Model Textbook of

Mathematics

4

Based on National Curriculum 2022-23

National Book Foundation
as
Federal Textbook Board, Islamabad

بِسۡمِ اللّٰہِ الرَّحۡمٰنِ الرَّحِیۡمِ

Model Textbook of

Mathematics

Grade 4

Based on National Curriculum 2022-23

National Curriculum Council Secretariat,
Ministry of Federal Education and Professional Training,
Government of Pakistan

Model Textbook of **Mathematics**
for Grade 4

Authors
Dr. Shahzad Ahmad, Sadia Manzoor, Madeeha Nuzhat Varaich

Supervision
Dr. Mariam Chughtai
Director, National Curriculum Council Secretariat
Ministry of Federal Education and Professional Training, Islamabad

Internal Review Committee
Dr. Muhammad Irfan Ali, Federal Directorate of Education, Islamabad. Mr. Muhammad Anwar ul Haq, Bahria College, Islamabad.
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Ms. Fehmida Haroon, Bahria College, Islamabad. Ms. Hafiza Summayya Kausar, Bahria College, Islamabad.

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PREFACE

This Model Textbook for Mathematics grade 4 has been developed by NBF according to the National Curriculum of Pakistan 2022. The aim of this textbook is to enhance learning abilities through inculcation of logical thinking in learners. The main objective of this book is to develop higher order thinking processes by systematically building upon the foundation of learning from the previous grades. A key emphasis of the present textbook is on creating real life linkages of the concepts and methods introduced. This approach was devised with the intent of enabling students to solve daily life problems as they go up the learning curve and for them to fully grasp the conceptual basis that will be built upon in subsequent grades.

An amalgamation of the efforts of experts and experienced authors, this book was reviewed and finalized after extensive reviews by professional educationists. Efforts were made to make the contents student friendly and to develop the concepts in interesting ways.

The National Book Foundation is always striving for improvement in the quality of its books. The present book features an improved design, better illustration and interesting activities relating to real life to make it attractive for young learners. However, there is always room for improvement and the suggestions and feedback of students, teachers and the community are most welcome for further enriching the subsequent editions of this book.

May Allah guide and help us (Ameen).

Dr. Raja Mazhar Hameed
Managing Director

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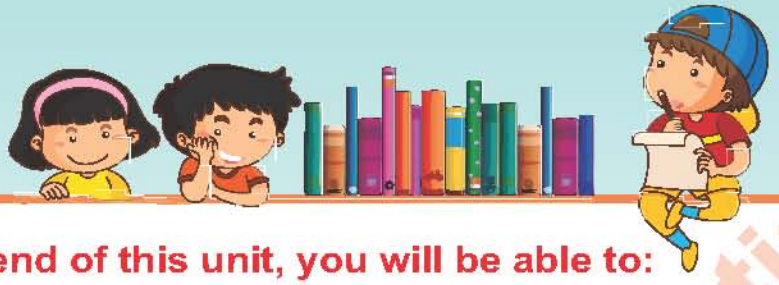
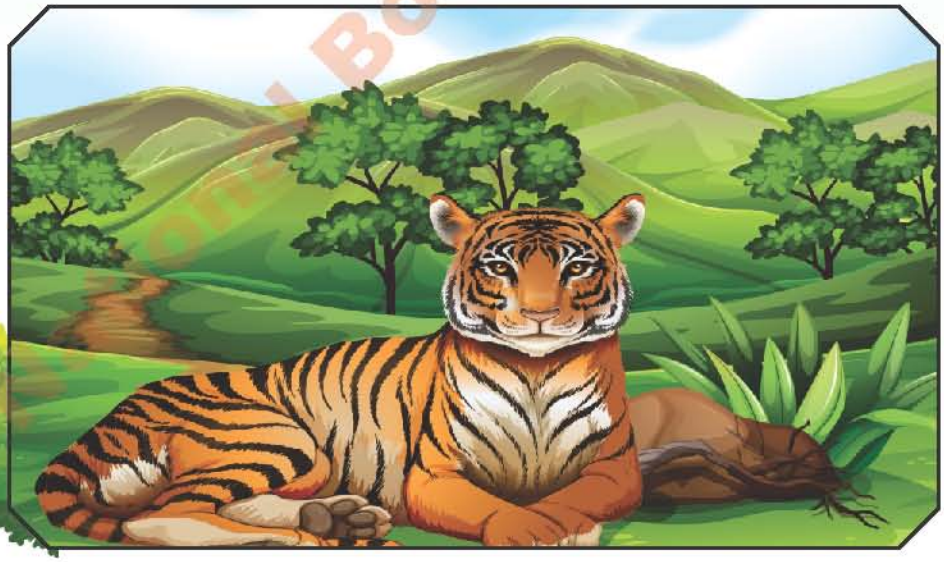
Unit-1

Whole Numbers



By the end of this unit, you will be able to:

- count up to 99,999 (5-digit numbers)
- identify place value of digits up to 5-digit numbers.
- read and write numbers up to 99,999 (5-digit numbers) in numerals and words.
- read and write Roman numbers up to 100.
- compare and order numbers up to 5 - digit.
- round off a whole number to the nearest 10, 100, 1,000 and 10,000.



A tiger eats 39,916 grams of meat at a time. How can we write this quantity in words?

Numbers up to Hundred Thousands

There is always a next number. Counting has no end. What is the next number after 9999?

If we add "1" in a given number then the next number is 9999 + 1 = 10000.

- we read it as ten thousand.
- 10 thousand is the smallest 5-digit number
- 99999 is the greatest 5-digit whole number.

In order to read a 5-digit number, we need to separate the digits according to the period. We read and write 82,617 as "eighty-two thousand, six hundred seventeen.

Ten thousand period ← 82 , 617 → Ones period

Six hundred seventeen

Eighty-two thousand

We write the number 82,617 in the place value chart as:

THOUSANDS		ONES		
Tth	Th	H	T	O
8	2	6	1	7

Key Fact

- Ones, Tens, Hundreds belongs to the ONES Period.
- Thousands, Ten thousands belongs to the THOUSAND Period.

Give flashcards of place values to children. Write some numbers on the board and by pointing every digit of the number one by one, ask children to show the correct place value of that digit.

Let us write 89,273 in the place value chart.

THOUSANDS		ONES		
Tth	Th	H	T	O
8	9	2	7	3

We write 89,273 in words as "eighty-nine thousand, two hundred seventy-three".

Now we write the place value of every digit in 89,273.

Try Yourself

Put commas in the correct place in 40291. Find the place value of each digit. Then write this number in words.

8 is in the ten thousands place and its value is	$= 8 \times 10{,}000 = 80{,}000$
9 is in the thousands place and its value is	$= 9 \times 1{,}000 = 9{,}000$
2 is in the hundreds place and its value is	$= 2 \times 100 = 200$
7 is in the tens place and its value is	$= 7 \times 10 = 70$
3 is in the ones place and its value is	$= 3 \times 1 = 3$

The expanded form of this number is:

$$89{,}273 = 80{,}000 + 9{,}000 + 200 + 70 + 3$$

Try Yourself

The length of the great wall of China is 21,196 kilometres. How can we read and write 21,196 in words?

Ask children to write one 5-digit number in their notebooks. Then instruct them to write this number in words and write the place value of every digit of that number.

Try Yourself

Murree is a tourist place. It is 7,500 feet or 22,860 centimetres approximately above sea level. Write 22,860 in words and then write it in its expanded form.

The cost of a photocopy machine is Rs. 90,490. Let's write the place and place value of digits of 90,490.

We write the number 90,490 in the place value chart as:

THOUSANDS			ONES	
Tth	Th	H	T	O
9	0	4	9	0

9 is in the ten thousands place and its value is = 9 × 10,000 = 90000

0 is in the thousands place and its value is = 0 × 1,000 = 0000

4 is in the hundreds place and its value is = 4 × 100 = 400

9 is in the tens place and its value is = 9 × 10 = 90

0 is in the ones place and its value is = 0 × 1 = 0

Try It!

By using the given digits:

- make the greatest 5-digit number and write it in words.
- make the smallest 5-digit number and write the place value of each digit.
- write three different numbers whose thousands digit is 3.
- make a 5-digit whole number where the sum of digits of hundred thousands place and tens place is 8, and the difference is 2.
- write a whole number in which no digit is repeated.

