Estimated difference =

$$\begin{array}{r} 900 \\ -\ 800 \\ \hline 100 \end{array}$$

Example 3 : Estimate the difference of 5420 and 8867 to the nearest thousand.

Solution :

8867 is rounded up to 9000

5420 is rounded down to 5000

Estimated difference =

$$\begin{array}{r} 9000 \\ -\ 5000 \\ \hline 4000 \end{array}$$

Exercise 5.3

1. Estimate the difference between the following numbers to the nearest ten:

(a) 59 and 42

(b) 63 and 89

(c) 22 and 36

(d) 69 and 58

2. Estimate the difference between the following numbers to the nearest hundred:

(a) 542 and 125

(b) 229 and 562

(c) 721 and 890

(d) 333 and 777

3. Estimate the difference between the following numbers to the nearest thousand:

(a) 1024 and 7850

(b) 2159 and 8642

(c) 3333 and 8888

(d) 7820 and 4440

Subtraction Facts (Properties of Subtraction)

1. Subtracting bigger number from smaller number:

A bigger number cannot be subtracted from a smaller number.

For example, 1256 – 3829 is not possible.

2. Cannot change order of numbers in subtraction:

We cannot change the order of numbers in the subtraction.

For example, 8324 – 3650 ≠ 3650 – 8324

3. Subtracting itself:

When the number is subtracted from itself, then the answer is always zero.

For example, 4321 – 4321 = 0

4. Subtracting zero:

When the zero is subtracted from a number, then the answer is number itself.

For example, 2769 – 0 = 2769

5. Subtracting 1:

Subtracting 1 from a number, decreases the value of one's place digits by 1.

It means it gives its predecessor.

For example, 1276 – 1 = 1275

6. Subtracting 10:

Subtracting 10 from a number, decreases the value of ten's place digit by 1.

For example, 8126 – 10 = 8116

7. Subtracting 100:

Subtracting 100 from a number, decreases the value of hundred's place digit by 1.

For example, 7321 – 100 = 7221

8. Subtracting 1000:

Subtracting 1000 from a number, decreases the value of thousand's place digit by 1.

For example, 8629 – 1000 = 7629

Exercise 5.4

Fill in the blanks:

(a) 126 – 0 = _____ (b) 732 – 732 = _____

(c) 2465 – 1 = _____ (d) 7321 – 10 = _____

Think Wisely **Who am I?**

If 450 is subtracted from me, the answer is 550. _____

If 3000 is subtracted from me, the answer is 7000. _____

If 100 is subtracted from me, the answer is 100. _____

Word Problems

Solved Examples

Example 1 : There are 2885 passengers in a train. 345 passengers get down from the train. How many passengers are left in the train now?

Solution : Total number of passengers in a train = 2885

Number of passengers get down from the train = 345

	2	8	8	5
-		3	4	5
	2	5	4	0

Number of passengers are left in the train = 2885 – 345

= 2540

Hence, the number of passengers left in the train are 2540.

Example 2 : Mr. Mayank had ₹ 9865. He bought a mobile phone costing ₹ 8820. How much money is left with him?

Solution : Total money Mr. Mayank had = ₹ 9865

Money spent on mobile phone = ₹ 8820

	9	8	6	5
-	8	8	2	0
	1	0	4	5

Money left with Mr. Mayank

= ₹ (9865 – 8820) = ₹ 1045.

Hence, Mr. Mayank is left with ₹ 1045.

Example 3 : How much 2065 is greater than 1029?

Solution : Greater number = 2065

Smaller number = 1029

Difference = 2065 – 1029

= 1036

	2	0	6	5
-	1	0	2	9
	1	0	3	6

Hence, 2065 is greater than 1029 by 1036.

Example 4 : What number must be added to 7321 to get 9000?

Solution :

Sum of two numbers = 9000

One number = 7321

Other number = 9000 – 7321

= 1679

	8	9	9	10
		10	10	
	9	0	0	0
–	7	3	2	1
	1	6	7	9

Hence, 1679 must be added to 7321 to get 9000.

Exercise 5.5

1. Sarthak earns ₹ 7500 in a month. If he saves ₹ 2000 per month. How much money did he spend in every month?

2. How much 6042 is greater than 3541?

3. A kite maker made 1800 kites. He sold 1259 kites out of them. How many kites are left with him?

4. Vikram purchased a dinner set and juicer mixer for ₹ 9865. If the cost of dinner set is ₹ 5990, then what is the cost of the juicer mixer?

5. Sum of two numbers is 9052. If one of the number is 5060, find the other number.

Mixed Operations (Addition and Subtraction)

Quick Tip

If addition and subtraction are given together, then we always first do addition and then subtraction.

Solved Examples

Example 1 : 2150 + 6321 – 5321

Solution :

Step 1 :

	2	1	5	0
+	6	3	2	1
	8	4	7	1

Step 2 :

	8	4	7	1
–	5	3	2	1
	3	1	5	0

Thus, 2150 + 6321 – 5321 = 3150

Example 2 : 5432 – 1265 + 2351 – 3264

Solution : If a number has no sign, then it means the number has '+' sign.

Step 1 : Adding numbers with '+' sign

	5	4	3	2
+	2	3	5	1
	7	7	8	3

Step 2 : Adding numbers with '–' sign

	– 1	2	6	5
(+)	– 3	2	6	4
	– 4	5	2	9

Step 3 : Subtract the second sum (step-2) from the first sum (step-1)

	7	7	8	3
–	4	5	2	9
	3	2	5	4

Thus, 5432 – 1265 + 2351 – 3264 = 3254.

exercise 5.6

1. **Solve the following:**
   (a) 2659 + 5432 – 2695
   (b) 3721 – 2869 + 2659
   (c) 8362 – 5290 + 269
   (d) 5322 – 2812 + 2100 – 1502
   (e) 7321 + 1029 – 2001 – 4095
2. Add 5000 to the difference of 3264 and 2795.
3. Subtract 2010 from the sum of 8000 and 1029.
4. Subtract the difference of 3456 and 2400 from 7890.
5. Subtract the difference of 8000 and 5000 from the difference of 9000 and 2000.

Word Problems on Mixed Operations

Solved Examples

Example 1 : Rajat had ₹ 2500. He bought jeans for ₹ 1200 and a shirt for ₹ 900. How much money is left with Rajat?

Solution :

Money with Rajat = ₹ 2500

Cost of jeans = ₹ 1200

Cost of shirt = ₹ 900

Total money he spent = ₹ (1200 + 900)

= ₹ 2100

Money left with him = ₹ (2500 – 2100)

= ₹ 400

Thus, ₹ 400 is left with him.

Example 2 : The population of a town is 7329. If there are 3930 men and 2000 children, then how many women are there in the village?

Solution :

Total population of a town = 7329

Number of men in a town = 3930

Number of children in a town = 2000

Total number of men and children in a town = 3930 + 2000

= 5930

Number of women in a town = 7329 – 5930 = 1399

Thus, the number of women in a town are 1399.

Exercise 5.7

1. The sum of three numbers is 5020. If two of them are 2000 and 1020, then find the third number.

2. A wire is 5000 *m* long. Two pieces measuring 1045 *m* and 2132 *m* were cut from it. Find the length of the remaining wire.

3. Mr. Raj had to travel 8265 *km*. He travelled 2359 *km* by bus, 3125 *km* by train and rest by aeroplane. What distance did he travel by aeroplane?

4. Mrs. Sharma earn ₹ 7000 per month and Mr. Sharma earn ₹ 8000 per month. They together spend ₹ 6000 per month. How much money do they save together?

5. Raju had ₹ 8620. He purchased a TV for ₹ 5500 and a dinner set for ₹ 3000. How much money is left with him?

Facts to Know

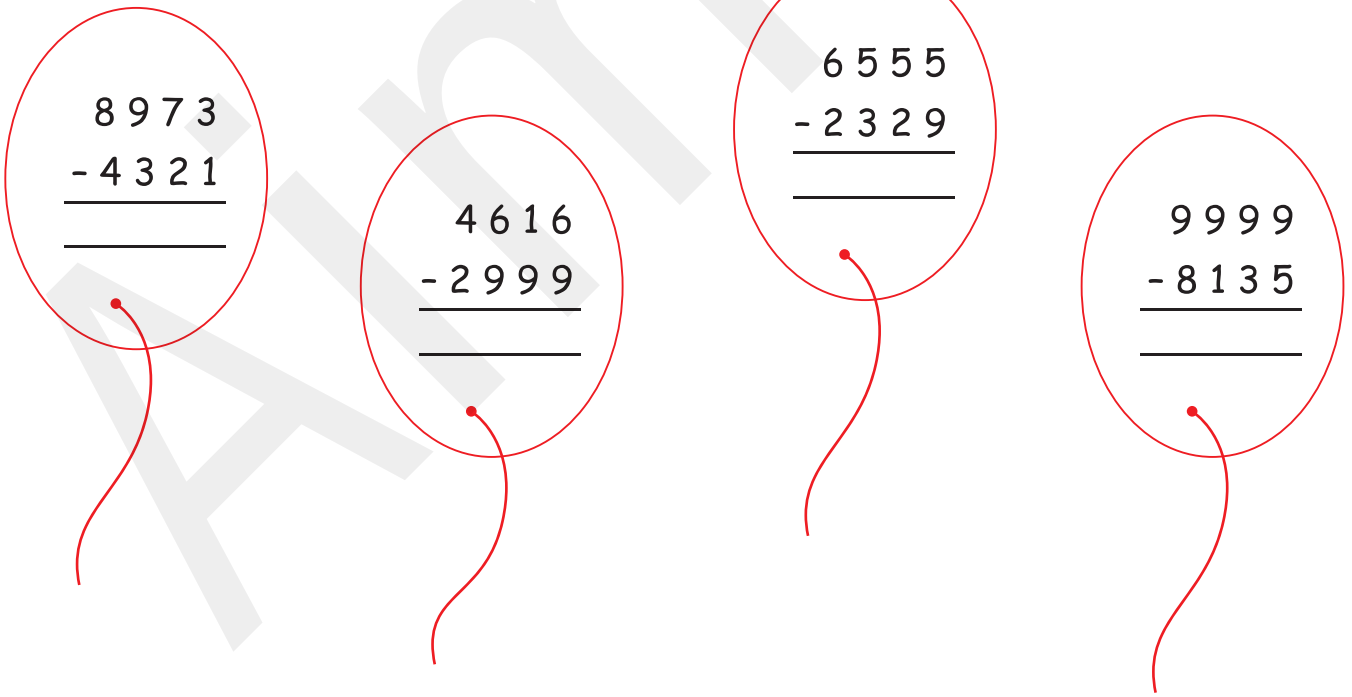
Robert Recorde, the designer of the equals sign, introduced plus and minus to Britain in 1557.

Mental Maths

A. Solve:

1. 204 - 126 + 373 = _____
2. 740 - 214 + 145 = _____
3. 999 - 750 + 800 = _____
4. 444 - 222 + 111 = _____
5. 125 + 234 - 120 = _____

B. Subtract the following



Maths Lab Activity

Materials required: Chits with 3 to 4-digit numbers written on them (one chit for one number), plastic bowls and a scoreboard.

Steps:

1. This activity will be done in teams. A total of 10 teams will be made in the class.

2. Each team will be given a bowl full of number chits.

3. Each member will draw 2 chits from the bowl. For example: chits with the numbers 8976 and 567.

Th	H	T	O
8	9	7	6
-	5	6	7

4. Now, the student will subtract the smaller number from the bigger one.

5. Each member will draw the chits a minimum of 5 times and work out the sums.

6. After each draw, the bowl should be shaken well before the next draw.

7. After all the sums have been worked out the scoring will be done for each team according to a pattern that the teacher decides.

8. The score for each sum will depend upon the difference between the two numbers drawn. For example: the difference between 0 and 100 one mark; the difference between 101 and 200, two marks, etc: or the other way round.

9. The total for each team will decide the winner.

6 Multiplication

Learning Objectives

At the end of this lesson, students will be able to:

- Learn multiplication tables from 11 to 20.
- Multiply 3-digit numbers by 1-digit numbers.
- Apply the skill of multiplication to solve story sums.

Warm-Up

Let's help the customer to calculate the amount he needs to pay.

One shirt costs = ₹ 295

32 shirts cost = ₹ 295 x 32

= _____

Facts to Know

The Babylonians used the oldest known multiplication tables about 4000 years ago.

We have already learnt multiplication tables from 1 to 10.

Let's Study Further..

Multiplication Tables from 11 to 20

Multiplication Tables of 11	Multiplication Table of 12	Multiplication Table of 13
11 × 1 = 11	12 × 1 = 12	13 × 1 = 13
11 × 2 = 22	12 × 2 = 24	13 × 2 = 26
11 × 3 = 33	12 × 3 = 36	13 × 3 = 39
11 × 4 = 44	12 × 4 = 48	13 × 4 = 52
11 × 5 = 55	12 × 5 = 60	13 × 5 = 65
11 × 6 = 66	12 × 6 = 72	13 × 6 = 78
11 × 7 = 77	12 × 7 = 84	13 × 7 = 91
11 × 8 = 88	12 × 8 = 96	13 × 8 = 104
11 × 9 = 99	12 × 9 = 108	13 × 9 = 117
11 × 10 = 110	12 × 10 = 120	13 × 10 = 130

Teacher's Note: Apprise students to practise skip counting. Skip counting is a type of multiplication by repeated addition. For example, skip counting by 11 is the same as the 11 times table: 11, 22, 33, 44, 55, etc.

Multiplication Table of 14

14	×	1	=	14
14	×	2	=	28
14	×	3	=	42
14	×	4	=	56
14	×	5	=	70
14	×	6	=	84
14	×	7	=	98
14	×	8	=	112
14	×	9	=	126
14	×	10	=	140

Multiplication Table of 15

15	×	1	=	15
15	×	2	=	30
15	×	3	=	45
15	×	4	=	60
15	×	5	=	75
15	×	6	=	90
15	×	7	=	105
15	×	8	=	120
15	×	9	=	135
15	×	10	=	150

Multiplication Table of 16

16	×	1	=	16
16	×	2	=	32
16	×	3	=	48
16	×	4	=	64
16	×	5	=	80
16	×	6	=	96
16	×	7	=	112
16	×	8	=	128
16	×	9	=	144
16	×	10	=	160

Multiplication Table of 17

17 × 1	=	17
17 × 2	=	34
17 × 3	=	51
17 × 4	=	68
17 × 5	=	85
17 × 6	=	102
17 × 7	=	119
17 × 8	=	136
17 × 9	=	153
17 × 10	=	170

Multiplication Table of 18

18 × 1	=	18
18 × 2	=	36
18 × 3	=	54
18 × 4	=	72
18 × 5	=	90
18 × 6	=	108
18 × 7	=	126
18 × 8	=	144
18 × 9	=	162
18 × 10	=	180

Multiplication Table of 19

19 × 1	=	19
19 × 2	=	38
19 × 3	=	57
19 × 4	=	76
19 × 5	=	95
19 × 6	=	114
19 × 7	=	133
19 × 8	=	152
19 × 9	=	171
19 × 10	=	190

Multiplication Table of 20

20 × 1	=	20
20 × 2	=	40
20 × 3	=	60
20 × 4	=	80
20 × 5	=	100
20 × 6	=	120
20 × 7	=	140
20 × 8	=	160
20 × 9	=	180
20 × 10	=	200

Exercise 6.1

1. Fill in the blanks:

(a) $13 \times 6 =$ ☐ (b) $12 \times 8 =$ ☐

(c) $15 \times 2 =$ ☐ (d) $17 \times 9 =$ ☐

(e) $11 \times 5 =$ ☐ (f) $12 \times 4 =$ ☐

2. Complete the following patterns:

(a) 11, 22, ☐, ☐, ☐, ☐

(b) 19, 38, ☐, ☐, ☐, ☐

(c) 20, 40, ☐, ☐, ☐, ☐

Multiplication of 3-digit numbers by 1-digit number (Without Carry Over)

Solved Examples

Example 1 : Multiply 413 by 2.

Solution :

Step 1 : Write in correct column.

H	T	O
4	1	3
	×	2

Step 2 : Multiply 3 ones by 2

3 ones × 2 = 6 ones.

H	T	O
4	1	3
	×	2
		6

Step 3 : Multiply 1 tens by 2

1 tens × 2 = 2 tens

H	T	O
4	1	3
	×	2
	2	6

Step 4 : Multiply 4 hundreds by 2

4 hundreds × 2 = 8 hundreds

∴ 413 × 2 = 826

Also,

H	T	O	
4	1	3	← Multiplicand
	×	2	→ Multiplier
8	2	6	← Product

H	T	O
4	1	3
	×	2
8	2	6

Think Wisely

What is the product of face value and place value of 3 in 4983?

exercise 6.2

1. Multiply:

(a)

H	T	O
2	1	3
	×	2

(b)

H	T	O
4	2	1
	×	2

(c)

H	T	O
3	2	0
	×	3

2. Multiply:

(a) 242 × 2 = ____ (b) 312 × 3 = ____

(c) 201 × 3 = ____ (d) 421 × 2 = ____

(e) 112 × 4 = ____ (f) 201 × 4 = ____

Multiplication of 3-digit numbers by 1-digit number (With Carry Over):

Solved Examples

Example 1 : Multiply 645 by 7.

Solution :

Step 1 : Write in correct column.

H	T	O
6	4	5
	×	7

Step 2 : Multiply 5 ones by 7.

5 ones × 7 = 35 ones

= 3 tens + 5 ones

H	T	O
	3	
6	4	5
	×	7
		5

Step 3 : Multiply 4 tens by 7

4 tens × 7 = 28 tens

Now, 28 tens + 3 (carried over)

= 31 tens

= 3 hundreds + 1 tens

H	T	O
3	3	
6	4	5
	×	7
	1	5

Step 4 : Multiply 6 hundreds by 7

6 hundreds × 7 = 42 hundreds

Now, 42 hundreds + 3 (carried over)

= 45 hundreds

= 4 thousands + 5 hundreds

H	T	O
3	3	
6	4	5
	×	7
45	1	5

∴ 645 × 7 = 4515

Multiplicand Multiplier Product

Example 2 : Multiply 759 by 4.

Solution :

H	T	O
2	3	
7	5	9
	×	4
30	3	6

exercise 6.3

1. Multiply:

(a)
7	5	8
	×	2

(b)
8	7	2
	×	6

(c)
9	2	4
	×	5

(d)
8	3	6
	×	7

(e)
4	9	5
	×	8

2. Multiply:

(a) 365 × 7 = ____ (b) 820 × 5 = ____

(c) 462 × 9 = ____ (d) 781 × 6 = ____

(e) 986 × 8 = ____ (f) 329 × 2 = ____

Multiplication Facts (Properties of Multiplication)

1. Multiplicative Property of Zero:

Multiplying zero to a number is always equal to zero.

Examples, 7325 × 0 = 0

129 × 0 = 0

2. Multiplicative Property of 1:

Multiplying 1 to a number is equal to the number itself.

Examples, 2865 × 1 = 2865

735 × 1 = 735

3. Multiplying by 10:

To multiply a number by 10, we simply put a zero to the right of the number.

Examples, 289 × 10 = 2890

7265 × 10 = 72650

4. Multiplying by 100:

To multiply a number by 100, we simply put two zeros to the right of the number.

Examples, 986 × 100 = 98600

5825 × 100 = 582500

5. Multiplying by 1000:

To multiply a number by 1000, we simply put three zeros to the right of the number.

Examples, 731 × 1000 = 731000

4325 × 1000 = 4325000

Quick Tip

To multiply a number by 9, multiply the number by 10. Subtract the number from the product.