EXERCISE-1

1. Write the following numbers in expanded form.

a) 75,432	b) 37,911	c) 10,956	d) 46,743
e) 86,594	f) 99,223	g) 22,167	h) 57,890
i) 36,789	j) 78,324	k) 61,452	l) 56,432

2. Write the following numbers in standard form.

a) 20,000 +1,000 + 100 + 70 + 1 = _____

b) 30,000 + 9,000 + 200 + 30 + 5 = _____

c) 60,000 + 5,000 + 300 + 40 + 3 = _____

d) 50,000 + 6,000 + 700 + 90 + 0 = _____

3. Write the place and place value of the coloured digit.

a) 76,102	b) 24,360	c) 94,615	d) 90,496
e) 73,456	f) 18,654	g) 34,566	
h) 60,042	i) 56,324		

4. Write the following numbers in words.

a) 74,325	b) 43,711	c) 19,560
d) 75,434	e) 67,459	f) 25,302
g) 36,721	h) 78,065	i) 62,897
j) 37,264	k) 95,129	l) 43,275

5. Write the following in numbers.

a) Eighty-one thousand, six hundred.

b) Ninety thousand, four hundred two.

c) Sixty thousand, sixty-one.

d) Twelve thousand, three hundred one.

e) Eighty thousand, five hundred forty-six.

f) Seventy-two thousand, five hundred fifty-five.

g) Ninety-six thousand five.

h) Forty-four thousand, four hundred forty-four.

I) Sixty-one thousand, three hundred twenty.

Roman Numbers

Do you know from where Roman symbols came?

In Rome, people used their own symbols for various numbers.

Following are the seven symbols used to express different numbers.

Roman Numbers	I	V	X	L	C
Numbers	1	5	10	50	100

1 = I	11 = XI	21 = XXI	31 = XXXI	41 = XLI
2 = II	12 = XII	22 = XXII	32 = XXXII	42 = XLII
3 = III	13 = XIII	23 = XXIII	33 = XXXIII	43 = XLIII
4 = IV	14 = XIV	24 = XXIV	34 = XXXIV	44 = XLIV
5 = V	15 = XV	25 = XXV	35 = XXXV	45 = XLV
6 = VI	16 = XVI	26 = XXVI	36 = XXXVI	46 = XLVI
7 = VII	17 = XVII	27 = XXVII	37 = XXXVII	47 = XLVII
8 = VIII	18 = XVIII	28 = XXVIII	38 = XXXVIII	48 = XLVIII
9 = IX	19 = XIX	29 = XXIX	39 = XXXIX	49 = XLIX
10 = X	20 = XX	30 = XXX	40 = XL	50 = L

51 = LI	61 = LXI	71 = LXXI	81 = LXXXI	91 = XCI
52 = LII	62 = LXII	72 = LXXII	82 = LXXXII	92 = XCII
53 = LIII	63 = LXIII	73 = LXXIII	83 = LXXXIII	93 = XCIII
54 = LIV	64 = LXIV	74 = LXXIV	84 = LXXXIV	94 = XCIV
55 = LV	65 = LXV	75 = LXXV	85 = LXXXV	95 = XCV
56 = LVI	66 = LXVI	76 = LXXVI	86 = LXXXVI	96 = XCVI
57 = LVII	67 = LXVII	77 = LXXVII	87 = LXXXVII	97 = XCVII
58 = LVIII	68 = LXVIII	78 = LXXVIII	88 = LXXXVIII	98 = XCVIII
59 = LIX	69 = LXIX	79 = LXXIX	89 = LXXXIX	99 = XCIX
60 = LX	70 = LXX	80 = LXXX	90 = XC	100 = C

Key Fact

- Repetition of Roman numerals means addition.
- I and X appears thrice in a numeral:
  III = I + I+ I = 1 + 1+ 1 = 3
  XXX = X + X + X = 10 +10 + 10 = 30
  We write I, II, III for 1, 2, 3 respectively and write IV for 4 but not IIII.
- V, L and D are used in a numeral once only.
  We write X for 10 not VV.
- If a smaller numeral comes before the greater numeral, then we subtract the smaller numeral from the greater one:
  IV means V – I = 5 – 1 = 4, IX means X – I = 10 – 1 = 9,
  XL means L – X = 50 – 10 = 40.
- If a smaller numeral comes after the greater numeral, then we add the smaller numeral to the greater one:
  VI means V + I = 5 + 1 = 6, XI means X + I = 10 + 1 = 11,
  XV means X + V = 10 + 5 = 15, VII means V + II = 5 + 2 = 7
- We cannot write V to the left of X. Also, L and D never comes before any other numeral:
  We write XV for 15 but not VX for 5. Similarly, we write L for 50 but cannot write LC for 50.
- There is no symbol to represent zero in the Roman numeric.

EXERCISE-2

1. Convert following in to a Roman numbers.

i.	9	ii.	13	iii.	15	iv.	14
v.	17	vi.	23	vii.	7	viii.	19

2. Use the symbols (>, =, <).

a. LV….. XXXIX b. 43….. XL c. XII….. XXV

d. XIII….. XIV e. LIV….. 60 f. XXXIX….. 46

g. XIX….. 19 h.16….. XVII i.17….. XXI

3. Tick the smallest Roman number:

a. XXV b. XIX c. XXXIX d. XVII

4. Tick the greatest Roman number:

a. XI b. XXIV c. XXIII d. XIX

5. Arrange the following Roman numbers in ascending order:

a. VIII, III, XV, IX, XVI
b. IV, XIII, XXIX,LIV, LXIX

6. Arrange the following Roman numbers in descending order:

a. IX, XII, IV, XVI, XIX
b. VIII, XV, XIII, XLIX, XL

7. There are…….. number of days in a week.

a. IV b. IX c.VII d. X

8. There are…….. total letters in English alphabets.

a. XXII b. XXIV c. XV d. XXVI

9. Write Roman numbers in Hindu-Arabic numbers.

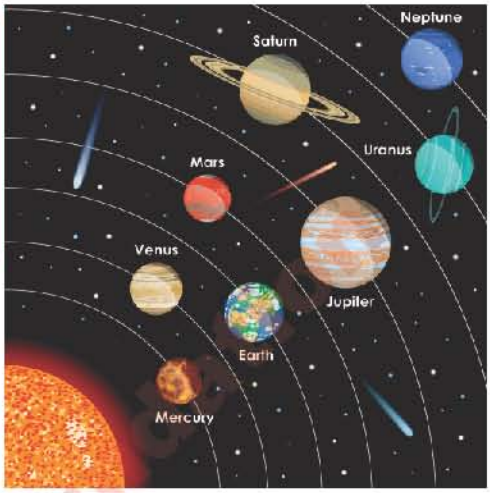
Roman Numbers	**IV**	**VIII**	**XVII**	**XXVI**	**XXX**
Numbers					

10. Write Hindu-Arabic numbers in Roman numbers.

Numbers	**39**	**56**	**67**	**80**	**81**
Roman Numbers					

Comparing and Ordering Numbers

The diameter of Earth is 12,742 kilometres. The diameter of Venus is 12,104 kilometres. How can we compare the diameters of both planets?



We can compare the numbers easily with the help of place value of digits.

Ten Thousands	Thousands	Hundreds	Tens	Ones
1	2	7	4	2
1	2	1	0	4

Try Yourself

Compare 62,323 and 62,199. Which is the greater number?

1. First compare the digit of the greatest place value. The digit of both numbers at ten thousands place is 1.
2. The digits of both numbers at thousands place is 2.
3. At hundreds place digit 7 is greater than digit 1.

So 12,742 is greater than 12,104. That is:

$$12{,}742 > 12{,}104$$

So, the diameter of the Earth is greater than the diameter of Venus.

Key Fact

To compare numbers, compare digits from left to right, until you find two different digits.

Let's now compare the numbers 32,979 and 40,322.

Try Yourself

Compare the greatest and smallest 5-digit number.

Ten Thousands	Thousands	Hundreds	Tens	Ones
3	2	9	7	9
4	0	3	2	2

Here the digit 3 at ten thousands place is smaller than the digit 4.
So 32,979 is smaller than 40,322. That is:

$32,979 < 40,322$

Try Yourself

Compare 8,799, 22,234 and 22,229. Which is the smallest number?

Example:

The price of three mobile phone models are Rs. 62,870, Rs. 78,200 and Rs. 75,110 respectively. Order their prices and write it in descending order.

Ten Thousands	Thousands	Hundreds	Tens	Ones
6	2	8	7	0
7	8	2	0	0
7	5	1	1	0

1. In 62,870 the digit at the ten thousands place is smaller than the remaining two numbers. Therefore 62,870 is the smallest number.

2. In 78,200 and 75,110 the digits at the ten thousands place are equal. In the thousands place, the digit 8 is greater than 5. Therefore 78,200 is greater than 75,110.
3. Hence the numbers can be arranged in descending order as follows:

78, 200; 75,100; 62,870

Key Fact

- The arrangement of numbers from the smallest to the greatest is called ascending order.
- The arrangement of numbers from the greatest to the smallest is called descending order.

Try It!

Make two 4-digit and three 5-digit numbers. In every number the digit at the thousands place is 6 and the digit at ones place is 9. Then compare these numbers and write in descending order.

Estimation

Rounding off Whole Numbers to the Nearest 10, 100 or 1000

In a garden there are 5,271 mango trees. How can we round off the number of trees to the nearest 10, 100 and 1,000?

We follow some rules to round off any number to the nearest 10, 100 or 1,000.

The rule for rounding off

Step 1: Locate the digit to be rounded,

Step 2: Look at the digit to the right.

- if it is 5 or more, then round it up.
- if it is less than 5, then round it down.

Example:

a. If we round off 5,271 to the nearest 10, then we will look at the ones digit. As this digit is less than 5, therefore:

$$5{,}271 \approx 5{,}270$$

Remove all the remaining digits from the right and put a zero in their place.

b. If we round off 5,271 to the nearest 100, then we will see the digit at tens place. As this digit is greater than 5, therefore:

$$5{,}271 \approx 5{,}300$$

Remove all the remaining digits from the right and put zeros in their places.

c. If we round off 5,271 to the nearest 1,000 then we will look at the hundreds digit. As this digit is less than 5, therefore:

$$5{,}271 \approx 5{,}000$$

Remove all the remaining digits from the right and add zeros.

Try Yourself

Round off 6,789 to the nearest 10, 100 and 1,000.

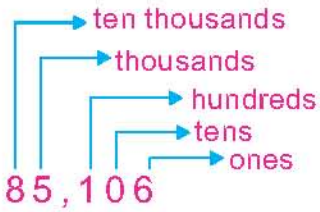
Round Numbers to the Nearest Ten Thousand

Kashif bought new motorcycle which costs Rs.85,106. How can he rounds off the cost of motorcycle to the nearest 10,000?

We need to follow some rules to round of a number to the nearest 10,000.

Call some students in front of the class and give them different number flash-cards. Now ask them to compare numbers and write in ascending and descending order.

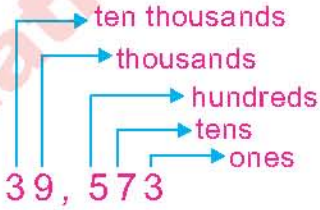
Since the digit at thousands place is greater than "5", so increase the digit at ten thousands place by "1" and ignore the digits at thousands place and thereafter. So, 85,106 rounded off to the nearest ten thousand is 90,000.

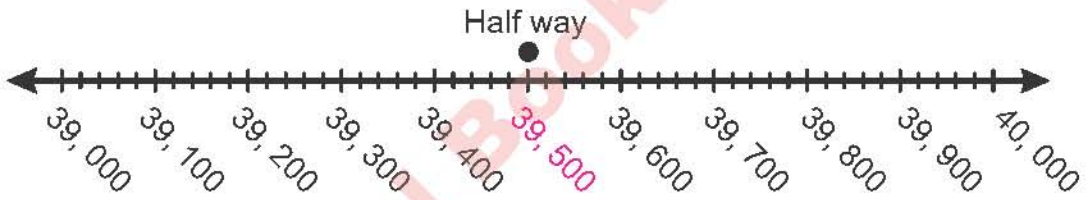


Example:

Round 39, 573 to the nearest ten thousand.

Since the digit at thousands place is greater than "5", so increase the digit at ten thousands place by "1" and ignore the digits at thousands place and thereafter. So, 39,573 rounded off to the nearest ten thousand is 40,000.





Since 39,573 is away from the middle number 39, 500.

Thus 39,573 is rounded to the nearest ten thousand is 40,000.

Try Yourself

Round off 78,999 to the nearest 10, 100, 1000 and 10000.

TEACHING POINT

Write some whole numbers on the board and explain the method of rounding off numbers to the nearest whole number. Ask the students to round off these numbers to the nearest 10, 100 and 1,000.

EXERCISE-3

1. Compare the following numbers by using symbols (<, >, =).

a) 84,325 _____ 93,417

b) 48,537_____ 19,314

c) 56,708_____ 32,156

d) 23,612_____ 23,612

e) 65,356 _____ 65,358

f) 74,932 _____ 74,542

g) 68,709_____43,216

h) 32,567_____23,578

2. Write the following numbers in descending order.

a) 83,401; 97,035; 12,337

b) 18,017; 18,221; 13,411

c) 42,734; 53,358; 48,176

d) 36,121; 34,222; 37,923

e) 16,483; 23,601; 36,243

f) 12,683; 24,313; 24,391

g) 32,531; 36,537; 28,540

h) 98,754; 78,543; 89,654

3. Write the following numbers in ascending order.

a) 40,131; 40,735; 31,273

b) 30,817; 28,211; 43,181

c) 70,442; 58,375; 84,176

d) 67,319; 22,342; 97,323

e) 83,624; 36,241; 63,283

f) 48,326; 23,634; 43,124

g) 59,312; 60,337; 24,085

h) 89,675; 84,675; 89,546

4. Round off the following whole numbers to the nearest 10, 100 and 1,000.

a) 9,871

b) 5,467

c) 1,212

d) 6,343

e) 5,555

f) 3,498

g) 1,289

h) 4,545

i) 1,111

5. Round off to the nearest 1000 and 10000.

a) 82, 726

b) 36, 912

c) 67, 584

d) 89, 652

e) 62, 976

f) 38, 672

g) 79, 882

h) 67, 584

I Have Learnt

- identifying the place value of digits in numbers up to ten thousand.
- reading and writing numbers up to ten thousand.
- reading and writing numbers in words up to ten thousand.
- comparing and ordering numbers up to 5-digits.
- identifying Roman numbers up to 100.
- rounding off numbers nearest to 10, 100, 1000 and 10000.

Vocabulary

number
digit
place value
compare
order
ascending
descending
Roman numbers
estimation
rounding off

Review Exercise

1. Encircle the correct answer.

a) The smallest 5-digit number is _____.

i) 11,111 **ii) 10,000** **iii) 10,101** **iv) 11,100**

b) After rounding off 4361 to the nearest 100, we get:

i) 4300 ii) 4400 iii) 4460 iv) 4360

c) In the number 73,810 the place value of digit 8 is _____.

i) 800 ii) 8 iii) 80 iv) 8,000

d) The greatest 5-digit number is _____.

i) 91,010 ii) 90,110 iii) 99,999 iv) 90,000

e) The number 34,811 is greater than _____.

i) 34,812 ii) 34,810 iii) 34,808 iv) 34,809

f) The number 43,110 is smaller than _____.

i) 43,112 ii) 43,106 iii) 43,010 iv) 43,108

2. Write the following numbers in words.

a) 43,567	b) 39,774	c) 95,201	d) 54,674
e) 75,864	f) 39,520	g) 21,086	h) 98,695
i) 60,090	j) 54,123	k) 45,290	l) 53,642

3. Write the following numbers in expanded form.

a	45,367	b	97,431	c	12,560
d	46,574	e	67,894	f	39,250
g	31,627	h	56,907	i	32,786
j	43,278	k	54,190	l	36,475

4. Write the following in numerals.

a) Forty-five thousand, one hundred.

b) Thirty thousand, eight hundred forty.

c) Fifty-one thousand, five hundred.

d) Sixty-two thousand, one hundred ten.

e) Ten thousand, five hundred fifty..

f) Twenty-nine thousand, six hundred twelve.

g) Ninety-six thousand, seven hundred.