= 421 x 9

= 421 x 10 - 421

= 4210 - 421

= 3789

Exercise 6.4

Fill in the blanks:

(a) 435 × 0 = ☐

(b) 7321 × ☐ = 0

(c) 9802 × 1 = ☐

(d) 986 × 100 = ☐

(e) 1000 × 9736 = ☐

(f) 723 × 595 = ☐ × 723

(g) ☐ × 1528 = 1528 × 595

(h) 595 × ☐ = 595

(i) 642 × ☐ = 6420

Multiplication By 10, 20, 30, ..., 90

Example 1 : Multiply 12 by 10

Solution : 12 × 10 = 12 × 1 tens

= 12 tens

= 120

Example 2 : Multiply 32 by 20

Solution : 32 × 20 = 32 × 2 tens

= 64 tens

= 640

Example 3 : Multiply 27 by 60

Solution : 27 × 60 = 27 × 6 tens

= 162 tens

= 1620

Example 4 : Multiply 721 by 80

Solution : 721 × 80 = 721 × 8 tens

= 5768 tens

= 57680

Multiplication By 100, 200, 300, ..., 900

Solved Examples

Example 1 : Multiply 268 by 100

Solution :

$268 \times 100 = 268 \times 1 \text{ hundreds}$

$= 268 \text{ hundreds}$

$= 26800$

Example 2 : Multiply 5 by 300

Solution :

$5 \times 300 = 5 \times 3 \text{ hundreds}$

$= 15 \text{ hundreds}$

$= 1500$

Example 3 : Multiply 8 by 700

Solution :

$8 \times 700 = 8 \times 7 \text{ hundreds}$

$= 56 \text{ hundreds}$

$= 5600$

Example 4 : Multiply 15 by 900

Solution :

$15 \times 900 = 15 \times 9 \text{ hundreds}$

$= 135 \text{ hundreds}$

$= 13500$

Exercise 6.5

Find the products:

(a) $15 \times 10 =$ ☐

(b) $63 \times 20 =$ ☐

(c) $72 \times 30 =$ ☐

(d) $8 \times 800 =$ ☐

(e) $11 \times 900 =$ ☐

(f) $12 \times 600 =$ ☐

Multiplication By 2-digit Numbers

Solved Examples

Example 1 : Multiply 65 by 26.

Solution :

Step 1 : Arrange the numbers in correct column.

	T	O
	6	5
×	2	6

Step 2 : Multiply 65 by 6 ones

$65 \times 6 = 390$ ones

	T	O
	6	5
×	2	6
3	9	0

Step 3 : Multiply 65 by 2 tens

$65 \times 2 = 130$ tens

$= 1300$

		T	O
		6	5
	×	2	6
	3	9	0
+ 1	3	0	0
1	6	9	0

Step 4 : Add both the products.

$390 + 1300 = 1690$

So, $65 \times 26 = 1690$

Example 2 : Multiply 245 by 74.

Solution :

	H	T	O	
	2	4	5	
×		7	4	
	9	8	0	Product of ones
+ 1 7	1	5	0	Product of tens
1 8	1	3	0	Sum of two products

So, $245 \times 74 = 18130$

Exercise 6.6

1. Multiply:

(a)
$$\begin{array}{r} 56 \\ \times\ 17 \\ \hline \end{array}$$

(b)
$$\begin{array}{r} 29 \\ \times\ 53 \\ \hline \end{array}$$

(c)
$$\begin{array}{r} 72 \\ \times\ 89 \\ \hline \end{array}$$

(d)
$$\begin{array}{r} 308 \\ \times\ 56 \\ \hline \end{array}$$

(e)
$$\begin{array}{r} 456 \\ \times\ 73 \\ \hline \end{array}$$

(f)
$$\begin{array}{r} 521 \\ \times\ 34 \\ \hline \end{array}$$

2. Find the product:

(a) 73×56 (b) 24×96 (c) 94×14

(d) 129×72 (e) 682×44 (f) 345×15

Word Problems

Solved Examples

Example 1 : There are 96 pages in a book. How many pages are there in 5 such books?

Solution :

Number of pages in one book = 96

Number of pages in 5 books = 96×5

= 480

$$\begin{array}{r} 96 \\ \times\ 5 \\ \hline 480 \end{array}$$

Hence, there are 480 pages in 5 such books.

Example 2 : A bag of wheat weighs 58 kg. What is the total weight of 725 bags of wheat?

Solution :

Weight of 1 bag of wheat = 58 kg

Weight of 725 bags of wheat = 725×58 kg

= 42050 kg

$$\begin{array}{r} 725 \\ \times\ 58 \\ \hline 5800 \\ +\ 3625\,0 \\ \hline 42050 \end{array}$$

Hence, the total weight of 725 bags is 42050 kg.

Exercise 6.7

1. There are 80 beads in one necklace. How many beads are needed to make 5 such necklaces?

2. The cost of one chocolate is ₹ 6. Find the cost of 15 such chocolates.

3. 67 people can travel in a bus at one time. How many people can travel in this bus in 4 rounds?

4. There are 500 sheets in a pack of papers. How many sheets are there in 20 such packs?

5. A chalk box contains 28 chalk sticks. How many chalk sticks are there in 92 such chalk boxes?

Mental Maths

Fill in the blanks.

1. 60 x _____ = 60
2. _____ x 1 = 40
3. 2 x _____ = 4 x 2
4. _____ x 25 = 0
5. 8 x _____ = 32

Maths Lab Activity

Materials required: $^1/_2$ sheet of chart paper per child, crayons and a set of numbers 2 to 10 written on pieces of paper and folded.

Steps:

1. The teacher gives an example of the table of 9 and the pattern of forms.
2. Each child picks a slip with a digit written on it.
3. With a crayon, the table of the numbers is written.
4. The pattern formed by the products is discovered.
5. Children share the patterns they have discovered.
6. The tables and the patterns formed by them are displayed in the class.

Table of 9

Sum of the digits of the product

9	x	1	=	9	=	9	9
9	x	2	=	18	=	1 + 8	9
9	x	3	=	27	=	2 + 7	9
9	x	4	=	36	=	3 + 6	9
9	x	5	=	45	=	4 + 5	9
9	x	6	=	54	=	5 + 4	9
9	x	7	=	63	=	6 + 3	9
9	x	8	=	72	=	7 + 2	9
9	x	9	=	81	=	8 + 1	9
9	x	10	=	90	=	9 + 0	9

7 Division

Learning Objectives

At the end of this lesson, students will be able to:

- Divide with and without remainder.
- Learn the long division method.
- Apply the skill of division to solve story sums.

Warm-Up

There are 27 sugarcanes. Ollie wants to divide them equally among Tingu, Pingu and Pollie. How many Sugarcanes will each elephant get?

I have 27 sugarcanes.

Ollie

Pollie

Tingu

Pingu

Let's Revise

'Division' means 'equal sharing'

Exercise 7.1

1. Fill in the blanks:

(a) $20 \div 4 =$ ☐

(b) $80 \div 8 =$ ☐

(c) $18 \div 3 =$ ☐

(d) $21 \div 7 =$ ☐

(e) $16 \div 2 =$ ☐

(f) $24 \div 4 =$ ☐

2. Divide:

(a) $9\overline{)81}$

(b) $7\overline{)49}$

(c) $8\overline{)48}$

(d) $5\overline{)35}$

Relationship between Multiplication and Division

$$\text{Divisor}\overline{)\text{Dividend}}\ \text{Quotient}$$

Dividend ÷ Divisor = Quotient

Also, Dividend = Quotient × Divisor

For example,

$$\begin{array}{r} 7 \\ 4\overline{)\,2\,8} \\ -\,2\,8 \\ \hline 0 \end{array}$$

$28 \div 4 = 7$

$28 = 4 \times 7$

Also,

$28 \div 7 = 4$

$28 = 7 \times 4$

Thus,

Multiplication Facts	Divison facts
$4 \times 7 = 28$	$28 \div 4 = 7$
$7 \times 4 = 28$	$28 \div 7 = 4$

Exercise 7.2

1. Find the two division facts for the following:

(a) $4 \times 9 = 36$, ☐ , ☐

(b) $3 \times 4 = 12$, ☐ , ☐

(c) $8 \times 9 = 72$, ☐ , ☐

(d) $8 \times 4 = 32$, ☐ , ☐

(e) $7 \times 5 = 35$, ☐ , ☐

2. Find the dividend using,

Dividend = Divisor × Quotient

(a) ☐ $\div 9 = 9$

(b) ☐ $\div 8 = 6$

(c) ☐ $\div 2 = 8$

(d) ☐ $\div 4 = 3$

(e) ☐ $\div 7 = 6$

(f) ☐ $\div 5 = 9$

Division Facts (Properties of Division):

1. Divide by 1: When a non-zero number is divided by 1, then we get the same number as quotient.

Examples, $5 \div 1 = 5$

$7 \div 1 = 7$

2. Divide by Itself: When a non-zero number is divided by itself, then we get 1 as the quotient.

Examples, $4 \div 4 = 1$

$6 \div 6 = 1$

3. Divide by 0: We cannot divide any number by zero.

Examples, $5 \div 0 = ?$

$6 \div 0 = ?$

4. Zero Divide by Any number

When we divide 0 by any number, then we get 0 as quotient.

Examples, $0 \div 2 = 0$

$0 \div 3 = 0$

exercise 7.3

Fill in the blanks:

(a) $2 \div 2 =$ .....

(b) $5 \div$ ..... $= 1$

(c) $5 \div 1 =$ .....

(d) ..... $\div 2 = 0$

(e) $6 \div 6 =$ .....

(f) $9 \div$ ..... $= 1$

(g) $0 \div 9 =$ .....

(h) $8 \div$ ..... $= 8$

Long Division Method

Division Without Remainder

Solved Examples

Example 1 : Divide 84 by 2.

Solution :

Step 1 : Write the numbers in correct format.

Step 2 : Divide 8 tens by 2.
8 tens ÷ 2 = 4 tens
Write 4 in the tens place in the quotient.
Now, 2 × 4 tens = 8 tens
Write 8 in the tens place below the dividend.

Step 3 : Subtract: 8 tens – 8 tens = 0 tens
Write 0 tens as shown and write down 4 ones as shown.

Step 4 : Divide 4 ones by 2
4 ones ÷ 2 = 2 ones
Write 2 in the ones place in the quotient.
Write 2 × 2 ones = 4 ones below the dividend in ones place.

Step 5 : Subtract: 4 ones – 4 ones = 0

∴ We get 0 as remainder.

So, Dividend = 84,
Divisor = 2,
Quotient = 42,
Remainder = 0.

Also, Check: Divisor × Quotient = Divident

2 × 42 = 84

∴ Answer is correct.

Step 1

	T	O
2)	8	4

Step 2

	T	O
	4	
2)	8	4
−	8	

Step 3

	T	O
	(4)	
2)	8	4
−	8	↓
	0	4

Step 4

	T	O
	4	(2)
2)	8	4
−	8	↓
	0	4
−		4

Step 5

	T	O
	4	(2)
2)	8	4
−	8	↓
	0	4
−		4
		0

Teacher's Note: Inform the students that the remainder is always smaller than the divisor.

Example 2 : Divide 48 by 2.

Solution :

Step 1 : Divide 4 tens by 2

$4 \div 2 = 2$

Step 2 : Divide 8 ones by 2

$8 \div 2 = 4$

So, Dividend = 48

Divisor = 2

Quotient = 24

Remainder = 0

T	O
2	4
2) 4	8
- 4	
0	8
-	8
	0

Example 3 : Divide 903 by 3.

Solution :

Step 1 : Divide 9 hundreds by 3.

$9 \div 3 = 3$

Write 3 in the hundreds place of the quotient.

Step 2 : Divide 0 tens by 3

$0 \div 3 = 0$

Write 0 in the tens place in the quotient.

Step 3 : Divide 3 ones by 3

$3 \div 3 = 1$

Write 1 in the ones place in the quotient.

So, Dividend = 903

Divisor = 3

Quotient = 301

Remainder = 0

H	T	O
3	0	1
3) 9	0	3
- 9		
0	0	
-	0	
	0	3
	-	3
		0

Example 4 : Divide 246 by 2.

Solution :

Step 1 : Divide 2 hundreds by 2

$2 \div 2 = 1$

Step 2 : Divide 4 tens by 2

$4 \div 2 = 2$

Step 3 : Divide 6 ones by 2

$6 \div 2 = 3$

So, Dividend = 246

Divisor = 2

Quotient = 123

Remainder = 0

1	2	3
2) 2	4	6
- 2		
0	4	
-	4	
	0	6
	-	6
		0

Example 5 : Divide 3069 by 3.

Solution :

Step 1 : Divide 3 thousands by 3

$3 \div 3 = 1$

Step 2 : Divide 0 hundred by 3

$0 \div 3 = 0$

Step 3 : Divide 6 tens by 3

$6 \div 3 = 2$

Step 4 : Divide 9 ones by 3

$9 \div 3 = 3$

So, Dividend = 3069

Divisor = 3

Quotient = 1023

Remainder = 0

$$
\begin{array}{r}
1\,0\,2\,3 \\
3\overline{)\,3\,0\,6\,9} \\
-\,3\downarrow \\
\hline
0\,0 \\
-\,0 \\
\hline
0\,6\,9 \\
-\,6\,9 \\
\hline
0
\end{array}
$$

Think Wisely

Find the largest 4 digit number exactly divisible by 8.

Example 6 : Divide 8246 by 2.

Solution :

Step 1 : Divide 8 thousand by 2

$8 \div 2 = 4$

Step 2 : Divide 2 hundred by 2

$2 \div 2 = 1$

Step 3 : Divide 4 tens by 2

$4 \div 2 = 2$

Step 4 : Divide 6 ones by 2

$6 \div 2 = 3$

So, Dividend = 8246

Divisor = 2

Quotient = 4123

Remainder = 0

$$
\begin{array}{r}
4\,1\,2\,3 \\
2\overline{)\,8\,2\,4\,6} \\
-\,8\downarrow \\
\hline
0\,2 \\
-\,2 \\
\hline
0\,4\,6 \\
-\,4\,6 \\
\hline
0
\end{array}
$$

Exercise 7.4

Divide and find the quotient. Also, verify the answers.

(a) 46 ÷ 2 (b) 39 ÷ 3 (c) 48 ÷ 4

(d) 66 ÷ 6 (e) 505 ÷ 5 (f) 5050 ÷ 5

(g) 8000 ÷ 4 (h) 7777 ÷ 7

Division With Remainder

When the number does not divide exactly, then we write remainder at the end.

Now, Dividend = (Divisor × Quotient) + Remainder

Solved Examples

Example 1 : Divide 47 by 2

Solution :

```
    2 3   ← Quotient
2 ) 4 7
  - 4 ↓
  -----
    0 7
    - 6
  -----
      1   ← Remainder
  -----
```

So, Dividend = 47

Divisor = 2

Quotient = 23

Remainder = 1.

Check: (Divisor × Quotient) + Remainder = Dividend

(2 × 23) + 1 = 47

∴ Answer is correct.

Example 2 : Divide 847 by 4

Solution :

$$
\begin{array}{r}
211 \\
4\overline{)847} \\
-8\downarrow \\
\hline
04 \\
-4 \\
\hline
07 \\
-4 \\
\hline
3
\end{array}
$$

So, Quotient = 211

Remainder = 3

Example 3 : Divide 6395 by 3

Solution :

$$
\begin{array}{r}
2131 \\
3\overline{)6395} \\
-6\downarrow \\
\hline
03 \\
-3\downarrow \\
\hline
09 \\
-9 \\
\hline
05 \\
-3 \\
\hline
2
\end{array}
$$

So, Quotient = 2131

Remainder = 2

Facts to Know

The Division was introduced by the Swiss mathematician Johann Heinrich Rahn in his work Teutsche Algebra (1659).

Exercise 7.5

Find the quotient and remainder. Also, verify the answers.

(a) $3\overline{)67}$ (b) $4\overline{)87}$ (c) $5\overline{)508}$

(d) $6\overline{)669}$ (e) $3\overline{)6938}$ (f) $4\overline{)8049}$

Division With Regrouping

Example 1 : Divide 98 by 2

Solution :

Step 1 : Divide 9 tens by 2

2 × 4 = 8 tens

2 × 5 = 10 tens

(10 tens is bigger than 9 tens)

So, we take 2 × 4 = 8

Step 2 : Write 4 in the quotient.

Step 3 : Subtract 8 from 9. So, we get 1 as remainder.

Step 4 : Now write 8 ones to the right of 1.

18 is new dividend.

Step 5 : Divide, 18 by 2.

18 ÷ 2 = 9.

Step 6 : Write 9 in the quotient.

So, Quotient = 49

Remainder = 0

```
   4 9
2 ) 9 8
  - 8 ↓
    1 8
  - 1 8
      0
```

Example 2 : Divide 586 by 4

Solution :

Step 1 : Divide 5 hundreds by 4.

4 × 1 = 4 hundreds

4 × 2 = 8 hundreds

(8 hundreds is greater than 5 hundreds)

So, we take 4 × 1 = 4.

Step 2 : Write 1 in the quotient.

Step 3 : 5 – 4 = 1

We get 1 as remainder.

Step 4 : Now write 8 tens to the right of 1.

18 is new dividend.

Step 5 : Divide 18 by 4.

18 ÷ 4

4 × 4 = 16 tens

4 × 5 = 20 tens

```
    1 4 6
4 ) 5 8 6
  - 4 ↓   ↓
    1 8   ↓
  - 1 6   ↓
    0 2 6
      2 4
      0 2
```

(20 tens is greater than 18 tens)
So, we take 4 × 4 = 16.
Write 4 in the quotient.
Remainder = 2.

Step 6 : Bring down 6 to the right of 2.
Now, 26 is new dividend
4 × 7 = 28
28 > 26, so we take 4 × 6 = 24.
Write 6 as quotient and 2 as remainder.
So, Quotient = 146
Remainder = 2

Example 3 : Divide 6792 by 8

Solution :

Step 1 : We start with thousands, 6 thousands is less than the divisor 8.
So, we take thousands and hundreds together.

Step 2 : 67 is dividend.
67 ÷ 8 (8 × 8 = 64)
So, (Quotient = 8)
and (Remainder = 3).

```
     8 4 9
8 ) 6 7 9 2
  - 6 4
    -----
      3 9
    - 3 2
    -------
        7 2
      - 7 2
      -----
          0
```

Step 3 : Now write 9 to the right of 3
39 is new dividend.
39 ÷ 8 (8 × 4 = 32)
(Quotient = 4)
(Remainder = 7).

Step 4 : Now write 2 to the right of 7
New dividend is 72
72 ÷ 8 (8 × 9 = 72)
(Quotient = 9)
(Remainder = 0)
So, Quotient = 849
Remainder = 0

Exercise 7.6

Find the quotient and remainder. Also, verify the answers.

(a) 7642 ÷ 6 (b) 5393 ÷ 3 (c) 6429 ÷ 2

(d) 1765 ÷ 4 (e) 76 ÷ 7 (f) 674 ÷ 5

Division by 10

Quick Tip

When we divide any number by 10, the digit in ones place is always the remainder. Other digits of the dividend makes the quotient.

Solved Examples

Example 1 : Divide 85 by 10

Solution :

T	O
8	5

Quotient Remainder

Let's see:

$$\begin{array}{r} 8 \\ 10\overline{)\,8\;5} \\ -\,8\;0 \\ \hline 5 \end{array}$$

Quotient = 8

Remainder = 5

Example 2 : Divide 126 by 10

Solution : Dividend = 12 6

Quotient Remainder

$$\begin{array}{r} 12 \\ 10\overline{)126} \\ -10\downarrow \\ \hline 26 \\ -20 \\ \hline 6 \end{array}$$

Quotient = 12

Remainder = 6

Example 3 : Divide 2895 by 10

Solution : Dividend = 289 5

Quotient Remainder

$$\begin{array}{r} 289 \\ 10\overline{)2895} \\ -20\downarrow \\ \hline 89 \\ -80\downarrow \\ \hline 95 \\ -90 \\ \hline 5 \end{array}$$

Quotient = 289

Remainder = 5

Exercise 7.7

Find the quotient and remainder:

(a) 28 ÷ 10 (b) 56 ÷ 10 (c) 825 ÷ 10

(d) 543 ÷ 10 (e) 3962 ÷ 10 (f) 4865 ÷ 10

Word Problems

Solved Examples

Example 1 : A teacher distributes 30 pencils among 5 children. How many pencils does each child get?