5. Write the place and place value of the coloured digits.

a	76,502	b	82,436	c	94,671
d	96,070	e	35,756	f	82,651
g	45,266	h	23,454	i	86,351

6. Write the following in standard form.

a) 30,000 + 4,000 + 400 + 60 + 8 =_____

b) 60,000 + 9,000 + 000 + 00 + 5 =_____

c) 40,000 + 2,000 + 900 + 10 + 0 =_____

d) 70,000 + 1,000 + 600 + 70 + 8 =_____

e) 10,000 + 3,000 + 000 + 70 + 9 =_____

e) 10,000 + 8,000 + 000 + 60 + 3 =_____

7. Compare the following numbers by using symbols (<, >, =).

a	5,847_____31,341	b	34,875_____98,317
c	50,678_____45,321	d	75,326_____21,635

e 76,643_____ 76,643

f 37,256 _____54,490

g 66,809_____24,351

h 32,674_____26,228

8. Write the following in descending order.

a) 12,683; 14,601; 18,624

b) 16,283; 26,133; 14,394

c) 23,913; 30,536; 22,480

d) 54,788; 54,786; 54,790

9. Write the following numbers in ascending order.

a) 94,041; 84,405; 33,731

b) 19,375; 12,921; 14,131

c) 45,034; 37,358; 42,876

d) 36,172; 35,242; 37,723

10. Write the following Roman numbers in descending order.

a) XXV, XXIV, XIX, XXI

b) XL, XC, LX, LXV

11. Write the Roman numerals for the following numbers:

a) 9 b) 21 c) 37 d) 49 e) 66

f) 31 g) 43 h) 73 i) 92 j) 57

12. Write the Hindu-Arabic numerals for each of the following Roman numerals:

a) XXIV b) XVII c) LVI d) LVII

e) LXXI f) XL g) XCI h) XXXIX

i) LIX j) LXXVIII

Addition and Subtraction

By the end of this unit, you will be able to:

- add numbers mentally and in written form up to 5-digits.
- solve real life number stories involving addition of numbers upto 5 - digits.
- subtract numbers mentally and in written form up to 5-digits.
- solve real life situations involving subtraction of numbers up to 5 - digits.
- estimate sum and difference of numbers up to 5-digits.

An airplane covers 11,270 kilometres from Peshawar to Toronto. The same plane covers approximately 10,921 kilometres from Toronto to Lahore. Find the total distance covered. Also, find the estimated answer.

Addition

In town A, the total votes cast were 54,372. In town B, the total votes cast were 25,617. Can we find out how many votes were casted in both towns altogether?

To find the total number of votes cast, we add the two values.

	THOUSANDS		ONES		
	Tth	Th	H	T	O
Votes cast in town A =	5	4	3	7	2
Votes cast in town B =	+ 2	5	6	1	7
Total votes casted =	7	9	9	8	9

Thus the total votes cast in both towns are 79,989.

Example:

A publishing house published 25,575 story books. Considering the popularity of the book, the second edition was also published. In the second edition 42,915 books were published. Find out the total number of books published in both editions.

Try Yourself

Add 51,292 and 32,602.

TEACHING POINT

Instruct the students to make two 5-digit numbers. Ask them to add these numbers and explain the method of addition to them.

Here we add the number of books published to get the total quantity.

		THOUSANDS		ONES		
		Tth	Th	H	T	O
The number of books published in the first edition	=	2	①5	5	①7	5
The number of books published in the second edition	=	+ 4	2	9	1	5
Total quantity	=	6	8	4	9	0

Hence, the total number of books published is 68,490.

Try Yourself

Find the sum of the greatest 5-digit and the smallest 4-digit whole numbers.

Try It!

Copy and complete the following addition table.

	THOUSANDS		ONES		
	Tth	Th	H	T	O
	5			3	
+		2	9		4
	7	9	4	5	8

Explain the concept of addition with the help of different examples. Explain the rule of carrying during the process of addition.

Mental Addition of Numbers

To add numbers mentally, there are three different approaches:

a. Think of tens, hundreds and thousands
b. Use compensation
c. Break apart numbers

Add: 170 + 50
Think
170 = 17 tens,
50 = 5 tens

17 tens
\+ 5 tens
22 tens = 220

Add: 7,300 + 900
Think
7,300 = 73 hundreds
900 = 9 hundreds

73 hundreds
\+ 9 hundreds
82 hundreds = 8,200

Add: 18,000 + 7,000
Think
18,000 = 18 thousands
7,000 = 7 thousands

18 thousands
\+ 7 thousands
25 thousands = 25,000

Add: 49 + 23

49 $\xrightarrow{+1}$ 50(Add 1)
23 $\xrightarrow{-1}$ 22 (Subtract 1)

50 Add "1" to 49 to make 50.
\+ 22 Subtract "1" from 23 to
= 72 compensate.

Add: 778 + 82

778 $\xrightarrow{+2}$ 780 (Add 2)
82 $\xrightarrow{-2}$ 80 (Subtract 2)

780 Add "2" to 778 to make 780.
\+ 80 Subtract "2" from 82 to
= 860 compensate.

Add: 9597 + 203

9597 $\xrightarrow{+3}$ 9600 (Add 3)
203 $\xrightarrow{-3}$ 200 (Subtract 3)

9600 Add "3" to 9597 to make 9600.
\+ 200 Subtract "3" from 203to
= 9800 compensate.

Add: 48 + 16	Add: 136 + 74	Add: 7,500 + 305
= (40 + 8) + (10 + 6)	= (130 + 6) + (70 + 4)	= (7,000 + 500) + (300 + 5)
= (40 + 10) + (8 + 6)	= (130 + 70) + (6 + 4)	= (7,000 + 300) + (500 + 5)
= 50 + 14	= 200 + 10	= 7,300 + 505
= 64	= 210	= 7,805

EXERCISE-1

1. Add mentally.

a) 60 + 120 b) 300 + 1260 c) 77 + 67

d) 22 + 51 e) 2300 + 710 f) 122 + 118

g) 44 + 82 h) 222 + 333 i) 1620 + 980

2. Solve the following.

a.

	T.Th	Th	H	T	O
	1	3	9	2	7
+		2	4	1	5

b.

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

c.

	T.Th	Th	H	T	O
	7	5	6	7	9
+	1	6	8	2	8

d.

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

3. Solve the following.

a) 58,134 + 45,367 b) 78,954 + 12,236 c) 89,764 + 97,856

d) 53,241 + 67,543 e) 98,756 + 56,744 f) 65,432 + 87,643

g) 42,115 + 61,537 h) 58,764 + 65,744 i) 54,312 + 68,534

4. Nida bought a second hand laptop for Rs. 59,453 and spent Rs. 12,652 on repairing it. How much money did she spend altogether?

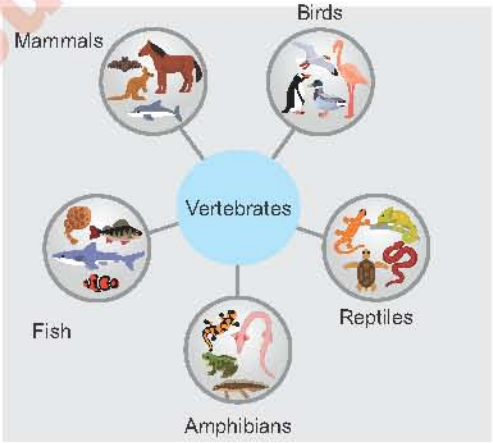
5. From Multan, 83,215 people traveled by air in the month of January while 21,084 in February. Find the total number of passengers traveled during these two months?

6. In a library there are 42,725 books. The administration decided to add 22,500 new books to it.
   a) Find out the total number of books in the library?
   b) If 23,890 more books are added, find out the total number of books?

7. A bus covered 23,672 kilometres in one month. The next month the same bus covered a distance of 31,716 kilometres.
   a) Find out the total distance covered in two months?
   b) In which month did it cover more distance?

Subtraction

Animals that have backbones in their bodies, are called Vertebrates. There are 66,178 types of vertebrates, out of which 32,900 types are fish. How many vertebrates are there other than fish?



To find this quantity, we have to subtract 32,900 from 66,178.

	THOUSANDS		ONES		
	Tth	Th	H	T	O
Total types of vertebrates =	6	⑤6	⑩1	7	8
Types of fish =	– 3	2	9	0	0
Remaining vertebrates =	3	3	2	7	8

The types of vertebrates other than fish are 33,278.

Try Yourself

Make any two 5-digit numbers and subtract the smaller number from the greater number.

Example:

In December 55,661 people visited the Pakistan Monument, while in January. 42,255 people visited it. Find out how many more people visited in December as compared to January?

Here we subtract the number of visitors visiting in January from the number of visitors visiting in December.

		THOUSANDS		ONES		
		Tth	Th	H	T	O
Number of visitors in December	=	5	5	6	⑤~~0~~	⑩1
Number of visitors in January	=	− 4	2	2	5	5
Difference	=	1	3	4	0	6

Therefore, 13, 406 more people visited in December.

Try Yourself

Subtract the greatest 4-digit number from the smallest 5-digit number.

Try It!

Find two numbers from the given numbers whose sum is 78,448 and the difference is 15,400.

46,924 | 72,876 | 31,524 | 66,234 | 89,076

TEACHING POINT

Make small groups of students and ask them to write two different 5-digit numbers and then subtract the smaller number from the greater number.

Mental Subtraction of Numbers

To subtract numbers mentally, there are three different approaches:

a. Think of tens, hundreds and thousands
b. Use compensation

Subtract: 180 – 70
Think
180 = 18 tens
70 = 7 tens
18 tens
– 7 tens
11 tens = 110

Subtract: 8,500 – 700
Think
8,500 = 85 hundreds,
700 = 7 hundreds
85 hundreds
– 7 hundreds
78 hundreds = 7,800

Subtract: 75,000 – 25,000
Think
75,000 = 75 thousands,
25,000 = 25 thousands
75 thousands
– 25 thousands
50 thousands = 50,000

Subtract : 69 – 24

69 $\xrightarrow{+1}$ 70 (Add 1)

24 $\xrightarrow{+1}$ 25 (Add 1)

70 Add "1" to 69 to make 70.
– 25 Add "1" to 24 to make 25.
= 45

Subtract : 683 – 38

683 $\xrightarrow{+2}$ 685 (Add 2)

38 $\xrightarrow{+2}$ 40 (Add 2)

685 Add "2" to 683 to make 685.
– 40 Add "2" to 38 to make 40.
= 645

Subtract : 9,687 – 297

9,687 $\xrightarrow{+3}$ 9,690 (Add 3)

297 $\xrightarrow{+3}$ 300 (Add 3)

9,690 Add "3" to 9,687 to make 9690.
– 300 Add "3" to 297 to make 300.
= 9,390

EXERCISE-2

1. Subtract mentally.

a) 52 – 32 b) 100 – 45 c) 210 – 90

d) 3105 – 2000 e) 40 + 101 – 40 f) 490 – 110

g) 609 – 303 h) 500 – 430 i) 1620 – 910

2. Solve the following.

a.

	T.Th	Th	H	T	O
	4	3	5	6	2
–		7	3	6	6

b.

	T.Th	Th	H	T	O
	5	6	8	4	8
–	3	4	3	8	9

c.

	T.Th	Th	H	T	O
	9	3	9	2	1
–	2	4	6	1	8

d.

	T.Th	Th	H	T	O
	6	5	6	7	5
–	1	6	4	4	7

e.

	T.Th	Th	H	T	O
	5	3	5	2	1
–	3	4	6	4	9

f.

	T.Th	Th	H	T	O
	3	3	2	7	5
–	2	6	2	3	8

g.

	T.Th	Th	H	T	O
	9	6	2	3	7
–	7	3	4	5	5

h.

	T.Th	Th	H	T	O
	6	7	4	5	3
–	3	2	5	1	4

3. Solve the following.

a) 45,158 − 34,756 b) 97,843 − 61,732 c) 99,754 − 67,584

d) 25,341 − 16,753 e) 85,964 − 74,544 f) 63,541 − 58,463

4. Saad's father has Rs. 52,490. He bought Saad, a bicycle for Rs.15,873.

a) How much money is left with Saad's father?

b) If the price of the bicycle is Rs.18,759, how much money will Saad's father have left?

5. In a granary, there are 66,375 bags of wheat and rice. If the number of wheat bags are 44,468, find out the number of rice bags.

6. In a school students of grade three collected Rs. 35,278 for a welfare institution while students of grade four collected Rs. 32,184 .Which grade collected more money and how much?

7. A candidate got 62,436 votes from one constituency while the other candidate got 86,733. How many more votes did the second candidate get?

Estimation in Addition and Subtraction

Kanwal plans her birthday party. She prepares a list of guests and expenses on decoration and food. How can she determine the overall cost for her birthday party.

She estimates the number of guests and charges for party arrangements.

One way to estimate sums and differences is to round each number. to the greatest place of the least number and then add or subtract the rounded numbers.

What is the estimated sum of 40,711 and 73,412 and the difference of 82,731 and 37,128?

Round to nearest thousands

40,711 → 41,000
73,412 → 73,000
\+
= 114,000

Round to nearest thousands

82,731 → 83,000
37,128 → 37,000
–
= 46,000

Note: Estimation does not give an exact result.

EXERCISE-3

1. Estimate the sum. Choose the best possible answer out of three given options.

   (i) 43 + 38 (70, 80, 90)
   (ii) 316 + 274 (500, 600, 700)
   (iii) 5,131 + 2,370 (4,000, 5,000, 7,000)
   (iv) 29 + 69 (80, 90, 100)
   (v) 3,480 + 1,970 (5,000, 6,000, 7,000)
   (vi) 486 + 325 (700, 800, 900)

2. Estimate the difference. Choose the best possible answer out of the three given options.

   (i) 617 – 392 (200, 300, 400)
   (ii) 4,726 – 1,975 (2,000, 3,000, 4,000)
   (iii) 9,681 – 3,092 (4,000, 6,000, 7,000)
   (iv) 826 – 312 (500, 400, 300)
   (v) 731 – 496 (100, 200, 300)
   (vi) 1981 – 943 (1000, 1100, 900)

3. Amjad visited a market and purchased household items. He paid Rs. 2,360 for rice and Rs. 3,561 for bakery items. Find estimated amount paid by Amjad.

4. Ali recorded that 8,981 people visited Swat on Eid day. If 3,740 people stayed during night, then estimate the number of people who returned back to their homes?

5. In election, Mr. Zaigham got 92,680 votes in polling station-I and 56,920 votes in polling station-II. Find estimated number of votes in both polling station.

I Have Learnt

- adding numbers up to 5-digits.
- solving real-life situations related to addition.
- subtracting numbers up to 5-digits.
- solving real-life situations related to subtraction.
- mental addition and subtraction of numbers.
- estimating sum and difference of numbers.

Vocabulary

numbers
addition
subtraction
estimation
sum
difference

Review Exercise

1. Choose the correct option.

a) The sum of 36,529 and 41,372 is equal to:

i) 77,904 ii) 77,903 iii) 77,901 iv) 77,902

b) The sum of 17,278 and 62,354 is equal to:

i) 78,234 ii) 342,211 iii) 79,632 iv) 213,455

c) Ayesha has Rs. 23,456. Her grandmother gave her Rs. 13,131 more. Now she has Rs._____.

i) 36,587 ii) 35,467 iii) 36,434 iv) 34,567

d) When we subtract 73,810 from 89,654, we will get_____.

i) 12,345 ii) 13,245 iii) 14,765 iv) 15,844

e) In a pond there were 87,654 fish. If 34,567 fish are shifted to another pond then _____ fish will be left in the first pond.

i) 53,123 ii) 53,456 iii) 53,087 iv) 53,567

f) Estimated sum of 3910 and 1045 is:

i) 3,000 ii) 3,500 iii) 4,000 iv) 5,000

g) Estimated difference of 370 and 310 is:

i) 50 ii) 100 iii) 150 iv) 0

2. Solve the following.

a)

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

b)

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

c)

	T.Th	Th	H	T	O
	3	3	2	7	5
−	2	6	2	3	8

d)

	T.Th	Th	H	T	O
	6	7	3	4	3
−	4	1	2	3	5

3. Solve the following.

a) 45,234 + 12,345 b) 24,567 + 13,466 c) 90,766 + 38,967

d) 46,525 - 23,145 e) 76,247 - 74,166 f) 46,016 - 20,989

4. In the first week 23,456 people went to visit the beach and in the second week 34,567 people went to visit the beach. Find:

a) The total number of people visited the beach in two weeks?

b) In which week less people visited the beach and by how much?