Solution : Total number of pencils = 30

Total number of children = 5

Now, we have to divide 30 pencils among 5 children.

So, number of pencils each child will get = 30 ÷ 5

= 6

Hence, each child will get 6 pencils.

Example 2 : A chocolate costs ₹ 5. How many such chocolates can be purchased for ₹ 60?

Solution :

Total cost of chocolates purchased = ₹ 60

Cost of one chocolate = ₹ 5

Number of chocolates purchased for ₹ 60 = 60 ÷ 5

= 12

Hence, 12 chocolates can be purchased for ₹ 60.

```
    1 2
5 ) 6 0
  - 5
    1 0
  - 1 0
      0
```

Example 3 : The product of two numbers is 750. If one of them is 6, find the other number.

Solution :

Product of two numbers = 750

One number = 6

The other number = 750 ÷ 6

= 125

Hence, the other number is 125.

```
    1 2 5
6 ) 7 5 0
  - 6
    1 5
  - 1 2
      3 0
    - 3 0
        0
```

Example 4 : A man is walking at the rate of 3 *km* per hour. How long does he take to cover 135 *km*?

Solution :

Total distance to be covered by man = 135 *km*

Distance covered in 1 hour = 3 *km*

Time taken to cover the whole distance

= 135 ÷ 3

= 45 hours.

Hence, the man will take 45 hours to cover 135 *km*.

```
    4 5
3 ) 1 3 5
  - 1 2
      1 5
    - 1 5
        0
```

Example 5 : 829 students are divided into 5 teams equally. How many students are there is each team? How many extra students are left over?

Solution :

Total number of students = 829

Number of teams = 5

Students in each team = 829 ÷ 5

On dividing, we get

Quotient = 165

Remainder = 4

```
     1 6 5
5 ) 8 2 9
  - 5
    3 2
  - 3 0
      2 9
    - 2 5
        4
```

Hence, there are 165 students in each team and 4 extra students left over.

exercise 7.8

1. Priya has 84 dolls. She put them equally in 4 boxes. How many dolls are there in each box?

2. If 269 biscuits to be put in 3 packets equally, how many biscuits will be packed in one packet? How many biscuits remains unpacked?

3. How many weeks are there in 420 days?

4. How many bundles of 9 candles each can be made from 9065 candles? How many candles are left over?

5. 3046 burgers are to be packed equally in 8 cartons. How many burgers are there in each carton? How many burgers are left?

Mental Maths

A. Tick (✓) the correct answer:

1. What is the dividend in the expression 850 ÷ 17 = 50 ?

   i. 17 ☐ ii. 850 ☐ iii. 50 ☐

2. What do we have as a remainder if 96 is divided by 7?

   i. 5 ☐ ii. 4 ☐ iii. 3 ☐

3. 0 ÷ 12 equals

   i. 1 ☐ ii. 12 ☐ iii. 0 ☐

4. How many groups of 8 are there in 96 ?

   i. 14 ☐ ii. 12 ☐ iii. 13 ☐

Maths Lab Activity

Materials required: Paper and pencil , chits with digits 0 to 9 written on them, playing cards with numbers 2 to 9 only.

Steps:

1. This activity will be done by dividing the class into two teams.

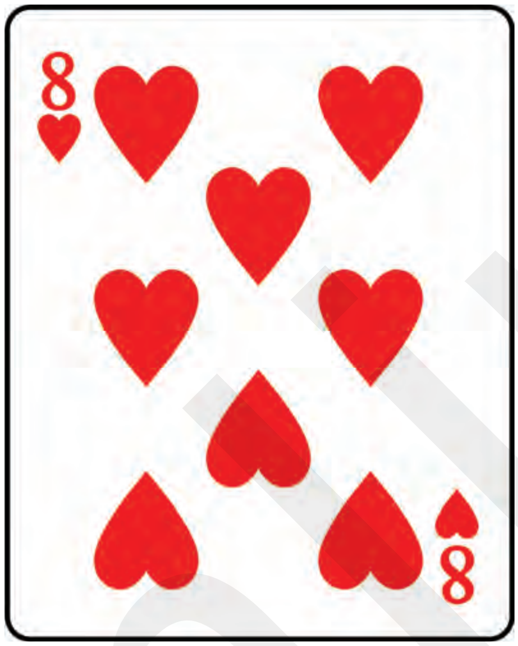
2. Each team has a bowl of chits (0 to 9) and playing cards (2 to 9 only).

3. Three chits will be picked up by the students with digits, say 7,4 and 9 written on them.

4. They will make the biggest possible number with these digits.

7 4 9 → 9 7 4

5. Another student will draw cards from the playing cards. Suppose he draws a card numbered 8.



6. The number created with the chits will be divided by 8 from the card and the result will be noted as quotient and remainder.

7. The other team will repeat the activity with different numbers .

8. Quotients of the two teams will be compared, and the team with the higher value will be awarded points.

9. A total of 10 problems will be worked out.

10. Total number of points will be added and the team with the highest score will be declared the winner.

```
      1   2   1
    ___________
 8 ) 9   7   4
    -8
    ----
     1   7
    -1   6
    --------
         1   4
         -   8
        -------
             6
```

8 Measurement of Length

Learning Objectives

At the end of this lesson, students will be able to:

- Name the standard units of length.
- Convert the units into another.
- Add, subtract, multiply and divide the lengths.

Warm-Up

Tinnu wants to buy a red ribbon. She goes to a shop.

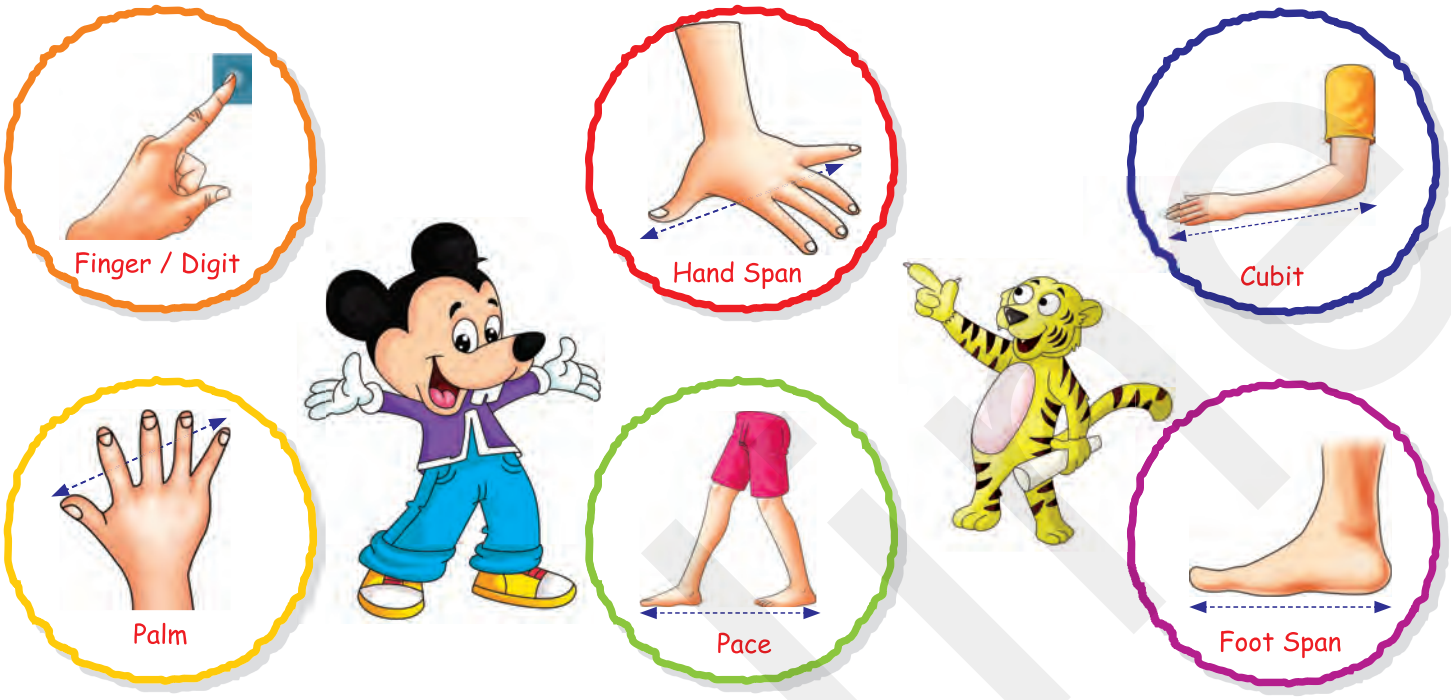
In the above picture, we can see that 5 handspans of a shopkeeper = 9 handspans of Tinnu.

Can you tell why there is such a difference in measurement? _____

Teacher's Note: Apprise the students that measuring length using body parts of the same object by different people results in different measurements.

Length of an object tells us how long it is.

Sometimes, we measure the length of objects using non-standard units like:



But, these units are not accurate and uniform because the length of body parts (or objects) can be different from person to person.

Facts to Know

Units of length based on the human body have been used for thousands of years. This continued until a major change occurred about 200 years ago.

Standard Units of Length

Standard units of length gives an accurate and uniform result.

Millimetre (mm)

Millimetre is the smallest unit used for measuring length. It is used when we need exact measurement.

Look at the ruler given below:

The small lines between the two digits on the ruler shows the millimetres.
In short, millimetre is written as *mm*.

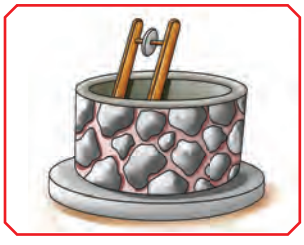
Centimetre (cm)

Centimetre is the most smallest unit of length.

For example, length of 7 pencils, length of line segments, a small piece of cloth, etc. In short, centimetre is written as *cm*.

$1\ cm = 10\ mm$

Metre (m)



Metre is the standard unit used for measuring long lengths.
For example, length of a wall, length of cloth, height of a pole, depth of a well, etc.
In short, metre is written as *m*.

$1\ m = 100\ cm$

Kilometre (km)

Kilometre is the biggest unit of length, used for measuring long distances.
For example length of a road, distance between two cities, etc.
In short, kilometre is written as *km*.

$1\ km = 1000\ m$

Exercise 8.1

Write the suitable unit (*m, cm, km*) to measure the following ;

(a) The length of a river ..... 

(b) The height of a wall ..... 

(c) The length of a ice cream ..... 

(d) Distance from your home to school ..... 

(e) Length of a saree ..... 

(f) Length of a pen ..... 

Conversion

We can convert one unit into another.

To Convert Metre into Centimetre and Vice-Versa

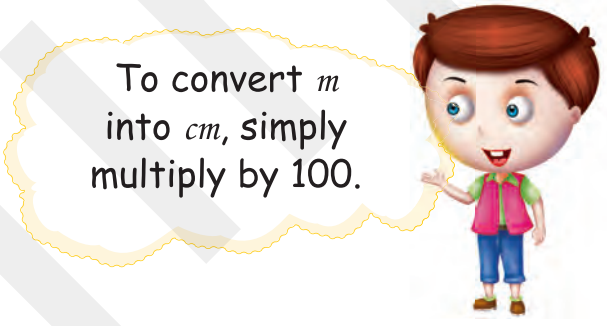
$1\ m = 100\ cm$

or, $1\ cm = \frac{1}{100}\ m = (1 \div 100)\ m$

Solved Examples

Example 1 : Convert 15 m into cm.

Solution :
15 m
$= (15 \times 100)\ cm$
$= 1500\ cm$



Example 2 : Convert 7 m 80 cm in cm.

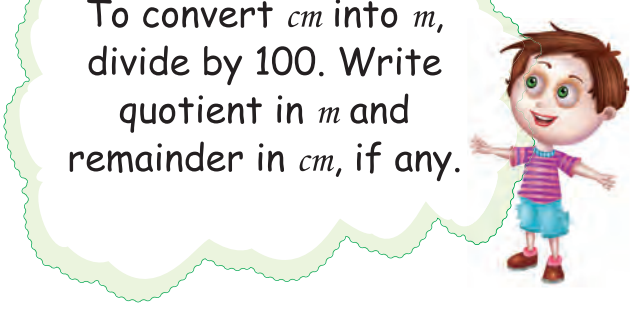
Solution :
7 m 80 cm
$= (7 \times 100)\ cm + 80\ cm$
$= 700\ cm + 80\ cm$
$= 780\ cm$

Example 3 : Convert 500 cm into m.

Solution : $500\ cm = (500 \div 100)\ m = 5\ m$.

Example 4 : Convert 625 cm into m and cm.

Solution :
625 cm
$= (625 \div 100)\ m$
Quotient = 6 m
Remainder = 25 cm
= 6 m 25 cm



Another method:

625 cm $= (6 \times 100)\ m + 25\ cm$
$= 6\ m + 25\ cm$
$= 6\ m\ 25\ cm$

$$\begin{array}{r} 6 \\ 100\overline{)\ 6\ 25} \\ -\ 6\ 00 \\ \hline 25 \end{array}$$

To Convert Kilometre into Metre and Vice-Versa

1 *km* = 1000 *m*

or, $1\ m = \frac{1}{1000}\ km = (1 \div 1000)\ km$

Solved Examples

Example 1 : Convert 6 *km* into *m*.

Solution : 6 *km*

= (6 × 1000) *m*

= 6000 *m*

Quick Tip

To convert *km* into *m*, put there zeroes or 000 to that number.

Example 2 : Convert 5 *km* 860 *m* into *m*.

Solution : 5 *km* 860 *m* = (5 × 1000) *m* + 860 *m*

= 5000 *m* + 860 *m*

= 5860 *m*

To convert *m* into *km*, divide by 1000. Write quotient in *km* and remainder in *m*, if any.

Example 3 : Convert 5000 *m* into *km*.

Solution : 5000 *m* = (5000 ÷ 1000) *km*

= 5 *km*

Example 4 : Convert 7352 *m* into *km* and *m*.

Solution : 7352 *m* = (7352 ÷ 1000) *km*

Quotient = 7

Remainder = 352

= 7 *km* 352 *m*

```
        7
1000 ) 7 352
     - 7 000
     -------
       352
```

Another method:

7352 *m*

= (7 × 1000) *km* + 352 *m*

= 7 *km* + 352 *m*

= 7 *km* 352 *m*

Exercise 8.2

1. Convert the following into centimetres:

(a) 50 *m* (b) 26 *m*

(c) 85 *m* (d) 7 *m*

(e) 6 *m* 82 *cm* (f) 5 *m* 96 *cm*

2. Convert the following into 'metres and centimetres':

(a) 800 *cm* (b) 485 *cm*

(c) 320 *cm* (d) 986 *cm*

(e) 7029 *cm* (f) 9865 *cm*

3. Convert the following into metres:

(a) 4 *km* (b) 80 *km*

(c) 5 *km* 220 *m* (d) 3 *km* 860 *m*

(e) 9 *km* 895 *m* (f) 7 *km* 780 *m*

4. Convert the following into 'kilometres and metres':

(a) 2095 *m* (b) 1109 *m*

(c) 8000 *m* (d) 9829 *m*

(e) 5462 *m* (f) 1052 *m*

Addition of Lengths

Addition of lengths is exactly similar to the ordinary addition.

Example 1 : Add 29 *m* 53 *cm* and 46 *m* 20 *cm*

Solution :

Step 1 : Arrange in *m* and *cm* columns respectively.

Step 2 : Add figures in *cm* column

53 *cm* + 20 *cm*

= 73 *cm*

	m	*cm*
1	29	53
+	46	20
	75	73

Step 3 : Add figures in m column

29 m + 46 m

= 75 m

$\therefore$ 29 m 53 cm + 46 m 20 cm = 75 m 73 cm

Example 2 : Add 36 m 82 cm, 29 m 50 cm and 42 m 93 cm.

Solution : Sum

= 109 m 25 cm

m	cm
1 2	
36	82
29	50
42	93
109	25

Example 3 : Add 16 km 329 m and 12 km 186 m.

Solution :

Step 1 : Arrange in km and m columns, respectively.

Step 2 : Add m

329 m + 186 m = 515 m

Step 3 : Add km

16 km + 12 km = 28 km

$\therefore$ Sum = 28 km 515 m

km	m
	1 1
16	329
+ 12	186
28	515

Example 4 : Add 2 km 986 m, 5 km 289 m and 7 km 180 m.

Solution : = 15 km 455 m

km	m
1	2 1
2	986
5	289
+ 7	180
15	455

Exercise 8.3

1. Add the following:

(a)

m	cm
29	52
+ 63	98

(b)

m	cm
60	42
+ 20	89

(c)

km	m
29	52
8	205
+ 6 3	98

(d)

km	m
36	252
34	298
+ 62	910

2. Arrange in columns and then add the following:

(a) 92 *m* 26 *cm* and 28 *m* 56 *cm*
(b) 28 *m* 56 *cm*, 59 *m* 20 *cm* and 60 *m* 6 *cm*
(c) 30 *km* 25 *m* and 26 *km* 309 *m*
(d) 12 *km* 102 *m*, 3 *km* 986 *m* and 25 *km* 118 *m*
(e) 19 *m* 20 cm, 23 *m* 15 *cm*, 58 *m* 60 *cm* and 83 *cm*

Subtraction of Lengths

Subtraction of lengths is exactly similar to the ordinary subtraction.

Example 1 : Subtract 26 *m* 29 cm from 38 *m* 40 *cm*.

Solution :

Step 1 : Arrange in *m* and *cm* columns, respectively.

Step 2 : Subtract *cm*

40 *cm* - 29 *cm* = 11 *cm*

Step 3 : Subtract *m*

38 *m* - 26 *m* = 12 *m*

∴ Difference = 12 *m* 11 *cm*

m	cm
	3 10
38	~~40~~
- 26	29
12	11

Example 2 : Subtract 48 *m* 26 cm from 50 *m* 22 *cm*.

Solution : Difference = 1 *m* 96 cm

m	cm
4 ~~10~~ 9	11 12
~~50~~	~~22~~
- 48	26
1	96

Example 3 : Subtract 32 *km* 223 *m* from 46 *km* 232 *m*.

Solution :

Step 1 : Arrange in *km* and *m* columns, respectively.

Step 2 : Subtract *m*

232 *m* - 223 *m* = 009 *m*

Step 3 : Subtract *km*

46 *km* - 32 *km* = 14 *km*

∴ Difference = 14 *km* 9 *m*

km	m
	2 12
4 6	2 ~~3~~ ~~2~~
- 3 2	2 2 3
1 4	0 0 9

Example 4 : Subtract 39 *km* 20 *m* from 50 *km* 289 *m*

Solution :

km	*m*
4 10	
~~50~~	289
- 39	020
11	269

∴ Difference = 11 *km* 269 *m*

Exercise 8.4

1. Subtract the following:

(a)

m	*cm*
29	34
- 19	39

(b)

m	*cm*
27	56
- 18	68

(c)

km	*m*
200	569
- 182	296

(d)

km	*m*
502	280
- 499	342

2. Arrange in columns and then find the difference:

(a) 60 *m* and 5 *m* 29 *cm*

(b) 59 *m* 62 *cm* and 48 *m* 89 *cm*

(c) 260 *km* 50 *m* and 129 *km* 656 *m*

(d) 500 *km* 129 *m* and 386 *km* 60 *m*

(e) 235 *km* 123 *m* and 186 *km* 945 *m*

Think Wisely

From a 70 m long roll of wire, a piece of length 25m 4cm is cut off. How much wire is left on the roll?