5. There were 12,345 cattle in a farm. 34,567 more cattle were added. Find:

a) How many cattle were there in the farm altogether?

b) If 26,754 were goats out of the total, what is the number of cattle other than goats?

6. There are 45,765 trees in a forest. If 32,124 are cactus, find the number of trees other than cactus. Also find the result by estimating.

7. Arsalan has Rs. 51,346. He wants to buy a laptop which costs Rs. 75,432. How much more amount does he need to buy the laptop? Find the estimated answer also.

8. Think of tens, hundreds or thousands to add and subtract numbers mentally.

(i) 180 + 90	(ii) 270 + 140	(iii) 680 + 140	(iv) 160 + 80
(v) 140 – 60	(vi) 320 + 270	(vii) 7, 600 + 620	(viii) 8, 600 + 800
(ix) 7, 500 – 1,500	(x) 71, 000 – 4, 5000		

9. Use compensation to add and subtract numbers mentally.

(i) 46 + 24	(ii) 148 + 72	(iii) 788 + 62	(iv) 1, 577 + 163
(v) 87 – 43	(vi) 76 – 34	(vii) 758 – 262	(viii) 1, 447 – 1, 053
(ix)1, 686 – 784	(x) 25, 758 – 20, 622	(xi) 1, 686 – 324	(xii) 18, 656 – 1, 484

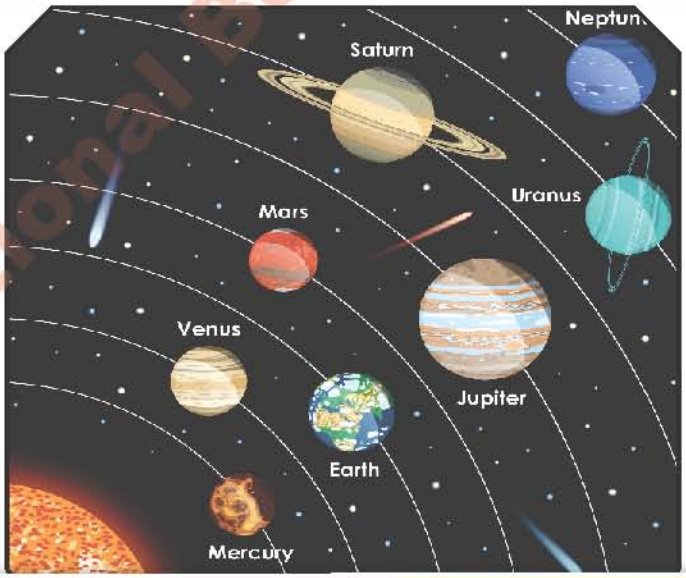
10. Break apart numbers to add and subtract mentally.

(i) 58 + 14	(ii) 108 + 72	(iii) 356 + 244	(iv) 5, 612 + 36
(v) 76 + 44	(vi) 152 + 92	(vii) 1, 236 + 640	(viii) 1, 456 + 820
(ix) 26, 712 + 18, 910		(x) 22, 620 + 8, 610	

Multiplication and Division

By the end of this unit, you will be able to:

- multiply numbers up to 5 - digit by numbers up to 3 - digit.
- solve real life situations involving multiplication of numbers up to 5 - digit by 3 - digit.
- divide numbers up to 4 - digit by numbers up to 2 - digit.
- solve real life situations involving division of numbers up to 4 - digit by a number up to 2 - digit.
- solve real life situations using appropriate operations of addition, subtraction, multiplication and division of numbers up to 2 - digit.



The Earth completes its revolution around the Sun in 365 days approximately. In how many days will it complete 3 revolutions?

Multiplication

If a person walks 6,213 steps in a day, find out how many steps he will walk in 3 days?

By multiplying 6,213 with 3 we will find the total number of steps. Multiply every digit of 6,213 with 3.

Multiply 3 ones with 3.

Th	H	T	O
6	2	1	3
×			3
			9

Multiply 1 tens with 3.

Th	H	T	O
6	2	1	3
×			3
		3	9

Multiply 2 hundreds with 3.

Th	H	T	O
6	2	1	3
×			3
	6	3	9

Multiply 6 thousands with 3.

Th	H	T	O
6	2	1	3
×			3
1 8	6	3	9

He will walk 18,639 steps in 3 days.

Example:

Find the product of 10,231 and 65.

	Tth	Th	H	T	O	
	1	0	2	3	1	multiplicand
				× 6	5	multiplier
	5	1	1	5	5	10,231 × 5
+	6	1	3	8	6	0	10,231 × 60
	6	6	5	0	1	5	Product

10,231 × 65 = 665,015

Example:

The cost of one tablet is Rs. 78,450. If a company sold 525 tablets, find out the amount of money obtained by selling these tablets?

By multiplying the price of one tablet with the total number of tablets, we will get the total amount.

Cost of one tablet = 78,450
Total tablets = 525
The cost of 525 tablets = 78,450 × 525

	T.Th	Th	H	T	O	
	7	8	4	5	0	
×				5	2	5
	3	9	2	2	5	0	78,450 × 5
	1	5	6	9	0	0	0	78,450 × 20
+	3	9	2	2	5	0	0	0	78,450 × 500
	4	1	1	8	6	2	5	0	

Therefore, the company sold 525 tablets for Rs. 41,186,250.

Try Yourself

- Multiply the greatest 4-digit number with the greatest 3-digit number.
- Multiply the smallest 3-digit number with smallest 5-digit number.

EXERCISE-1

1. Solve the following.

a) 631×4	b) 431×35	c) $8,434 \times 31$
d) $8,046 \times 678$	e) $7,601 \times 546$	f) $41,175 \times 80$
g) $79,762 \times 15$	h) $63,506 \times 303$	i) $11,098 \times 237$

2. A shopkeeper sold 34,523 metres of cloth in a week. How much cloth will he sell in 21 weeks?

3. Mr. Liaquat earns Rs.11,045 in a day.
   a) How much money will he earn in 365 days?
   b) How much money will he earn in 2 years?

4. In a factory 20,134 notebooks were printed in a day. How many notebooks will be printed in 210 days?

5. Each member of a group gave Rs. 34,156 for a tour of Naran and Kaghan. If there are 345 members of the group, how much money will be collected altogether?

TEACHING POINT

Ask the students to write few 5-digit numbers and few 3-digit numbers. Multiply a 5-digit number with a 3-digit number.

Division

84 students visited the river. They were given a boat in which 6 students could go on one round of the river at a time. How many rounds will it take for all students to have had the boat ride?

By dividing the total number of students by 6 we can find the number of rounds taken by the boat so that all the students will have had a boat ride.

Number of students visiting the river = 84

Number of students visiting the river side in one round = 6

Total number of rounds = 84 ÷ 6

Divide the highest place value digit 8 by 6.

Recall the table of 6. $6 \times 1 = 6$

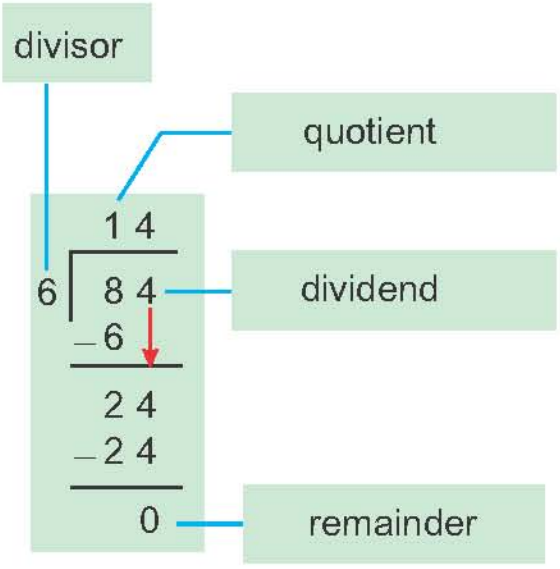
Write 1 as the quotient and write 6 below 8.