Multiplication of Lengths

Multiplication of lengths is exactly similar to the ordinary multiplication.

Example 1 : Multiply 236 *m* 15 *cm* by 3.

Solution :

m	*cm*
1 1	1
2 3 6	1 5
×	3
7 0 8	4 5

Product = 708 *m* 45 *cm*

Example 2 : Multiply 46 *km* 705 *m* by 5.

Solution :

km	*m*
3 3	2
4 6	7 0 5
	× 5
2 3 3	5 2 5

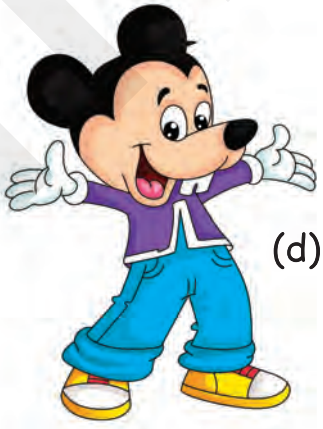
Product = 233 *km* 525 *m*

exercise 8.5

Multiply:

(a)

m	*cm*
4 6	5 2
	× 3



(b)

m	*cm*
2 9	5 0
	× 4

(c)

km	*m*
8 3	2 0 9
	× 7

(d)

km	*m*
1 5 2	1 0 2
	× 2

Division of Lengths

Division of lengths is exactly similar to the ordinary division.

Example 1 : Divide 225 *m* 80 *cm* by 5.

Solution :

```
       m        cm
5 ) 2 2 5     8 0 ( 45 m
  - 2 0
  -----
      2 5
    - 2 5
    -----
      0 0   5 ) 8 0 ( 16 cm
                5
               ---
                3 0
              - 3 0
               ----
                0 0
```

Quotient = 45 *m* 16 *cm*

Remainder = 0

Example 2 : Divide 306 *km* 39 *m* by 3

Solution :

```
       km        m
3 ) 3 0 6     3 9 ( 102 km
  - 3
  -----
    0 0 6
  -     6
   ------
        0   3 ) 3 9 ( 13 m
                3
               ---
                0 9
              -   9
               ----
                  0
```

Quotient = 102 *km* 13 *m*

Remainder = 0

Exercise 8.6

Divide:

(a) 366 *km* 108 *m* by 3
(b) 286 *km* 60 *m* by 2
(c) 497 *m* 70 *cm* by 7
(d) 51 *m* 39 *cm* by 3
(e) 648 *km* 72 *m* by 8

Word Problems

Solved Examples

Example 1 : Mrs. Radha bought 3 *m* 25 *cm* red ribbon, 2 *m* 50 *cm* green ribbon and 5 *m* yellow ribbon. How much ribbon did she buy?

Solution :

			m	*cm*
Length of red ribbon	=		3	25
Length of green ribbon	=		2	50
Length of yellow ribbon	=	+	5	00
Total length of ribbon	=		10	75

Hence, Mrs. Radha bought 10 *m* 75 *cm* ribbon.

Example 2 : A roll of thread contains 96 *m* 25 *cm* of thread. If 50 *m* 20 *cm* of the thread is cut off, then what is the length of the remaining thread?

Solution:

			m	*cm*
Length of the thread	=		96	25
Length of the thread used	=	-	50	20
Length of the thread left	=		46	05

Hence, length of the remaining thread is 46 *m* 5 *cm*.

Example 3 : Sarthak's school is 15 *km* away from his house. He covers 12 *km* 525 *m* distance. How much more distance he has to cover?

Solution :

Total distance to be covered = 15 *km* 000 *m*

Distance he has covered = 12 *km* 525 *m*

Distance to be covered = 2 *km* 475 *m*

	km	*m*		
	(4)	(9)	(9)	(10)
	1 ~~5~~	~~0~~	~~0~~	~~0~~
−	1 2	5	2	5
	2	4	7	5

Hence, Sarthak has to cover 2 *km* 475 *m* more.

Example 4 : There is a cloth of 45 *m* long. Two pieces of length 20 *m* 15 *cm* and 12 *m* 32 *cm* are cut off. What is the length of the remaining cloth?

Solution :

Length of first piece of cloth = 20 *m* 15 *cm*

Length of second piece of cloth = 12 *m* 32 *cm*

Total length of cloth cut = 32 *m* 47 *cm*

	m	*cm*
	2 0	1 5
+	1 2	3 2
	3 2	4 7

Length of cloth = 45 *m* 00 *cm*

Length of cloth cut = 32 *m* 47 *cm*

Length of cloth left = 12 *m* 53 *cm*

	m	*cm*	
	(4)	(9)	(10)
	4 ~~5~~	~~0~~	~~0~~
−	3 2	4	7
	1 2	5	3

Hence, length of the remaining cloth is 12 *m* 53 *cm*.

Example 5 : Sarthak walks 5 *km* 265 *m* in a day. How far will he walk in a week?

Solution :

		km	m		
Sarthak walks in a day	=	5	2	5	6
Days in a week	=	×			7
Sarthak walks in a week	=	36	7	9	2

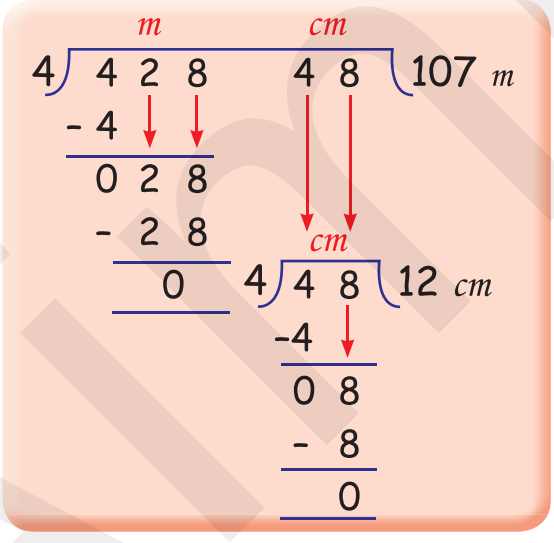
Hence, Sarthak walks 36 *km* 792 *m* in a week.

Example 6 : An electrical wire is 428 *m* 48 *cm* long. It is cut into 4 equal pieces. What is the length of each piece?

Solution : Length of electrical wire = 428 *m* 48 *cm*

No. of pieces = 4

Length of each piece of electrical wire = (428 *m* 48 *cm*) ÷ 4



Hence, length of each piece of electrical wire = 107 *m* 12 *cm*.

Exercise 8.7

1. Mr. Raghav travelled 256 *km* by train, 59 *km* 290 *m* by bus and 20 *km* 360 *m* by bike. What was the total distance covered by him?

2. Sona jumped 98 *cm* high and Shreya jumped 1 *m* 15 *cm* high. Who jumped higher and by how much?

3. A curtain is cut into two pieces of length 2 *m* 53 *cm* and 3 *m* 20 *cm* respectively. What was the original length of the curtain?

4. A tree is 20 *m* long. It is broken into three parts. The length of two parts is 5 *m* 15 *cm* and 7 *m* 20 *cm* respectively. Find the length of the third part.

5. Rajat bought 4 *m* 15 *cm* of cloth for a dress. How much cloth will he buy for 5 such dresses?

6. Deepti bought a ribbon which is 86 *m* 20 *cm* long. If she cut it into two equal pieces, what is the length of each piece?

Mental Maths

Fill in the blanks

1. What is the smallest unit for measuring length that you know? .....
2. What is the greatest unit for measuring length that you know? .....
3. Which is longer: 11 cm or 1 m?.....
4. Which standard unit will you use to measure the distance from Rajkot to Ahmedabad? .....
5. You draw a line 10 cm long . Then you draw another line below it which is 15 cm long. How much longer is the second line? .....

Maths Lab Activity

Write the letter for the correct symbol and decode the message.

				>	=	<
1.	1 m 80 cm		2 m	P	Q	I
2.	6 km 4000 m		10 km	E	L	T
3.	5 m		400 cm	O	R	T
4.	2 km 200m		3km	M	N	V
5.	2 m		200 cm	Z	E	W
6.	5 km 6000 m		10 km	M	C	O
7.	4 km		4000 m	S	A	E
8.	9 m 900 cm		9 m	T	X	P
9.	300 cm		4 m	Z	O	H
10.	8 cm		8 cm	P	S	W

Write the message in the box

9 Measurement of Weight

Learning Objectives

At the end of this lesson, students will be able to:

- Use standard units to measure weight.
- Recognise the devices used to measure weight.
- Convert one unit into another.

Warm-Up

Observe the following pictures carefully:

Weighing balance

Beam balance

Electronic weighing machine

List the places where have you seen the following:

Beam balance

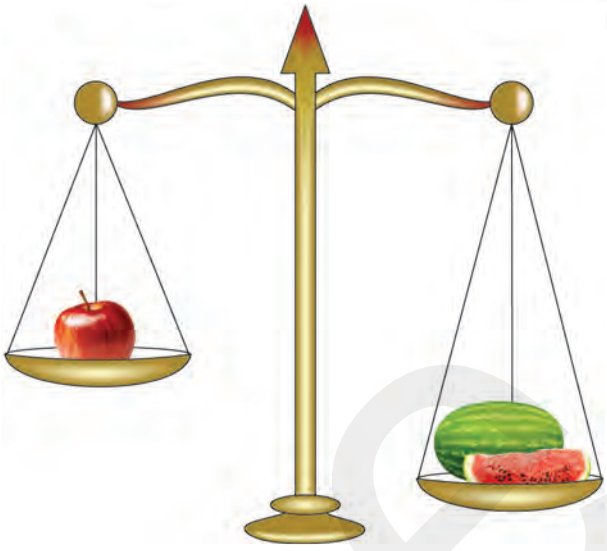
1. ..... 2. .....

Weighing balance

1. ..... 2. .....

Electronic weighing machine

1. ..... 2. .....



Weight of an object tells us how heavy it is.

Standard Units Of Weight

Milligram (mg)

Milligram is the smallest unit of weight. It is used to measure very small quantities of things.

For example, weight of gold, medicine, etc.

In short, milligram is written as *mg*.

Gram (g)

Gram is used to measure smaller quantities or light weights.

For example, weight of one or two mangoes, a book, a newspaper, an egg, etc.

In short, gram is written as *g*.

Teacher's Note: Elucidate students that if you measure something on another planet, its weight will be different. Weight depends on gravity, and gravity is different on other planets!

Kilogram (kg)

Kilogram is used to measure bigger quantities or heavy weights.

For example,

weight of a man, a bag of fruits or vegetables, weight of car, etc.

In short, kilogram is written as *kg*.

1 *kg* = 1000 *g*

Facts to Know

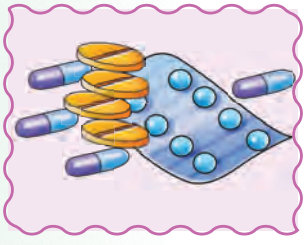
As originally defined, the kilogram was represented in the late 18th century by a solid cylinder of platinum.

Exercise 9.1

Write the suitable unit (*mg, g, kg*) to measure the following:

(a) Bag of a sugar .....

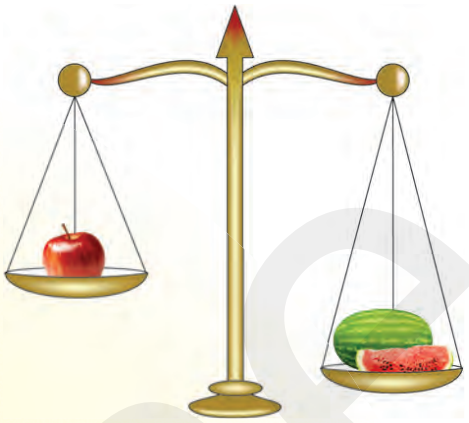
(b) A medicine .....



(c) A toffee .....

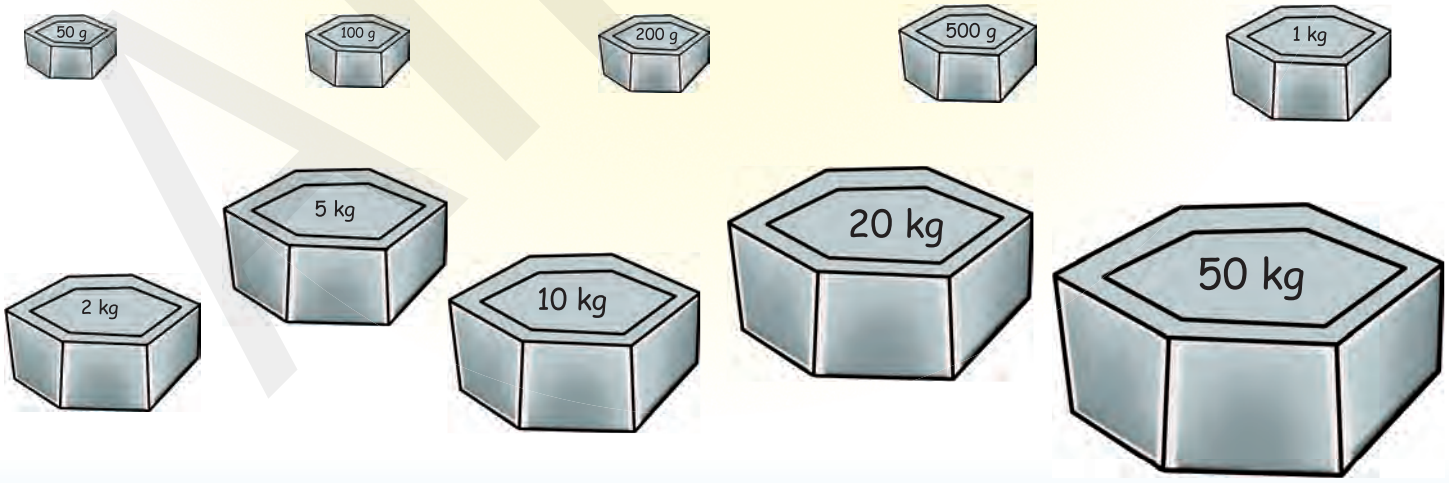
(d) Weight of a dog .....

Devices Used To Measure Weight



Generally, physical balance is used to measure weights. It has two pans. We put objects in one pan and standard weights in other pan, in order to get both the pans at the same level.

Standard Weights



Conversion

We can convert one unit into another.

To Convert Kilogram Into Gram And Vice-Versa

$1\ kg = 1000\ g$

or, $1\ g = \frac{1}{1000} kg = (1 \div 1000)\ kg$

Solved Examples

Example 1 : Convert 9 kg in g.

Solution : $9\ kg = (9 \times 1000)\ g$

$= 9000\ g$

Quick Tip

To convert kg into g, simply multiply by 1000.

Example 2 : Convert 7 kg 82 g into g.

Solution : $7\ kg\ 82\ g = (7 \times 1000)\ g + 82\ g$

$= 7000\ g + 82\ g$

$= 7082\ g$

Quick Tip

To convert g into kg, divide by 1000. Write quotient in kg and remainder in g, if any.

Example 3 : Convert 5000 g into kg.

Solution : $5000\ g = (5000 \div 1000)\ kg$

$= 5\ kg$

Example 4 : Convert 3265 g into kg and g.

Solution: $3265\ g = (3265 \div 1000)\ kg$

$= 3\ kg\ 265\ g$

Another method:

$3265\ g = (3 \times 1000)\ kg + 265\ g$

$= 3\ kg + 265\ g$

$= 3\ kg\ 265\ g$

Exercise 9.2

1. Convert the following into grams:

(a) 2 *kg* (b) 3 *kg*

(c) 9 *kg* 265 *g* (d) 1 *kg* 5 *g*

2. Convert the following into 'kilograms and grams':

(a) 7000 *g* (b) 2000 *g*

(c) 3062 *g* (d) 1028 *g*

Addition, Subtraction, Multiplication And Division Of Weights

Addition, subtraction, multiplication and division of weights is exactly similar to the ordinary operations.

Example 1 : Add 25 *kg* 325 *g* and 46 *kg* 18 *g*.

Solution :

Step 1 : Arrange in *kg* and *g* columns respectively.

Step 2 : Add *g*.

325 *g* + 018 *g* = 343 *g*

Step 3 : Add *kg*.

25 *kg* + 46 *kg* = 71 *kg*

∴ Sum = 71 *kg* 343 g

kg	*g*
(1)	(1)
25	325
+ 46	018
71	343

Example 2 : Add 39 *kg* 250 g, 7 *kg* 18 g and 23 *kg* 846 *g*.

Solution :

∴ Sum = 70 *kg* 114 g

kg	*g*
(2)(1)	(1)(1)
39	250
07	018
+ 23	846
70	114

Example 3 : Subtract 36 *kg* 246 *g* from 50 *kg* 596 *g*

Solution :

Step 1 : Arrange in *kg* and *g* columns respectively.

Step 2 : Subtract *g*.

596 g – 246 *g* = 350 *g*

Step 3 : Subtract *kg*.

50 *kg* – 36 *kg* = 14 *kg*

∴ Difference = 14 *kg* 350 *g*

kg	*g*
(4)(10)	
~~5~~ ~~0~~	596
- 36	246
14	350

Example 4 : Multiply 632 *kg* 50 *g* by 3.

Solution :

kg	*g*
(1)	
6 3 2	5 0
×	3
1 8 9 7	5 0

∴ Product = 1897 *kg* 50 *g*.

Example 5 : Divide 848 *kg* 24 *g* by 4.

Solution :

kg *g*

```
4 | 8 4 8   2 4 | 212 kg
  - 8
  ------
    0 4
  -   4
  ------
      0 8
    -   8
    -----
        0
```

g

```
4 | 2 4 | 6
  - 2 4
  -----
      0
```

∴ Quotient = 212 *kg* 6 *g*

Remainder = 0.

Exercise 9.3

1. Add:

(a)

kg	*g*
2 3 9	4 6
+ 2 9 9	5 6

(b)

kg	*g*	
9 4 6	2 9	0
+ 3 8 9	0 5	8

(c)

kg	g
1 4	2 9 0
6 2	4 0 5
+ 9 8	0 1 8

(d)

kg	g
1 2 9	4 0
2 6 9	0 5
+ 9 8 6	1 2

2. Subtract:

(a)

kg	g
4 0	0 5 0
- 3 6	9 3 2

(b)

kg	g
3 4 9	9 2 5
- 1 9 7	8 4 6

(c)

kg	g
3 8 0	0 8 0
- 0 9 6	6 9 2

(d)

kg	g
1 0 5 9	4 6 0
- 0 8 2 0	1 0 2

3. Multiply:

(a)

kg	g
1 9	0 2 0
×	5

(b)

kg	g
3 6 0	0 2 9
×	3

(c)

kg	g
1 2 9	7 0 0
×	6

(d)

kg	g
3 6 3	0 2 9
×	8

4. Divide:

(a) 246 kg 50 g by 2

(b) 390 kg 21 g by 3

(c) 742 kg 35 g by 7

(d) 8181 kg 27 g by 9

Word Problems

Example 1 : Mrs. Bansal bought 5 *kg* mangoes, 8 *kg* 250 *g* apples and 3 *kg* 350 *g* guavas. What is the total weight of fruits she buy?

Solution :

		kg	g
			(1)
Weight of mangoes	=	5	0 0 0
Weight of apples	=	8	2 5 0
Weight of guavas	=	+ 3	3 5 0
Total weight of fruits	=	1 6	6 0 0

Hence, Mrs. Bansal bought 16 *kg* 600 *g* of fruits.

Examples 2: Sagar purchased 10 *kg* 250 *g* of sugar. He used 7 *kg* 325 *g* of sugar in making sweets. How much sugar is left?

Solution :

		kg	g
Weight of sugar purchased	=	1 0	2 5 0
Weight of sugar used	=	- 7	3 2 5
Weight of sugar left	=	2	9 2 5

Hence, 2 *kg* 925 *g* sugar is left.

Example 3 : Ragini bought 12 *kg* 205 *g* of salt. She used 2 *kg* 125 *g* of it and 4 *kg* 942 *g* of salt fell down on the floor. How much salt is left with her?

Solution :

		kg	g
Weight of salt used by Ragini	=	2	1 2 5
Weight of salt fell down on the floor	=	+ 4	9 4 2
Total weight of salt used	=	7	0 6 7

		kg	g
Total amount of salt bought	=	1 2	2 0 5
Total weight of salt used	=	- 7	0 6 7
Weight of salt left	=	5	1 3 8

Hence, 5 *kg* 138 *g* salt is left.

Example 4 : Mr. Sharma bought a box of chips weighing 4 *kg* 986 *g*. What is the total weight of 6 such boxes of chips?

Solution :

		kg	*g*
Weight of 1 box of chips	=	4	986
Weight of 6 boxes of chips	=	×	6
Total weight of chips	=	29	916

Hence, total weight of chips is 29 *kg* 916 *g*.

Example 5 : The total quantity of flour in 8 bags is 848 *kg* 240 *g*. Each bag has equal quantity of flour. Find the quantity of flour in one bag.

Solution : Quantity of flour in 8 bags

= 848 *kg* 240 *g*

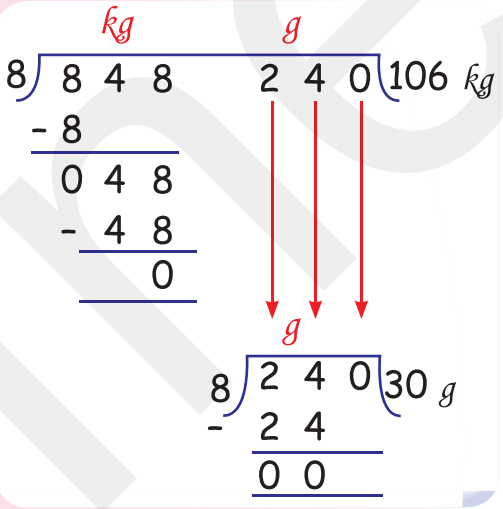
Quantity of flour in 1 bag

= (848 *kg* 240 *g*) ÷ 8

Quotient = 106 *kg* 30 *g*

Remainder = 0

Hence, each bag contains 106 *kg* 30 *g* of flour.



exercise 9.4

1. Mr. Raj bought 18 *kg* 250 *g* of flour, 79 *kg* 786 *g* of wheat and 62 *kg* 142 *g* of rice. What was the total weight of all the items he bought?

2. Sheela weighs 100 *kg* 900 *g*. She lost her 10 *kg* 185 *g* weight due to lazyness. What is her total weight now?

3. Mrs. Goyal purchased 80 kg 500 g of potatoes. She used 50 kg 289 g for making papads and 23 kg 540 g for making chips. What is the amount of potatoes left?

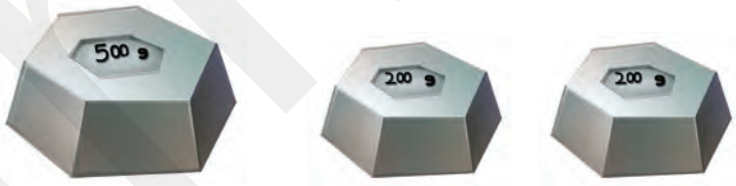
4. A bag contains 46 kg 250 g of cement. What is the total weight of 9 such cement bags?

5. A tin of ghee weights 240 kg 500 g. It is to be distributed equally among 5 persons. What amount does each person get?

Think Wisely

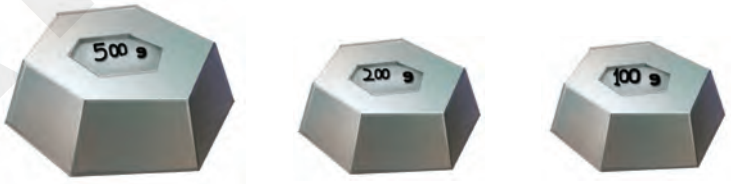
1. Here are a few weights that add up to 1 kilogram, or 1000 g. For each of the following, jot down the missing weights.

a. 1 kg = 1000 g



500 g + 200 g + 200 g + _____

b. 1 kg = 1000 g



500 g + 200 g + 100 g + _____

Mental Maths

Tick (✓) the correct answer

1. 3 kg 60 g = ... g.

   (a) 360 ☐ (b) 3060 ☐ (c) 3360 ☐

2. Which of the following units would you see to measure the weight of a papaya?

   (a) cm ☐ (b) kilogram ☐ (c) milligram ☐

3. 6800 g = ... Kg 800g.

   (a) 6 ☐ (b) 7 ☐ (c) 8 ☐

Maths Lab Activity

Material required: Atleast 18 pieces of small stones, marker.

Steps:

1. Mark 6 stones as 2 kg, 6 as 4 kg and 6 as 6 kg.
2. Tell students there was a stone weighing 12 kg. One day the stone fell and broke into three pieces of respective weights 2 kg , 4 kg and 6 kg.
3. Form the different combination of three pieces of stone to make it equal to 12 kg.

Example

12 kg = 2 kg + 4 kg + 6 kg

6 kg 4 kg 2kg

10 Measurement of Capacity

Learning Objectives

At the end of this lesson, students will be able to:

- Use standard units to measure capacity.
- Convert the litre into millilitre and vice versa.
- Add,subtract,multiply and divide the capacity.

Warm-Up

Saumya is celebrating her birthday party with friends. She serves a glass of lemonade to all of her friends.

How many glasses are there in the above picture? _____

How many glasses are filled and how many are not? _____

Capacity or volume is the quantity of a liquid that a container (or vessel) can hold.

Standard Units Of Capacity

Millilitre (ml)

Millilitre is used to measure small quantities of liquids.

For example, sachet of a shampoos, perfumes, syrup, eye drops, etc.

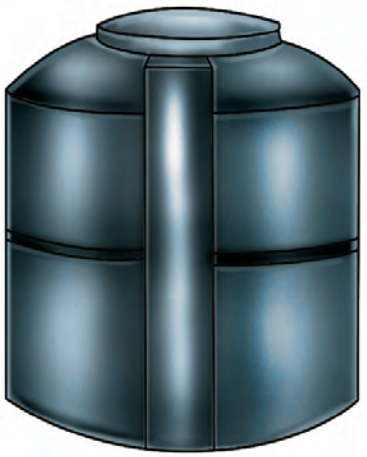
In short, millilitre is written as *ml*.

Litre (l)

Litre is used to measure large quanlities of liquids.

For example, petrol, milk, oil, kerosene, water, etc.

In short, litre is written as *l*.

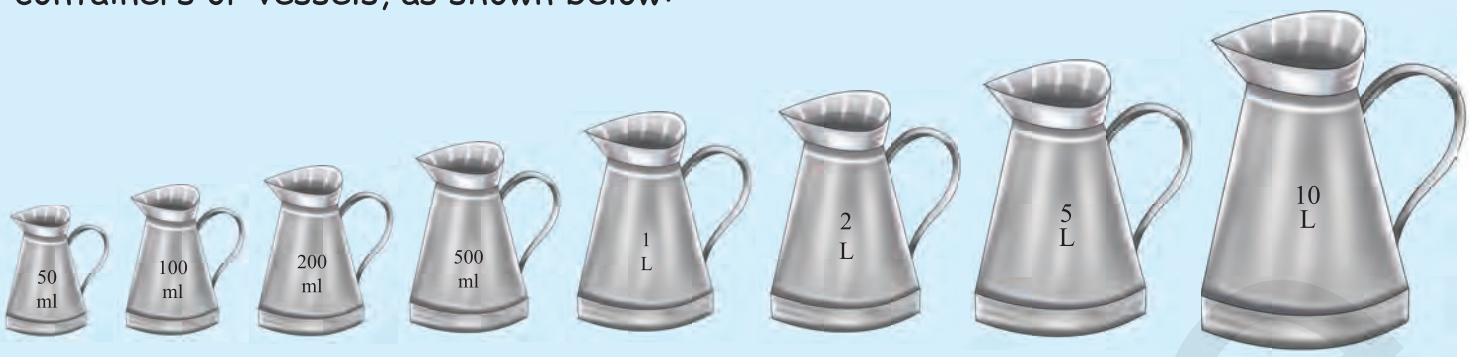


1 *l* = 1000 *ml*

Facts to Know

The litre was introduced in France in 1795 as one of the new "Republican units of measurement."

Liquids like **oil** and **kerosene** can be measured with the help of standard sized containers or vessels, as shown below:



Liquids like **milk** and **water** can be measured with the help of standard sized containers or vessels, as shown below:

Apprise the students that capacity is the maximum amount that something can contain; volume is the amount of space a substance or object occupies. The two terms are interchangeable and can refer to the same calculation or measurement.

Exercise 10.1

Write the suitable unit (*ml* or *l*) to measure the following:

(a) Petrol filled in a car

(b) A sachet of a shampoo

(c) A bucket full of water

(d) Medicine in a syringe

Conversion

To Convert Litre Into Millilitre And Vice-Versa

$1\ \ell = 1000\ m\ell$

or, $1\ m\ell = \frac{1}{1000}\ \ell = (1 \div 1000)\ \ell$

Solved Examples

Example 1 : Convert $7\ \ell$ into $m\ell$.

Solution : $7\ \ell = (7 \times 1000)\ m\ell$

$= 7000\ m\ell$

Example 2 : Convert $5\ \ell\ 66\ m\ell$ into $m\ell$.

Solution : $5\ \ell\ 66\ m\ell = (5 \times 1000)\ m\ell + 66\ m\ell$

$= 5000\ m\ell + 66\ m\ell$

$= 5066\ m\ell$

Quick Tip

To convert ℓ into $m\ell$, simply multiply by 1000.

Example 3 : Convert 4000 *mℓ* into *ℓ*.

Solution : 4000 *mℓ* = (4000 ÷ 1000) *ℓ*

= 4 *ℓ*.

Example 4 : Convert 9762 *mℓ* in *ℓ* into *mℓ*.

Solution : 9762 *mℓ* = (9762 ÷ 1000) *ℓ*

= 9 *ℓ* 762 *mℓ*

Quick Tip

To convert *mℓ* into *ℓ*, divide by 1000. Write quotient in *ℓ* and remainder in *mℓ*, if any.

Another method:

9762 *mℓ* = (9 × 1000) *ℓ* + 762 *mℓ*

= 9 *ℓ* 762 *mℓ*.

Exercise 10.2

1. Convert the following into millilitres:

(a) 3 *ℓ* (b) 9 *ℓ* (c) 2 *ℓ* 365 *mℓ* (d) 4 *ℓ* 295 *mℓ*

2. Convert the following into 'litres and millilitres':

(a) 6000 *mℓ* (b) 8000 *mℓ*

(c) 3269 *mℓ* (d) 5342 *mℓ*

Addition, Subtraction, Multiplication And Division of Capacity

Example 1 : Add 25 *ℓ* 360 *mℓ* and 83 *ℓ* 280 *mℓ*

Solution :

Step 1 : Arrange in *ℓ* and *mℓ* columns respectively.

Step 2 : Add *mℓ*:

360 *mℓ* + 280 *mℓ* = 640 *mℓ*.

Step 3 : Add *ℓ*:

25 *ℓ* + 83 *ℓ* = 108 *ℓ*

∴ Sum = 108 *ℓ* 640 *mℓ*.

ℓ	*mℓ*
	(1)
25	360
+83	280
108	640

Example 2: Add 14 *ℓ* 390 *mℓ*, 85 *ℓ* and 32 *ℓ* 462 *mℓ*.

Solution : Sum = 131 *ℓ* 852 *mℓ*

ℓ	*mℓ*
(1) (1)	
14	390
85	000
+32	462
131	852

Example 3 : Subtract 32 ℓ 862 mℓ from 40 ℓ 980 mℓ.

Solution :

Step 1 : Arrange in ℓ and mℓ columns, respectively.

Step 2 : Subtract mℓ,

980 mℓ − 862 mℓ = 118 mℓ.

Step 3 : Subtract ℓ

40 ℓ − 32 ℓ = 8 ℓ

∴ Difference = 8 ℓ 118 mℓ.

ℓ		mℓ	
(3	(10	(7	(10
~~4~~	0	9	~~8~~ ~~0~~
− 3	2	8	6 2
0	8	1	1 8

Example 4 : Multiply 42 ℓ 128 mℓ by 3.

Solution :

ℓ		mℓ		
4	2	1	2	8
×				3
1	2	6	3	8 4

Product = 126 ℓ 384 mℓ

Example 5 : Divide 368 ℓ 64 mℓ by 4.

Solution :

ℓ mℓ

4) 3 6 8 6 4 (92 ℓ

− 3 6

0 8

− 8

0

mℓ

4) 6 4 (16 mℓ

− 4

2 4

2 4

0

Quotient = 92 ℓ 16 mℓ

Remainder = 0

exercise 10.3

1. Add:

(a)

ℓ		mℓ	
2	9	4	3 0
+ 5	3	1	2 9

(b)

ℓ		mℓ	
6	3	2	0 9
+ 8	2	1	1 7

(c)

ℓ		mℓ	
2	2	3	4 5
6	4	9	7 5
+ 0	8	0	0 9

2. Subtract:

(a)

ℓ	mℓ
96	379
- 42	089

(b)

ℓ	mℓ
38	400
- 29	685

(c)

ℓ	mℓ
25	080
- 18	290

(d)

ℓ	mℓ
86	422
- 63	083

3. Multiply:

(a)

ℓ	mℓ
3	169
×	4

(b)

ℓ	mℓ
18	208
×	9

(c)

ℓ	mℓ
296	125
×	7

(d)

ℓ	mℓ
67	986
×	5

4. Divide:

(a) 420 ℓ 33 mℓ by 3

(b) 248 ℓ 986 mℓ by 2

(c) 260 ℓ 720 mℓ by 5

(d) 360 ℓ 66 mℓ by 6

Word Problems

Solved Examples

Example 1 : Ranvir adds 2 ℓ 125 mℓ of red paint to 1 ℓ 500 mℓ of yellow paint. How much paint he will get now?

Solution :

Amount of red paint added =

Amount of yellow paint added =

Amount of total paint =

ℓ	mℓ
2	125
+1	500
3	625

Hence, he will get 3 ℓ 625 mℓ paint.

Example 2 : The capacity of petrol tank in a car is 28 ℓ 500 mℓ. It contains 12 ℓ 725 mℓ of petrol. How much more petrol it can have?

Solution :

Capacity of petrol tank in a car =
Quantity of petrol contained in the car =
Quantity of petrol that can be added in the car =

ℓ	mℓ
28	500
−12	725
15	775

Hence, 15 ℓ 775 mℓ of more petrol can be added to the petrol tank of a car.

Example 3 : Anamika bought 27 ℓ 250 mℓ of oil from the market. She consumed 8 ℓ 500 mℓ of oil and 1 ℓ 925 mℓ of oil get spoiled. How much oil is left with her now?

Solution :

Quantity of oil consumed =
Quantity of oil spoiled =
Total quantity of oil spend =

ℓ	mℓ
8	500
+1	925
10	425

Quantity of oil purchased =
Quantity of oil spend =
Quantity of oil left =

ℓ	mℓ
27	250
−10	425
16	825

Hence, 16 ℓ 825 mℓ of oil is left with Anamika.

Example 4 : A man drink 8 glasses of water. The capacity of each glass is 500 mℓ. How much water did he drink?

Solution :

Capacity of each glass =
Number of glasses of water =

ℓ	mℓ
0	500
×	8
4	000

Hence, a man drink 4 ℓ 0 mℓ of water or 4 ℓ water.

Example 5 : 8 ℓ 808 mℓ of juice is shared equally among 8 girls. How much juice does each girl get to drink?

Solution :

Quantity of juice to be shared = 8 ℓ 808 mℓ

Number of girls = 8

Share of each girl = (8 ℓ 808 mℓ ÷ 8)

ℓ mℓ

8 | 8 8 0 8 | 1 ℓ

- 8

0

mℓ

8 | 8 0 8 | 101 mℓ

-8

0 0

0

0 8

- 8

0

∴ Quotient = 1 ℓ 101 mℓ

Remainder = 0

Hence, each girl will get 1 ℓ 101 mℓ of juice.

Exercise 10.4

1. Sona made 5 ℓ 500 mℓ of orange squash, 12 ℓ 275 mℓ of mango squash and 7 ℓ 296 mℓ of lemon squash. What is the total quantity of squash made by her?
2. Khushi can drink 2 ℓ 500 mℓ of water at one go, but Kriti can drink only 725 mℓ of water at one go. How much more water Khushi can drink from Kriti?
3. Mrs. Bansal bought 9 ℓ 250 mℓ of milk. Out of it, she used 2 ℓ 595 mℓ of milk in making curd and 5 ℓ 296 mℓ of milk in making paneer. How much milk is left with her?

4. Five taxi drivers fill their taxi each with 12 ℓ 545 mℓ of petrol. How much petrol do they all fill together?

5. Mrs. Garg uses 1 ℓ 925 mℓ of cooking oil everyday. How much oil does she uses in one week?

6. A bucket contains 12 ℓ 500 mℓ of water. It is to be poured equally in 4 mugs. What is the quantity of water in each mug?

Think Wisely

The capacity of a vessel is 15 ℓ 700 mℓ. It contains 9 ℓ 600 mℓ of water. How much more water can be added to the vessel ?

Mental Maths

A. Tick (✓) the correct answer

1. 1500 mℓ = ...

   i. 1 ℓ 500 mℓ ☐ ii. 150 ℓ ☐ iii. 115 mℓ ☐

2. 250 mℓ + 750 mℓ = ...

   i. 900 mℓ ☐ ii. 1 ℓ ☐ iii. 1 mℓ ☐

B. Fill in the boxes

1. 400 mℓ + 200 ml + ... mℓ = 1 ℓ

2. 7 ℓ 560 mℓ + 2 ℓ 440 mℓ = ... ℓ

3. 5 ℓ 500 mℓ = ... mℓ

Maths Lab Activity

Materials required: A paper and pencil.

Steps:

1. Ask children to find out the capacity of the water tanks at their houses.
2. Now, a group of two students each will be made.
3. Each member has to write the water tank capacity at their house and capacity of the water tank at another group member's house.
4. Now, the member having a greater water tank capacity than the other will be the winner.

Your water tank capacity _____

Your friend's water tank capacity _____

5. Note the capacity of two buckets and find which bucket has more capacity and how much?

A bucket of 10 ℓ 860 mℓ

A bucket of 1800 mℓ

Which bucket has more capacity? _____

11 Money

Learning Objectives

At the end of this lesson, students will be able to:

- Recognise the Indian currency.
- Add, subtract, divide and multiply rupees and paise.
- Convert rupees into paise and vice-versa.

Warm-Up

We use money to buy or sell things in our daily life. Money can be a combination of rupees and paise. Count the amount and write. _____

Teacher's Note:

Ask the students for what purpose do they use the money?

Let's Revise

Money is used to purchase goods from the market.

In exchange, we give money to the shopkeeper when we buy any product.

The word used to denote money is called 'currency'.

Indian Currency

The currency of our country, India, is Rupee.