Subtract 6 from 8. $8 - 6 = 2$

Drop down 4 next to 2. Now we have number 24.

Recall the table of 6. $6 \times 4 = 24$

Write 4 in the quotient and write 24 below 24 and subtract to get remainder as 0.



$$84 \div 6 = 14$$

Thus, the total number of rounds, in which all the students had the boat ride, is 14.

Example:

Divide 9,528 by 48 and, identify the quotient and remainder.

```
       1 9 8    ← quotient
    ________
4 8 | 9 5 2 8
    - 4 8
    ________
      4 7 2
    - 4 3 2
    ________
        4 0 8
    -   3 8 4
    ________
          2 4   ← remainder
```

Quotient = 198

Remainder = 24

I have 1,455 lego blocks. Can I pack them equally in 12 packets?

For this, 1,455 has to be divided by 12.

Total number of lego blocks = 1,455

Total number of packets = 12

Lego blocks in each packet = 1,455 ÷ 12

```
       1 2 1    ← quotient
    ________
1 2 | 1 4 5 5
    - 1 2
    ________
        2 5
    -   2 4
    ________
          1 5
    -     1 2
    ________
            3   ← remainder
```

The number of blocks in each packet = 121

Remaining blocks = 3

I can not pack the lego blocks equally in 12 packets. 3 blocks will be left over.

> TEACHING POINT: Ask the students to write some 4-digit numbers and some 2-digit numbers. Divide a 4-digit number by a 2-digit number.

Real life situations involving four operations

The table shows the number of calories burned in one minute for two different activities.

Activity	Calories burned per minute
Walking	8
Running	10

Find out the number of calories a person would burn by walking for 5 minutes and then running for 15 minutes.

To find out the total calories, write the numerical expression and then find its value.

$5 \times 8 + 15 \times 10$

$= 40 + 150$

$= 190$

Example:

Simplify:

(i) $68 - 13 + 21$

(ii) $1{,}830 + 20 \times 50 - 397$

(i) To find out the answer we subtract 13 from 68 first and then add 21 to the answer

$68 - 13 + 21$

$= 55 + 21$

$= 76$

The value is 76.

(ii) $1{,}830 + 20 \times 50 - 397$

$= 1{,}830 + 1{,}000 - 397$ (Multiply)

$= 2{,}830 - 397$ (Add and Subtract from left to right)

$= 2{,}433$

Key Fact

When a number sentence has only the addition and subtraction operations, we work out the value from left to right

Key Fact

When a number sentence has two or more operations, divide first then multiply, add and then subtract.

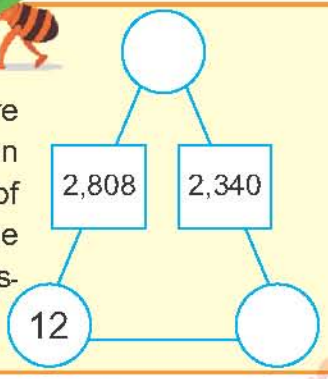
Try Yourself

A shopkeeper has three coloured blocks. The blocks in blue colour are 245. The red blocks are three times more than the blue blocks. The green blocks are 415 less than the red blocks. Find the total number of blocks.

Try It!

Challenge

The numbers given in the boxes are the product of the numbers given in the two circles at both ends of squares. Find out and write the correct numbers in the blank circles-



EXERCISE-2

1. Solve the following.

a) $3\overline{)585}$ b) $4\overline{)1816}$ c) $42\overline{)6972}$ d) $22\overline{)7546}$

e) $23\overline{)9568}$ f) $31\overline{)9641}$ g) $12\overline{)2868}$ h) $32\overline{)7392}$

i) 133 ÷ 11 j) 1,056 ÷ 8 k) 1,848 ÷ 88

l) 4,662 ÷ 42 m) 6,125 ÷ 10 n) 2,060 ÷ 23

2. In 45 relief camps, 2,340 blankets were distributed. How many blankets did each camp get?

3. If 1,107 chairs are placed in 27 rows, how many chairs will be there in a row?

4. If 3,036 biscuits are in 11 boxes, find out how many biscuits are in a box?

5. If 6,666 books are to be kept in 33 cupboards in a library, how many books will end up in each cupboard?

6. Saad bought 10 washing machines for Rs. 78,950 and an oven for Rs. 21,550 for his shop.
a) How much money did he spend altogether?
b) How much more money did he spend on washing machines, than the oven?

7. 1,350 kilograms of rice are packed, in 30 packets.
a) How many kilograms of rice are in one packet?
b) How many kilograms of rice will be packed in 38 such packets?

I Have Learnt

- multiplying 5-digit numbers with 3-digit numbers.
- solving real-life situations related to multiplication of 5-digit numbers, with 3-digit numbers.
- dividing 4-digit numbers by 2-digit numbers.
- solving real-life situations of division of 4-digit numbers by 2-digit numbers.
- solving real-life situations using appropriate operations of addition, subtraction, multiplication and division of numbers.

Vocabulary

numbers
digit
addition
subtraction
multiply
division

Review Exercise

1. Choose the correct option.

a) There are 4,500 plants in 90 rows. Each row contains an equal number of plants. Find the number of plants in a row.

i) 100 ii) 10 iii) 5 iv) 50

b) If the price of one book is Rs. 250, the price of 22 books will be _____.

i) Rs.5,555 ii) Rs. 5,550 iii) Rs. 5,500 iv) Rs. 5,000

c) By dividing 3,960 by 88, we will get _____.

i) 41 ii) 47 iii) 46 iv) 45

2. Solve the following.

a) 245 × 2 b) 743 × 12 c) 4324 × 41

d) 1,245 × 13 e) 67,453 × 345 f) 78,965 × 453

3. Solve the following.

a) 380 ÷ 5 b) 196 ÷ 12 c) 2925 ÷ 6

d) 3,294 ÷ 61 e) 1,766 ÷ 22 f) 2,205 ÷ 49

4. A bus has a capacity of 75 passengers. How many buses would be needed for carrying 1,575 passengers?

5. A car covers 1,288 kilometres in 23 hours.
   a) How much distance would it cover in one hour?
   b) How much distance would it cover in 11 hours?

6. A man pays Rs. 23,452 as one month's installment of his car.
a) How much will he pay in 2 years?
b) How much will he pay in 3 years?

7. Zaeem has 1,867 lego blocks. His sister gives him 4 more boxes of lego blocks. There are 1,205 lego blocks in one box. How many lego blocks does Zaeem have in total?

8. A shopkeeper sells 150 T-shirts and 100 trousers in a month. Find:
   (a) The cost of T-shirts if one T-shirt costs Rs.960.
   (b) The cost of trousers if one trouser costs Rs.380.
   (c) Total cost of both items.

9. There are 20 big boxes of LED bulbs each carry 250 bulbs. After checking, 800 bulbs were found faulty. The remaining LED bulbs were packed in 120 small boxes. Find:
   (a) How many LED bulbs were there, initially?
   (b) How many LED bulbs will there be in each small box?

10. In Ayub Park, 5,420 people visited on first day of Eid-ul-Fitr and 6,380 people visited on the second day. Find:

(a) How many people visited Ayub Park in two days?

(b) How many more people visited Ayub Park on second day than on first day?

© If each person paid Rs.20 as ticket fee, Find total amount paid by the people in two days.

11. An organization purchased 9,340 books on science subjects and 4,360 books on languages. Find:

(a) How many books were purchased altogether?

(b) How many more books were purchased on science subjects than languages?

(c) If 8,500 books were donated then how many books were left?

(d) If the remaining books were installed in 40 racks, then how many books were on each rack?

12. A factory prepares jam in orange and strawberry flavored. It prepares 1200 jars of orange flavored and 850 jars of strawberry flavored in a day.