It is in the form of coins and notes.

Money is expressed in terms of rupees and paise.

'₹' is used to denote rupee (or rupees)
'p' is used to denote paise.

Indian Coins

5 Paise

10 Paise

20 Paise

25 Paise

50 Paise

1 Rupee

2 Rupees

5 Rupees

10 Rupees

20 Rupees

Facts to Know

The word 'rupee' has been derived from the Sanskrit word Rupyakam, meaning a silver coin.

Indian Notes

5 Rupees

10 Rupees

20 Rupees

50 Rupees

100 Rupees

200 Rupees

500 Rupees

Introduction of A Point

A point (.) is used to separate rupees and paise.

For example: ₹ 25 and 50 p is written as

₹ 25. 50

Quick Tip

The number on the left side of point shows rupees and on right side of the point shows paise.

Remember

Always write the numeral of paise as a 2-digit number.
So, we write 5 paise as 05 paise,
7 paise as 07 paise, etc.

Solved Examples

Example 1 : Write the following amounts of money in figures:

(a) 23 rupees 75 paise

(b) 83 rupees 9 paise

(c) 78 rupees 50 paise

(d) 83 paise

Solution : (a) 23 rupees 75 paise = ₹ 23.75

(b) 83 rupees 9 paise = ₹ 83.09

(c) 78 rupees 50 paise = ₹ 78.50

(d) 83 paise = ₹ 0.83

Example 2 : Write the following amounts of money in words:

(a) ₹ 29.69 (b) ₹ 506.50

(c) ₹ 20.06 (d) ₹ 0.96

Solution : (a) ₹ 29.69 = Rupees twenty nine sixty-nine paise.

(b) ₹ 506.50 = Rupees five hundred six fifty paise.

(c) ₹ 20.06 = Rupees twenty six paise.

(d) ₹ 0.96 = Ninety-six paise.

Exercise 11.1

1. Write the following amounts of money in figures:

(a) 89 rupees 60 paise (b) 99 rupees 73 paise

(c) 101 rupees 5 paise (d) 83 rupees

(e) 96 paise

2. Write the following amounts of money in words:

(a) ₹ 85.72 (b) ₹ 106.89

(c) ₹ 80.05 (d) ₹ 0.98

(e) ₹ 0.09

Conversion

1 Rupee = 100 paise

Solved Examples

Conversion of Rupees Into Paise:

Example 1 : Convert the following rupees into paise:

(a) 7 Rupees

(b) 19 Rupees

Solution :

(a) ₹ 7 = (7 × 100) paise
= 700 paise

(b) ₹ 19 = (19 × 100) paise
= 1900 paise

Conversion of 'Rupees And Paise' Into Paise

Example 2 : Convert the following 'Rupees and Paise' into paise:

(a) 12 Rupees 83 Paise

(b) 95 Rupees 7 Paise

Solution : (a) 12 Rupees 83 Paise = ₹ 12.83
= (12 × 100)p + 83 p
= 1200 p + 83 p
= 1283 P

Shortcut method, ₹ 12.83 = 1283 p

(b) 95 Rupees 7 Paise = ₹ 95.07
= (95 × 100)p + 07p
= 9500p + 07p
= 9507p

Shortcut method, ₹ 95.07 = 9507 p

Conversion of Paise Into 'Rupees And Paise'

Example 3 : Convert the following paise into 'Rupees and Paise':

(a) 7312 paise

(b) 6402 paise

(c) 80 paise

Solution :

(a) 7312 p = ₹ 73.12

(b) 6402 p = ₹ 64.02

(c) 80 p = ₹ 0.80

Quick Tip

To convert paise into rupee and paise, simply put point (.) after 2 digits from the right of the number.

Exercise 11.2

1. Convert the following rupees into paise:

(a) 63 rupees (b) 43 rupees

(c) 109 rupees (d) 789 rupees

(e) 3562 rupees (f) 3462 rupees

2. Convert the following 'rupees and paise' into paise:

(a) 18 rupees 65 paise (b) 73 rupees 90 paise

(c) 96 rupees 7 paise (d) 119 rupees 86 paise

(e) 1065 rupees 9 paise (f) 2145 rupees 83 paise

3. Convert the following paise into 'rupees and paise':

(a) 10 paise (b) 762 paise

(c) 8162 paise (d) 7395 paise

(e) 5 paise (f) 8 paise

Addition, Subtraction, Multiplication And Division of Money

Solved Examples

Example 1 : Add 63 rupees 25 paise and 98 rupees 70 paise.

Solution :

Step 1 : Arrange in ₹ and p in columns respectively.

Step 2 : Add p

25 p + 70 p = 95 p

Step 3 : Add ₹

₹ 63 + ₹ 98 = ₹ 161

∴ Sum = ₹ 161.95

₹	p
6 3	2 5
+ 9 8	7 0
1 6 1	9 5

Example 2 : Subtract ₹ 89.76 from ₹ 99.83

Solution :

Step 1 : Arrange in ₹ and p in columns respectively.

Step 2 : Subtract p

83 p – 76 p = 07 p

Step 3 : Subtract ₹

₹ 99 – ₹ 89 = ₹ 10

∴ Difference = ₹ 10.07

₹	p
9 9	8 3
- 8 9	7 6
1 0	0 7

Example 3 : Multiply ₹ 23.45 by 2

Solution :

Step 1 : Arrange in ₹ and p in columns respectivley.

Step 2 : Multiply p

45 × 2 = 90 p

Step 3 : Multiply ₹

₹ 23 × 2 = ₹ 46

∴ Product = ₹ 46.90

₹	p
2 3	4 5
×	2
4 6	9 0

Example 4 : Divide ₹ 644.48 by 4

Solution :

```
   ₹        p
4 ) 6 4 4   4 8 ( ₹ 161
   - 4
   ----
     2 4
     2 4
   ------
       0 4
     -   4
   ------
         0      p
          4 ) 4 8 ( 12 p
            - 4
            ----
              0 8
                8
              ----
                0
              ----
```

Quotient = ₹ 161 and 12 p
= ₹ 161.12
Remainder = 0

exercise 11.3

1. Add:

(a)

₹	p
2 4 6	1 5
+ 3 9 8	2 0

(b)

₹	p
3 8	2 6
+ 5 9	4 2

(c)

₹	p
2 8 6	5 0
+ 4 2 9	1 5

2. Subtract:

(a)

₹	p
3 6 9	9 4
− 2 0 9	7 2

(b)

₹	p
5 8 2	0 0
− 2 6 9	0 4

(c)

₹	p
8 0 6	2 5
− 7 8 9	4 9

3. Multiply:

(a)

₹	p
3 6	4 2
×	5

(b)

₹	p
9 8	6 5
×	8

(c)

₹	p
3 6 2	9 5
×	7

4. Divide:

(a) ₹ 295.80 by 5

(b) ₹ 7611.15 by 3

(c) ₹ 8142.18 by 2

(d) ₹ 497.42 by 7

5. Find the sum:

(a) ₹ 73.56, ₹ 86.02 and ₹ 90.58

(b) ₹ 98.70, ₹ 17.80 and ₹ 54.00

(c) ₹ 102.90, ₹ 198.72 and ₹ 789.56

(d) ₹ 986.50, ₹ 723.25 and ₹ 354.75

6. Find the difference between:

(a) ₹ 72.56 and ₹ 93.82

(b) ₹ 98.00 and ₹ 73.86

(c) ₹ 196.23 and ₹ 345.07

(d) ₹ 792.68 amd ₹ 996.57

Word Problems

Solved Examples

Example 1 : Rahul purchased a pen for ₹ 12.50, a sharpner for ₹ 5.50 and an eraser for ₹ 6.25. How much money did he spend in all?

Solution :

		₹	p
Cost of a pen	=	12	50
Cost of a sharpner	=	5	50
Cost of an eraser	= +	6	25
Total money	=	24	25

Hence, Rahul spend ₹ 24.25.

Example 2 : Mr. Shah have ₹ 56. He spent ₹ 33.50. How much did he have now?

Solution :

		₹	p
Amount with Mr. Shah	=	56	00
Amount spent by Mr. Shah	= -	33	50
Money left		22	50

Hence, Mr. Shah have ₹ 22.50.

Example 3 : A pen costs ₹ 8.50. What is the cost of 7 pens?

Solution :

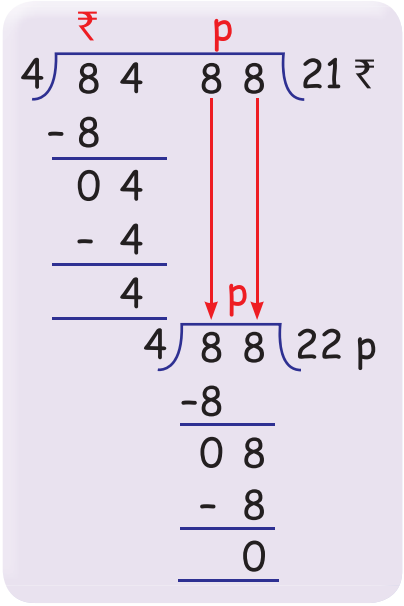
		₹	p
Cost of 1 pen	=	8	50
Number of pens	= ×		7
Cost of 7 pens	=	59	50

Hence, cost of 7 pens is ₹ 59.50

Example 4 : A set of 4 soaps cost ₹ 84.88. What is the cost of each soap?

Solution : Cost of 4 soaps = ₹ 84.88

Cost of 1 soap = ₹ 84.88 ÷ 4



Hence, cost of each soap is ₹ 21.22.

Exercise 11.4

1. Ritu purchased a maths book for ₹ 180.50, an English book for ₹ 200.25, a computer book for ₹ 120.75 and a hindi book for ₹ 80.00. How much did she spend on all the books?

2. Mr. Garg purchase goods cost for ₹ 986.25 from a shopkeeper. He gave 1000 rupee note to the shopkeeper. How much money would the shopkeeper return to Mr. Garg?

3. Mrs. Bansal went to a restaurant with her family. She ordered pav bhaji, for ₹ 50.75, dosa for ₹ 180.75, pizza for ₹ 120.25 and a burger for ₹ 35.50. She gave ₹ 500. What balance will she get back?

4. A packet of sweets cost ₹ 100.50. What is the cost of 8 such packets?

5. A set of 6 knives cost ₹ 96.42. What is the cost of 1 knife?

6. The pack of 2 hand bags is ₹ 284.86. What is the cost of one handbag?

Think Wisely

1. How much more is ₹ 560.40 than ₹ 325.75?
2. Radhika had ₹ 1000 in her purse.She spent ₹ 945.50. How much money is left in her purse now?

Mental Maths

Tick (✓) the correct answer

1. How many ₹ 5 coins will you get for ₹ 50?

   (a) 10 ☐ (b) 15 ☐ (c) 20 ☐

2. Which Indian currency note does not exist?

   (a) ₹ 10 ☐ (b) ₹ 20 ☐ (c) ₹ 25 ☐

3. 8 rupees75 paise = ₹ .....

   (a) 800 ☐ (b) 8.75 ☐ (c) 87.5 ☐

4. 450 paise = ₹ .....

   (a) 4 ☐ (b) 4.50 ☐ (c) 40 ☐

Maths Lab Activity

Materials required: A set of dummy currency notes (used in games) of ₹ 100, ₹ 200, ₹ 20, ₹ 10 and ₹ 50 for a group of 5 students.

Steps:

1. This activity will be done in a group of 5 students.
2. Each group will be given a set of notes as mentioned above.
3. Each student has to study the notes carefully.
4. The students will discuss the various features of the note.
5. The teacher will point out specific features they may miss.
6. After the discussion, the students will complete the table given below and answer the questions.

Feature → / ↓	Colour of the note.	Whose signature is on the note?	Picture of animal on the note.	Number on the note.
₹ 100				
₹ 50				
₹ 20				
₹ 10				

12 Time

Learning Objectives

At the end of this lesson, students will be able to:

- Read the clock and tell the time to the nearest 10 minutes.
- Write time using a.m. and p.m.
- Convert the minutes into seconds.

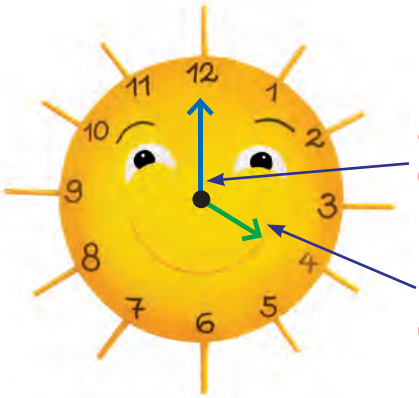
Warm-Up

Two cats named Cherry and Mishki are friends. They attend the same school and are in the same class. Both the cats are excited as they get ready for school. It is the first day after the winter break.

While the other way of writing: half past 7. _____

Clock Tells Us Time

The face of the clock is known as dial.

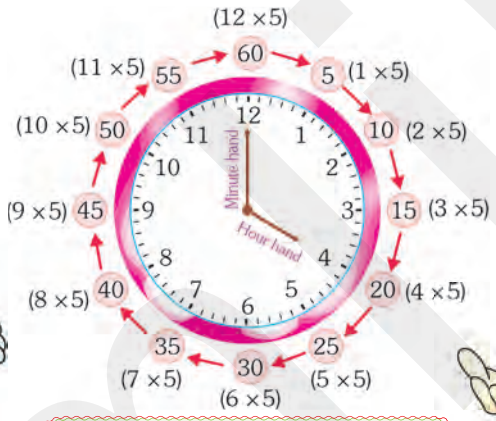


Clock has two hands:

1. Hour hand (Short hand)
2. Minute hand (Long hand)

The face (or dial) of the clock is divided into 12 equal big divisions, marked as 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 and 12.

The gap between every consecutive numbers is divided into 5 equal small divisions. Each small division shows 1 minute.



1 Hour = 60 Minutes

1 Day = 24 hours

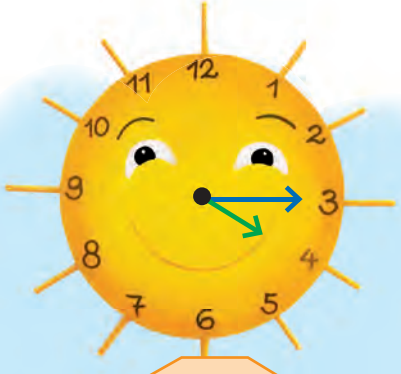
Facts to Know

The measurement began with the sundial's invention in ancient Egypt sometime before 1500 BC.

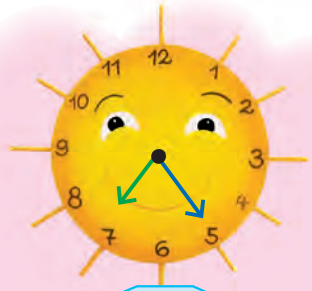
When the minute hand is at	It shows			
1	1 x 5 minutes	=	5 minutes	
2	2 x 5 minutes	=	10 minutes	
3	3 x 5 minutes	=	15 minutes	Quarter Past
4	4 x 5 minutes	=	20 minutes	
5	5 x 5 minutes	=	25 minutes	
6	6 x 5 minutes	=	30 minutes	Half Past
7	7 x 5 minutes	=	35 minutes	
8	8 x 5 minutes	=	40 minutes	
9	9 x 5 minutes	=	45 minutes	Quarter to
10	10 x 5 minutes	=	50 minutes	
11	11 x 5 minutes	=	55 minutes	
12	12 x 5 minutes	=	60 minutes	o'clock (the begining of an hour)

Reading Time From The Clock

5:05
5 minutes past 5

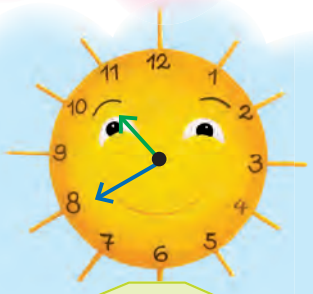


4:15
Quarter past 4
15 minutes past 4



7:25
25 minutes past 7

6:30
Half past 6



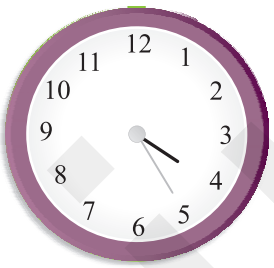
10:40
20 minutes to 11

1:50
10 minutes to 2

Exercise 12.1

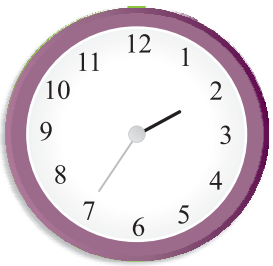
Read the time and write in both words and figures:

(a)

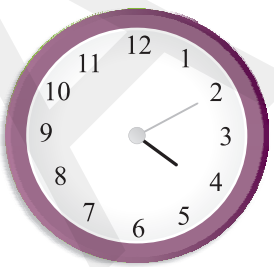


(b)

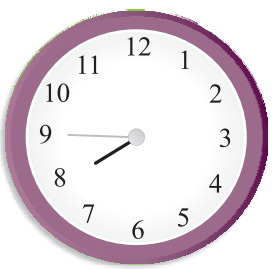
(c)



(d)



(e)



(f)

a.m. And p.m.

As we know,

1 day = 24 hours

A day is divided into 24 hours.

12 hours for the day and 12 hours for the night.

12 o' clock at night is called midnight.

12 o' clock in the day is called noon.

The time from 12 o' clock midnight to 12 o' clock noon is written as a.m.

a.m. or A.M. stands for Ante Meridian.

The time from 12 o'clock noon to 12 o'clock midnight is written as p.m.

p.m. or P.M. stands for Post Meridian.

Teacher's Note: Tell students that morning is the period from sunrise to noon.

Quick Tip

NO a.m. or p.m. is written with 12 o' clock noon or 12 o' clock midnight.

Examples

1. 5 o' clock in the morning = 5:00 a.m.
2. 3:20 after midnight = 3:20 a.m.
3. 12:55 in the afternoon = 12:55 p.m.

Exercise 12.2

1. Write the time using a.m. or p.m. for the following:

(a) 7 o' clock in the morning ____ (b) 8 o'clock in the night ____

(c) 4:15 in the morning ____ (d) Quarter to 9 in the night ____

(e) Half past 7 in the evening ____ (f) 12:10 in the afternoon ____

2. What time will it be after 2 hours of these given times?

(a) 3:15 p.m. ____ (b) Noon ____

(c) 6:30 a.m. ____ (d) 11:45 p.m. ____

(e) Mid-night ____ (f) 10:30 a.m. ____

Conversion

1 Day = 24 hours

1 Hour = 60 minutes

1 Minute = 60 seconds

Time is measured in days, hours, minutes and seconds.

Solved Examples

To Convert Days Into Hours

Example 1 : Convert the following days into hours:

(a) 6 days (b) 7 days 20 hours

Solution :

Multiply by 24

(a) 6 days = (6 x 24) hours
= 144 hours

(b) 7 days 20 hours = (7 x 24) hours + 20 hours
= 168 hours + 20 hours
= 188 hours

Convert Hours Into Minutes

Multiply by 60

Example 2 : Convert the following hours into minutes:

(a) 8 hours

(b) 5 hours 12 minutes

Solution :

(a) 8 hours = (8 x 60) minutes = 480 minutes

(b) 5 hours 12 minutes

= (5 x 60) minutes + 12 minutes

= 300 minutes + 12 minutes

= 312 minutes

To Convert Minutes Into Seconds

Multiply by 60

Example 3 : Convert the following minutes into seconds:

(a) 4 minutes

(b) 3 minutes 23 seconds

Solution :

(a) 4 minutes = (4x60) seconds

= 240 seconds

(b) 3 minutes 23 seconds

= (3x60) seconds + 23 seconds

= 180 seconds + 23 seconds

= 203 seconds

Exercise 12.3

1. Convert the following days into hours:

(a) 2 days

(b) 4 days

(c) 5 days 12 hours

(d) 9 days 18 hours

2. **Convert the following hours into minutes:**

(a) 6 hours (b) 7 hours

(c) 11 hours 9 minutes (d) 10 hours 56 minutes

3. **Convert the following minutes into seconds:**

(a) 2 minutes (b) 9 minutes

(c) 7 minutes 20 seconds (d) 10 minutes 34 seconds

Think Wisely

- The hour hand of a clock goes once around the face of the clock in 12 hours. How many times does it go around the face of the clock in one day?.....
- The date on the first Thursday of the month is 4. What will be the date on the third Thursday of the month? .....

Mental Maths

Fill in the blanks:

1. There are ..... minutes in an hour.
2. 5: 25 can also be read as .....
3. 6:30 is same as ..... past six.
4. 15 minutes to 5 can also be written as .....
5. Thirty-five past nine is same as ..... .

Maths Lab Activity

Materials required: Paper and pencils, and a stopwatch for the teacher.

Steps:

1. First, the teacher will ask the students to write the name of their school on a paper as many times as possible in a few minutes.
2. The students will start writing when the teacher announces to start.
3. At the end of 1 minute, the teacher will say stop, and the students will stop writing.
4. The students will put down their pencils and count the times they have written the name.
5. The student with the maximum number of names would be the winner.

Shruti Shruti Shruti Shruti Shruti
Shruti Shruti Shruti Shruti Shruti
Shruti Shruti Shruti Shruti Shruti

Naira Naira Naira Naira Naira
Naira Naira Naira Naira Naira
Naira Naira

Shubham Shubham Shubham Shubham
Shubham Shubham Shubham Shubham
Shubham Shubham Shubham Shubham
Shubham Shubham

13 Fractions

Learning Objectives

At the end of this lesson, students will be able to:

- Show one-half and one-third in a fraction.
- Know numerator and denominator in a fraction.
- Compare fractions.

Warm-Up

Oreo, the baby rabbit, was celebrating his birthday. His mother had baked a lovely cake for him. His father had put up colourful bunting, brought a dozen (12) balloons and tied 3 each to the legs of the table on which the cake was placed.

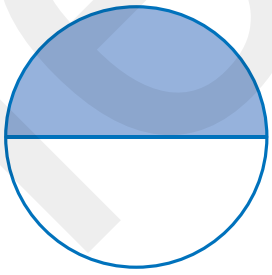
There are 4 members in the family, how will the cake be divided equally? _____

Teacher's Note: Discuss with students about their birthday celebration.

Fraction means 'part of a whole'

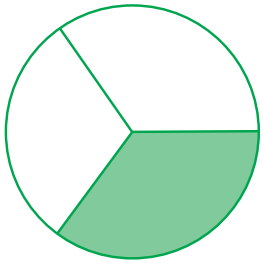
One-Half $\left(\frac{1}{2}\right)$

When an object is divided into two equal parts, then each part of an object is called one-half $\left(\frac{1}{2}\right)$ of the whole. It can be read as one by two or one over two.



One-Third $\left(\frac{1}{3}\right)$

When an object is divided into three equal parts, then each part of an object is called one third $\left(\frac{1}{3}\right)$ of the whole.



Shaded part is called one-third $\left(\frac{1}{3}\right)$ of the whole.

and unshaded part is called two-third $\left(\frac{2}{3}\right)$ of the whole.

$\frac{1}{3}$ can be read as one by three or one over three.

$\frac{2}{3}$ can be read as two by three or two over three.

Similarly, we study more about fractions.

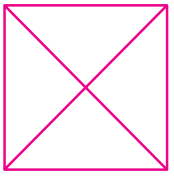
Objects/Shapes	Total	Shaded Part	Unshaded Part
 1 2 3 4	4	$\frac{1}{4}$	$\frac{3}{4}$
 1 2 3 4 5	5	$\frac{2}{5}$	$\frac{3}{5}$
 1 2 3 4 5 6	6	$\frac{3}{6}$	$\frac{3}{6}$
 1 2 3 4 5 6 7	7	$\frac{4}{7}$	$\frac{3}{7}$
 1 2 3 4 5 6 7 8	8	$\frac{5}{8}$	$\frac{3}{8}$
 1 2 3 4 5 6 7 8 9	9	$\frac{6}{9}$	$\frac{3}{9}$
 1 2 3 4 5 6 7 8 9 10	10	$\frac{7}{10}$	$\frac{3}{10}$

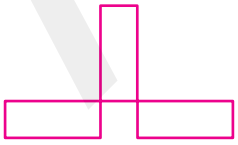
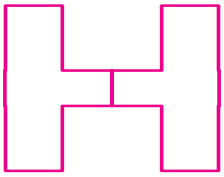
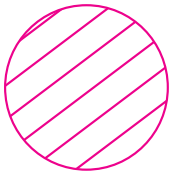
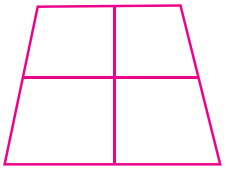
Facts to Know

The word fraction comes from the Latin word "fractio."

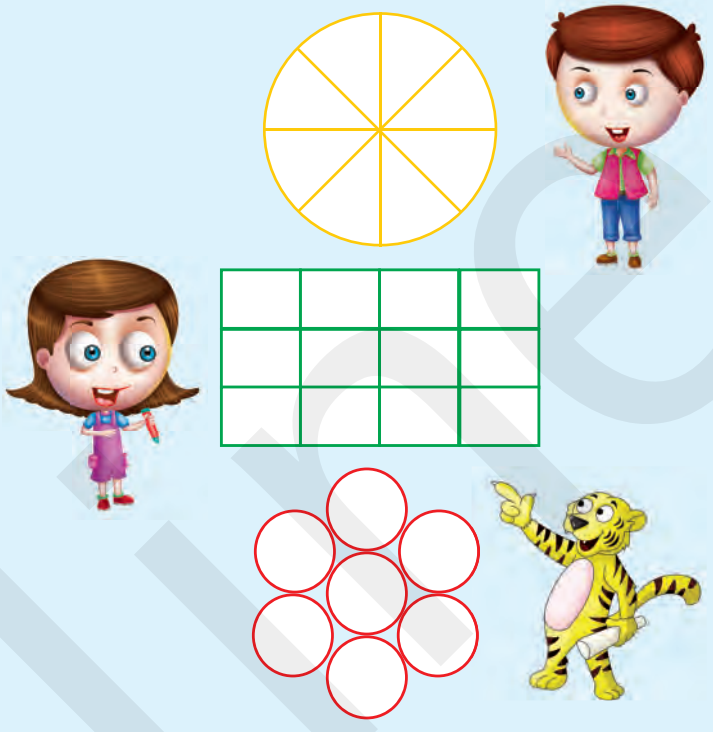
exercise 13.1

1. Tick the figures which are divided into equal parts:

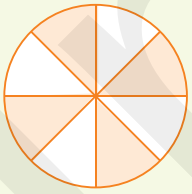
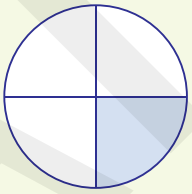
(a)  (b)  (c) 

(d)  (e)  (f)  (g) 

2. Shade the following figures with the help of a pencil, according to the fractions given:

S. No.	Fractions	Figures
(a)	$\frac{2}{8}$	
(b)	$\frac{3}{12}$	
(c)	$\frac{5}{7}$	

3. Write the fraction for each of the following figures to show the shaded and unshaded parts:

S. No.	Figures	Shaded Part	Unshaded Part
(a)			
(b)			
(c)			

4. **Write the fraction for each of the following fractional numbers:**

Fractional Number	Fraction
(a) Three-eighth	$\frac{3}{8}$
(b) One-sixth	.....
(c) Seven-ninth	.....
(d) Two-fifth	.....
(e) Eleven-fifteenth	.....
(f) Two-seventh	.....

Numerator And Denominator

The numeral above the line is called the numerator and the numeral below the line is called the denominator of a fraction.

For example,

$\frac{5}{8}$, here 5 is the numerator.
8 is the denominator.

1. **Write the numerator and denominator for each of the following fractions:**

S. No.	Fractions	Numerators	Denominators
(a)	$\frac{1}{5}$		
(b)	$\frac{3}{6}$		
(c)	$\frac{12}{30}$		
(d)	$\frac{27}{52}$		

2. Write the fractions for the following numerator and denominator:

S. No.	Numerators	Denominators	Fractions
(a)	2	5	
(b)	4	9	
(c)	1	7	
(d)	8	10	
(e)	12	42	

Comparison of Fractional Numbers

Let's see which fraction is greater.

When the numerator is same, then the number with smaller denominator is greater.

$$\frac{1}{2} > \frac{1}{3} > \frac{1}{4} > \frac{1}{5}$$

When the denominator is same, then the number with greater numerator is greater.

$$\frac{6}{2} > \frac{5}{2} > \frac{4}{2} > \frac{3}{2}$$

Exercise 13.3

1. Write > or < in the placeholders given:

(a) $\frac{6}{2}$ ☐ $\frac{6}{5}$

(b) $\frac{2}{9}$ ☐ $\frac{5}{9}$

(c) $\frac{3}{7}$ ☐ $\frac{8}{7}$

(d) $\frac{12}{10}$ ☐ $\frac{12}{15}$

(e) $\frac{6}{5}$ ☐ $\frac{2}{5}$

(f) $\frac{1}{8}$ ☐ $\frac{1}{6}$

2. Arrange the following numbers in ascending order:

(a) $\frac{5}{8}, \frac{5}{12}, \frac{5}{7}, \frac{5}{19}, \frac{5}{3}$

(b) $\frac{6}{10}, \frac{5}{10}, \frac{8}{10}, \frac{7}{10}, \frac{2}{10}$

(c) $\frac{9}{17}, \frac{9}{23}, \frac{9}{10}, \frac{9}{65}, \frac{9}{42}$

(d) $\frac{2}{12}, \frac{5}{12}, \frac{1}{12}, \frac{3}{12}, \frac{15}{12}$

3. Arrange the following numbers in descending order:

(a) $\frac{2}{5}, \frac{2}{8}, \frac{2}{4}, \frac{2}{3}, \frac{2}{19}$

(b) $\frac{2}{16}, \frac{15}{16}, \frac{1}{16}, \frac{19}{16}, \frac{52}{16}$

(c) $\frac{3}{9}, \frac{3}{2}, \frac{3}{7}, \frac{3}{42}, \frac{3}{53}$

(d) $\frac{17}{19}, \frac{98}{19}, \frac{12}{19}, \frac{6}{19}, \frac{42}{19}$

Like And Unlike Fractions

Fractions that have the same denominator are called like fractions.

For example,

$\frac{1}{8}, \frac{2}{8}, \frac{5}{8}, \frac{10}{8}$, etc.

Fractions that have the different denominator are called unlike fractions.

For example,

$\frac{2}{7}, \frac{4}{9}, \frac{6}{14}, \frac{5}{59}$, etc.

Note: In this class, we will study addition and subtraction of like fractional numbers.

Addition and Subtraction of Like Fractional Numbers

Quick Tip

While adding or subtracting like fractional numbers, denominator remains the same.

Example 1 : Add the following fractional numbers:

(a) $\frac{2}{5}$ and $\frac{6}{5}$

(b) $\frac{1}{8}, \frac{3}{8}$ and $\frac{5}{8}$

We add only numerators.

Solution :

(a) $\frac{2}{5} + \frac{6}{5} = \frac{8}{5}$

(b) $\frac{1}{8} + \frac{3}{8} + \frac{5}{8} = \frac{9}{8}$

Example 2 : Subtract the following numbers:

(a) $\frac{1}{2}$ from $\frac{1}{2}$ (b) $\frac{5}{9}$ from $\frac{8}{9}$

Solution :

(a) $\frac{1}{2} - \frac{1}{2} = \frac{0}{2} = 0$

We subtract only numerators.

(b) $\frac{8}{9} - \frac{5}{9} = \frac{3}{9}$

Exercise 13.4

1. Add the following:

(a) $\frac{1}{5} + \frac{6}{5}$ (b) $\frac{4}{12} + \frac{16}{12}$

(c) $\frac{9}{42} + \frac{15}{42} + \frac{2}{42}$ (d) $\frac{7}{10} + \frac{6}{10} + \frac{12}{10}$

2. Add the following:

(a) $\frac{1}{2}$ and $\frac{5}{2}$ (b) $\frac{6}{9}$ and $\frac{12}{9}$

(c) $\frac{9}{15}, \frac{6}{15}$ and $\frac{2}{15}$ (d) $\frac{19}{26}, \frac{15}{26}$ and $\frac{11}{26}$

3. Subtract the following:

(a) $\frac{18}{9} - \frac{7}{9}$ (b) $\frac{10}{12} - \frac{5}{12}$

(c) $\frac{92}{6} - \frac{50}{6}$ (d) $\frac{23}{2} - \frac{17}{2}$

4. Find the difference between:

(a) $\frac{2}{9}$ and $\frac{5}{9}$

(b) $\frac{6}{42}$ and $\frac{9}{42}$

(c) $\frac{12}{56}$ and $\frac{17}{56}$

(d) $\frac{19}{196}$ and $\frac{26}{196}$

Think Wisely

- Punit was given a design to make. He completed $^3/_5$ of it. How much is left?

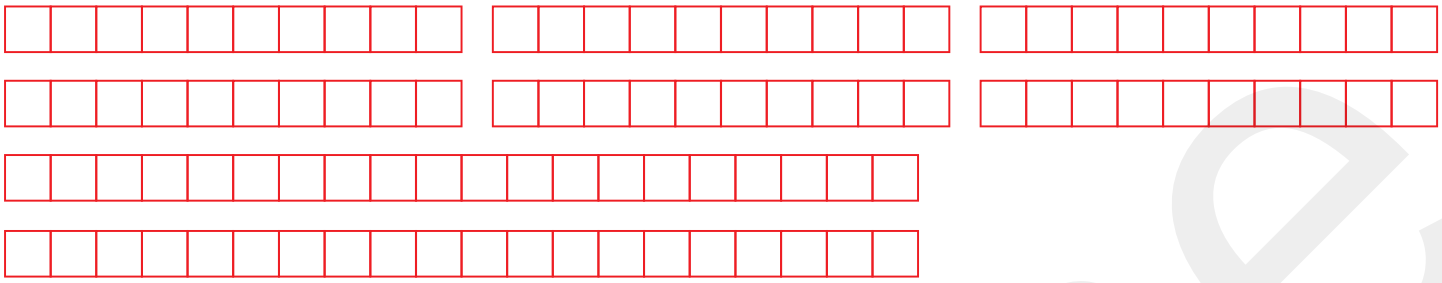
Mental Maths

Fill in the blanks:

1. What is the numerator of the fraction $^2/_3$? .....
2. What is the denominator of the fraction $^4/_9$?.....
3. Which is smaller, $^2/_3$ of a pizza or $^1/_3$ of a pizza ?.....
4. If I add 1/5 to a number, I get 21/5. Which fraction am I ? .....
5. Subtract: 12/20 -8/20 = ...

Maths Lab Activity

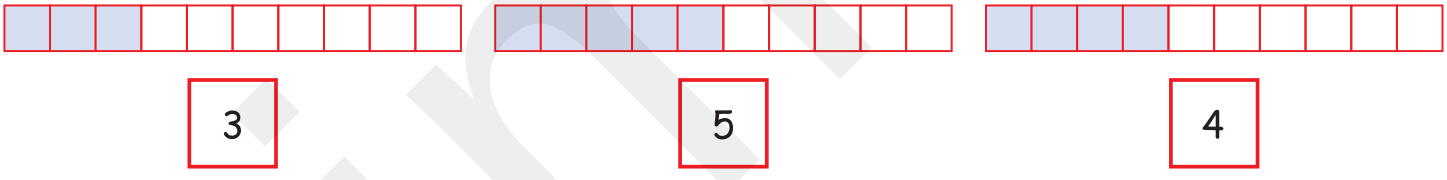
Material required: Square lined paper strips as given below.



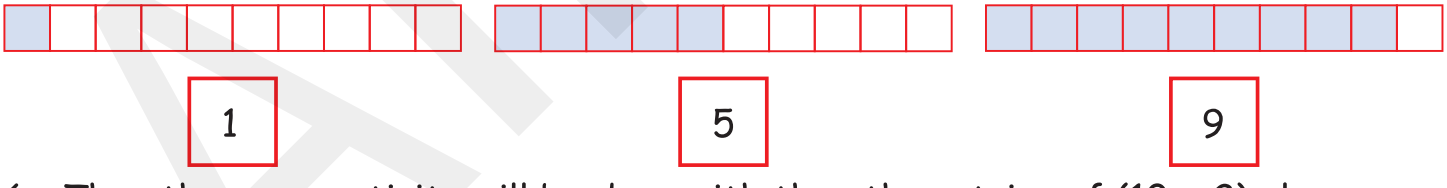
Chits with numbers 1 to 9 written on them are kept in a bowl - 1 bowl for 6 students. Chits with numbers 1 to 19 written on them are kept in another bowl - 1 bowl for 6 students.

Steps:

1. This activity will be done in groups of 6 students each.
2. First, the students of each group will take the strips of (10 x 1)
3. Each student will pick up a chit from the first bowl .
4. They will shade the numbers of squares on their strips as per the number on the chit.



5. Each group will arrange the strips in ascending order (of shaded portion).



6. Then the same activity will be done with the other strips of (10 x 2) also.

Recommendation

1. The activity can also be done in strips with 15 squares or 25 squares.
2. The chits can also be arranged in descending order.

14 Geometry

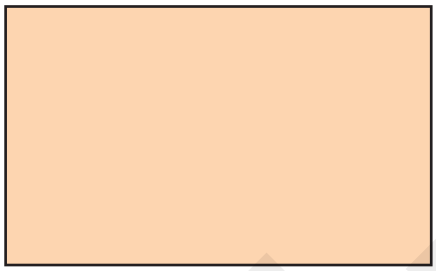
Learning Objectives

At the end of this lesson, students will be able to:

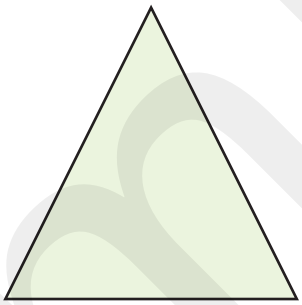
- Learn about the point and line segment.
- Measure and draw line segments.

Warm-Up

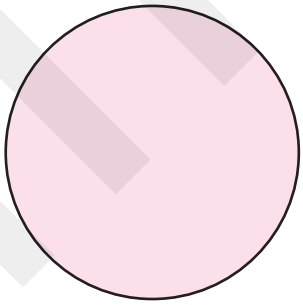
Look at the shapes and complete the sentences.



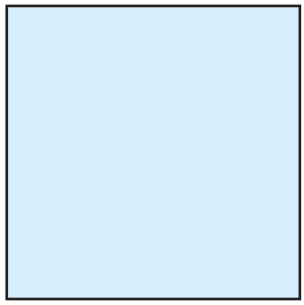
Rectangle



Triangle



Circle

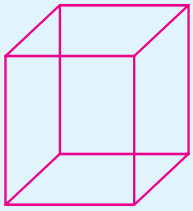
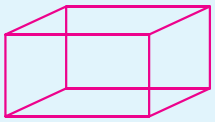
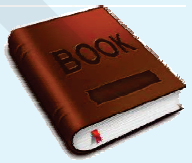
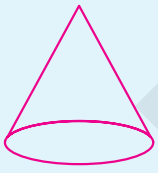


Square

1. A rectangle has ..... sides.
2. A rectangle has ..... vertices.
3. A triangle has ..... sides.
4. A triangle has ..... vertices.
5. A square has ..... sides.
6. A square has ..... vertices.
7. A circle has ..... sides.
8. A circle has ..... vertices.

Let's Revise

Solids

Solid Shapes	Number of Faces	Number of Edges	Number of Vertices	Examples
 Cube	6	12	8	
 Cuboid	6	12	8	
 Cylinder	3	2	0	
 Cone	2	1	1	
 Sphere	1	0	0	

Facts to Know

The word 'geometry' comes from the Greek words 'geo', meaning earth, and 'metria', meaning measure.

Point And Line Segment

Line has no end or beginning.

Point

A point is represented by a dot. It has no size.

We name point by a capital letter.

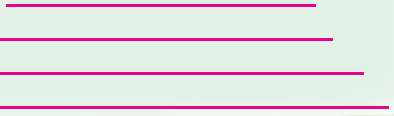
Line

There are different types of lines:

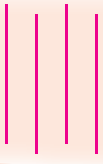
Quick Tip

Line can be of any length.

Horizontal Lines



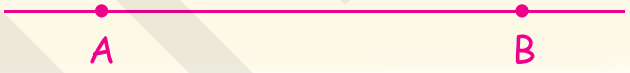
Vertical Lines



Curved Lines

Slanting Lines

Line segment



A part of a line is known as line segment.

This line segment is denoted as $\overline{AB}$ or $\overline{BA}$.

A line segment has a beginning and an end.

Teacher's Note:

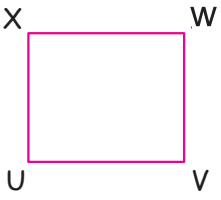
Tell students that curved lines are one that are not straight and are bent whereas slanting lines don't go straight across or straight up.

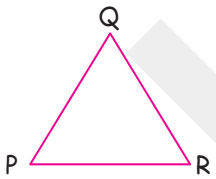
Exercise 14.1

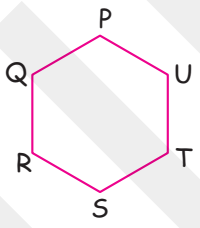
1. Name the points shown below:

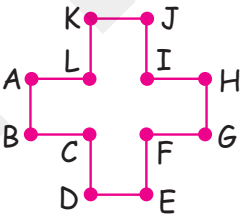
2. Name the points that are marked between the points X and Y on the line segment $\overline{XY}$.

3. Count the number of line segments in each of the following figures:

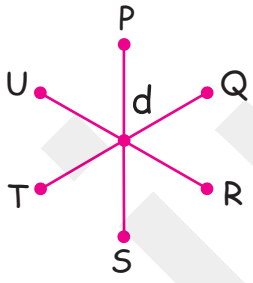
(a) 

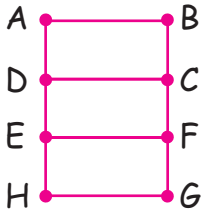
(b) 

(c) 

(d) 

4. Name the line segments in the following figures:

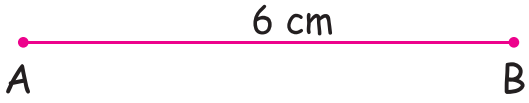
(a) 

(b) 

Measuring Line Segments

Let's learn how to measure the length of a line segment using a ruler.

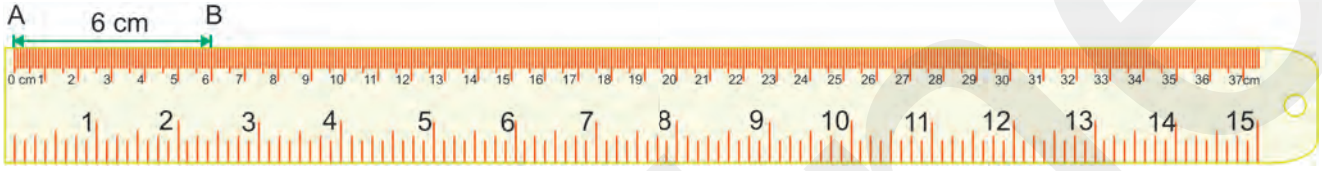
Suppose we have to measure the length of line segment $\overline{AB}$, shown below:



Step 1 : Take a ruler.

Step 2 : Put the one end of ruler at point A which is marked with 0 cm.

Step 3 : Now, read the ruler at mark B.



The reading of the ruler at point B gives the length of line segment AB in cm.

$\therefore$ Length of $\overline{AB}$ = 6 cm.

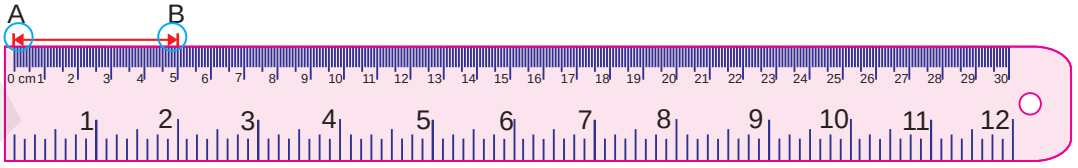
Drawing Line Segments of A Given Length

To draw the line segments of a 5 cm length, follow the steps given below:

Step 1 : Put a ruler on the paper and press it.

Step 2 : With the help of a sharp pencil, mark the points A and B aganist marks 0 and 5 respectively on the scale.

Step 3 : Move the pencil from A to B along the edge of the ruler.



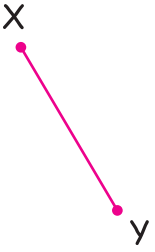
$\therefore$ Length of $\overline{AB}$ = 5 cm

Exercise 14.2

1. Find the length of the following line segments using ruler:

(a) 

(b) 

(c) 

(d)

2. Construct the following line segments of the given length:

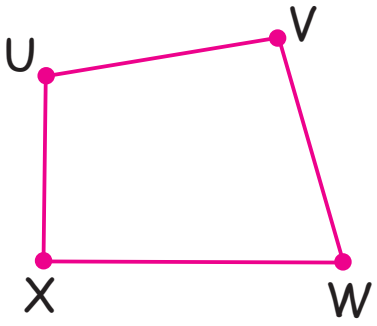
(a) $\overline{PQ}$ = 15 cm

(b) $\overline{RS}$ = 7 cm

(c) $\overline{XY}$ = 12 cm

(d) $\overline{EF}$ = 9 cm

3. Measure each side of the given figure:



$\overline{UV}$ = ... cm

$\overline{VW}$ = ... cm

$\overline{WX}$ = ... cm

$\overline{XU}$ = ... cm

Think Wisely

Draw a square of 6 cm on a squared paper. Draw two diagonals, are they equal?

Mental Maths

Fill in the blanks:

(a) A line segment has a _____ and an _____.

(b) A cuboid has _____ vertices.

(c) A triangle has _____ sides.

(d) A part of a _____ is known as a line segment.

(e) A point is represented by a _____.

Maths Lab Activity

Complete the table:

Objects	Number of plane faces	Number of curved faces	Number of edges	Number of vertices
				
				
				
				

15 Fun with Patterns

Learning Objectives

At the end of this lesson, students will be able to:

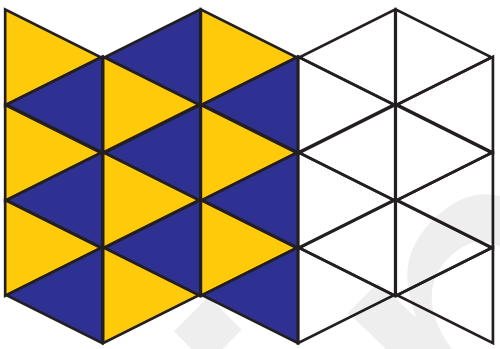
- Draw symmetrical shapes.
- Use the lines of symmetry.

Warm-Up

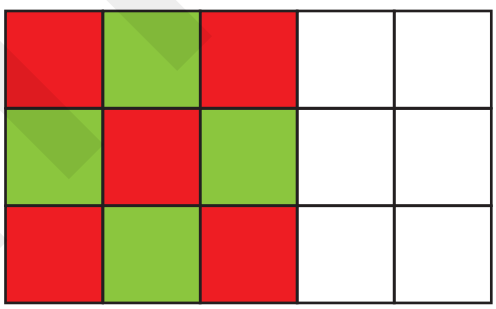
Observe the pattern and colour it to complete.

Colour to complete the patterns.

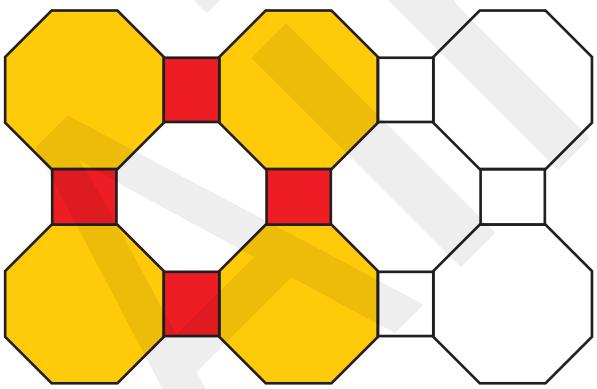
1.



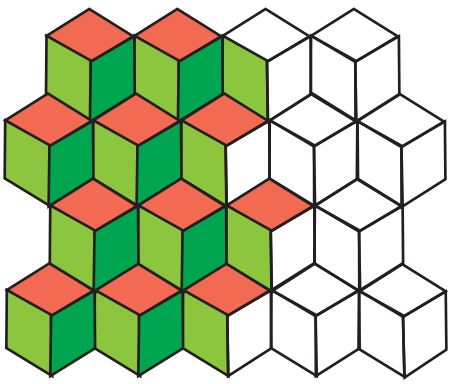
2.



3.



4.



Teacher's Note:

Elucidate the students that some patterns are based on the fact that there are repetitions and a certain thing occurs over and over again. An example of a simple pattern can be the tiling of a floor.

Let's Have Fun

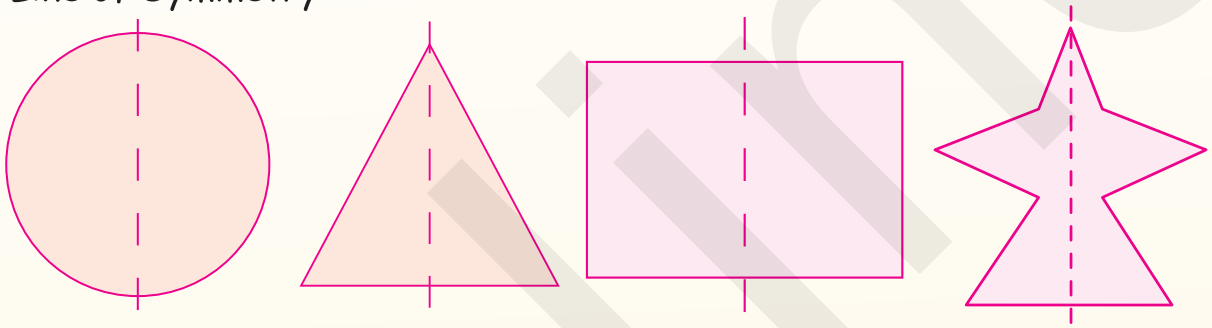
Objective: **To draw symmetrical shapes.**

Materials Required: Drawing sheet and mirror.

Steps to follow:

Step 1 : Take a paper and draw the following shapes on the paper:

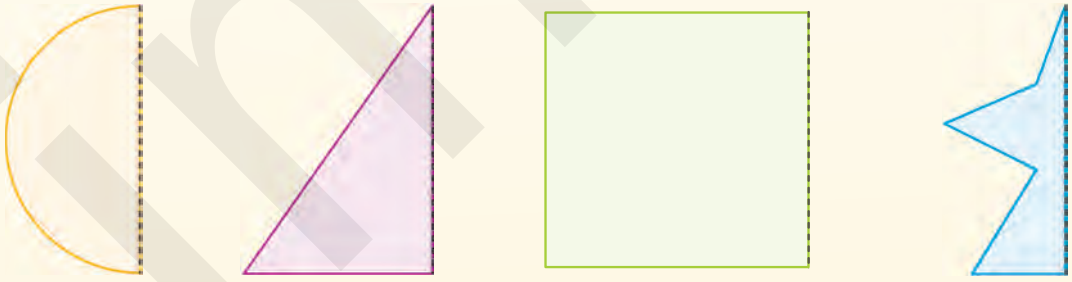
Line of Symmetry



Step 2 : Now cut these figures along the boundary.

Step 3 : Fold each figure along the dotted line.

Let's see what happens?



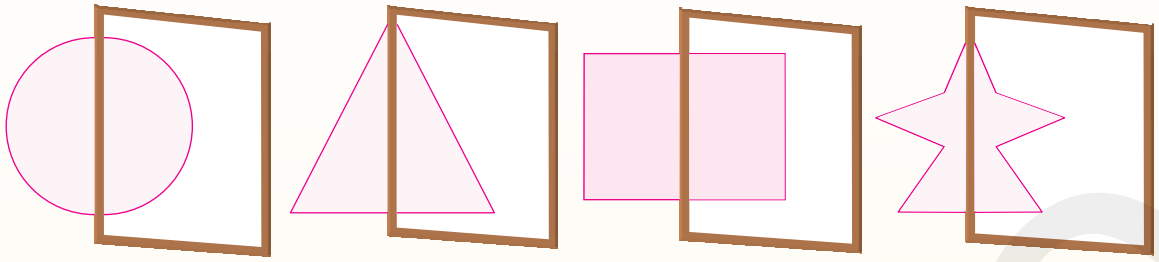
These dotted lines are known as lines of symmetry.

Quick Tip

When you fold any shape along the line of symmetry, its one-half fits exactly over the other half.

Such figures are known as symmetrical figures.

Step 4: Now place the mirror on a line of symmetry.



You will see that the shape looks like the original shape.

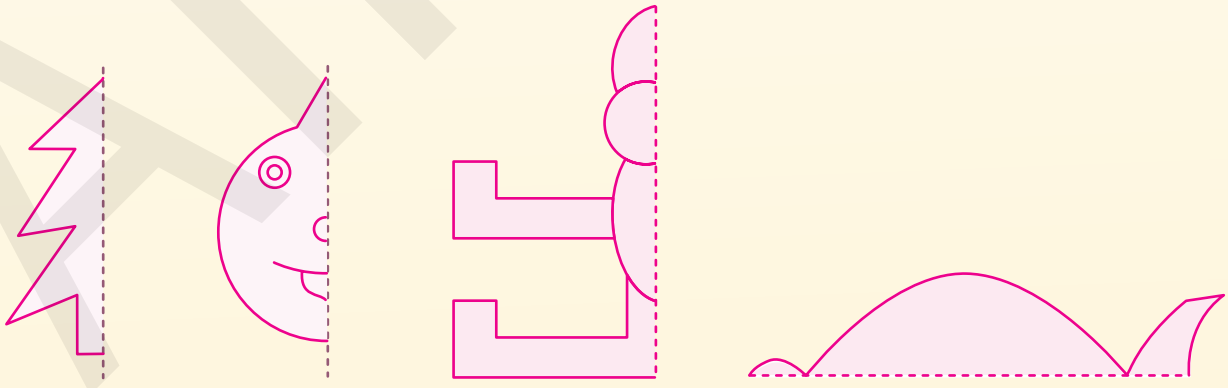
Symmetrical figures can be divided into two identical parts.

Facts to Know

The concept of symmetry originated in Italy at the beginning of the Renaissance.

Exercise 15.1

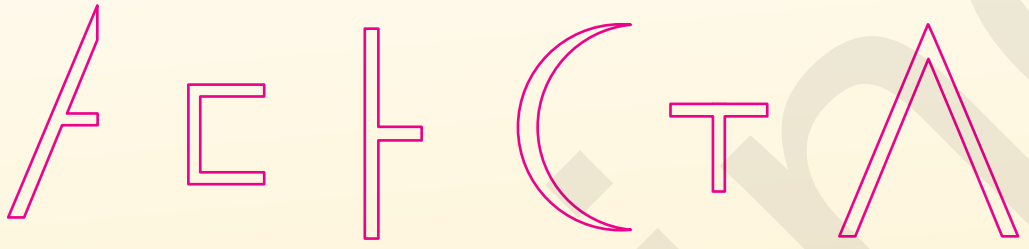
1. Draw the other halves to make the symmetrical shape:



2. Use the line of symmetry (dotted line) to divide the following shapes into two equal halves:

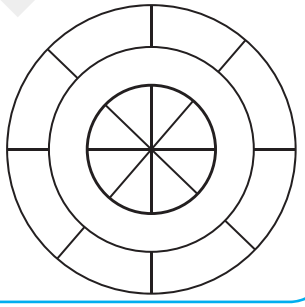



3. Guess the following alphabet by completing their equal halves:



Think Wisely

Colour the given figure using minimum numbers of colours so that no two adjacent regions have the same colour.



Mental Maths

Look for the pattern and write the next 3 terms of the series in each of the following.

(a) 10, 20, 30, 40, ……, …… , ……

(b) 5, 15, 25, 35, ……, ……, ……

(c) 20, 19, 18, 17, ……, ……, ……

(d) 2, 4, 6, 8, , ……, ……, ……

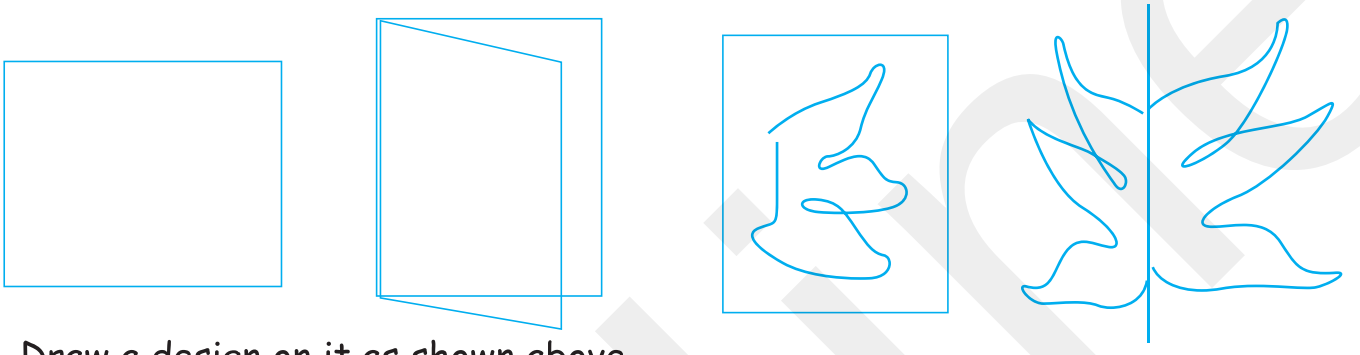
(e) 12, 17, 22, 27, ……, ……, ……

Maths Lab Activity

Materials required: Square pieces of coloured chart paper; at least 2 charts per student, pictures(which are symmetrical) cut from old magazines or newspapers, small hand mirrors - one for two students and a pair of scissors.

Steps:

1. This activity will be done in pairs.
2. Fold the given piece of paper into half.



3. Draw a design on it as shown above.
4. Cut along the design (Teacher will do). Now, open the paper and colour the symmetrical figure which has been formed.
5. Draw and cut out another design with your teacher's help.
6. Now, take the (cut out) pictures from the magazines and keep them on the desk.
7. One student will hold the picture flat.
8. The partner will keep the mirror on the picture to cover one half of the picture.
9. Move the mirror so the picture is half on the desk and the mirror completes the other half.
10. Mark the position of the mirror.
11. Remove the mirror and fold the picture on that line.
12. This is the line about which the picture is symmetrical.
13. Take more pictures.
14. Partners will take turns holding the mirror.