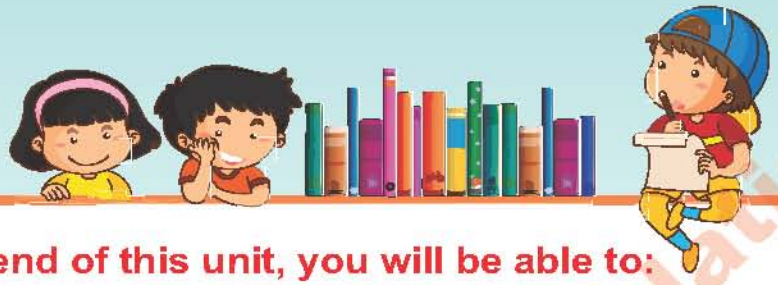
(a) Find the cost of orange flavored jars if one jar costs Rs.250.

(b) Find the cost of strawberry flavored jars if one jar costs Rs.300.

(c) If 50 jars can be placed in a rack, how many racks are required for both types of jars?

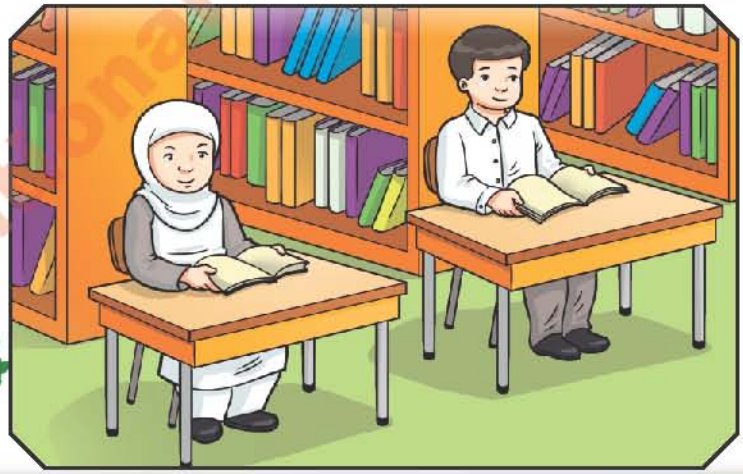
Unit-2

Factors and Multiples



By the end of this unit, you will be able to:

- identify divisibility rules for 2, 3, 5, and 10.
- use divisibility tests for 2, 3, 5 and 10 on numbers up to 5 digits.
- identify and differentiate 2 - digit prime and composite numbers.
- find factors of a number up to 50.
- list the first ten multiples of a 1 - digit number.
- differentiate between factors and multiples.
- factorize a number by using prime factors.
- determine common factors of two or more 2 - digit numbers.
- determine common multiples of two or more 2 - digit numbers.



Maria works in a library. There are 24 Mathematics books. She wants to put these books in 4 shelves so that each shelf has an equal number of books. In how many ways can she put the books?

Divisibility Rules

The divisibility rules tell whether a number is divisible by another number or not. Here are some rules that help us.

If the digit at the ones place of a number is 0, 2, 4, 6 or 8 then the number is divisible by 2.

All these numbers are divisible by 2.

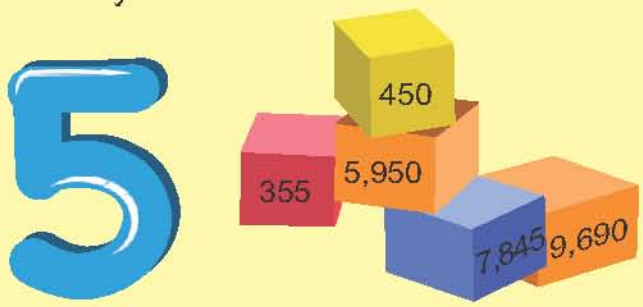
If the sum of all digits of a number is divisible by 3 then the number is divisible by 3.

All these numbers are divisible by 3.

63 is divisible by 3.
as $6 + 3 = 9$
and 9 is divisible by 3.
Therefore, 63 is divisible by 3.

28 is not divisible by 3.
as $2 + 8 = 10$
and 10 is not divisible by 3.
Therefore, 28 is not divisible by 3.

If the digit at ones place is 0 or 5 then the number is divisible by 5.



All these numbers are divisible by 5.

If the digit at the ones place is 0 then the number is divisible by 10.

All these numbers are divisible by 10.

Try Yourself

i . Write 5 numbers that are divisible by 2, 3, 5 and 10.

ii. The total number of pages in a book are 98,230.
Can we divide these pages into groups of 5?

Key Fact

If a number is divisible by 2 and 5 both, then the number is also divisible by 10.

Try Yourself

Ammar has Rs. 5,040. Is this amount divisible by 3?

Give flash-cards of numbers to students. By using divisibility rules, list numbers that are divisible by 2, 3, 4, 5 or 10.

EXERCISE-1

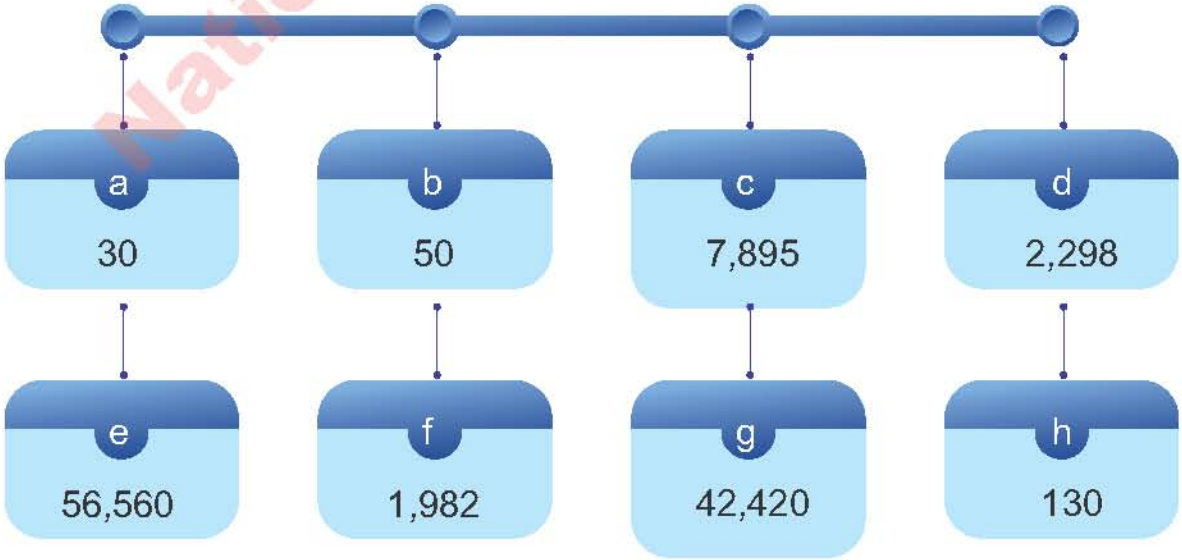
1. Mark the numbers that are divisible by 2?

a 16	b 43	c 98	d 134	e 6,781
f 2,114	g 9,226	h 67	i 540	j 82,420

2. Mark the numbers that are divisible by 3?

a 20	b 27	c 165	d 125
e 6,720	f 8,955	g 52,110	h 21,945

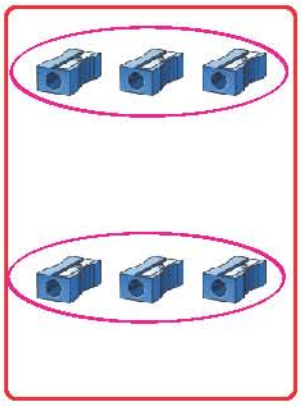
3. Encircle the numbers that are divisible by 5 and 10?



Factors and Multiples

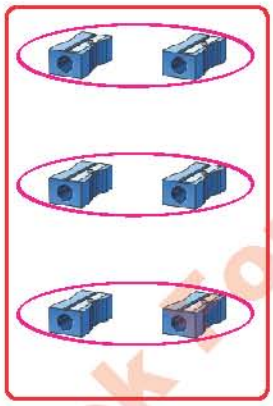
Fawad wants to put 6 sharpeners in rows so that each row has an equal number of sharpeners. In how many ways can he do this?

Fawad will put them in the equal rows in the following ways.



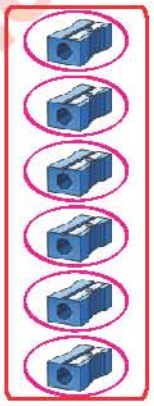
2 rows of 3 sharpeners

$2 \times 3 = 6$



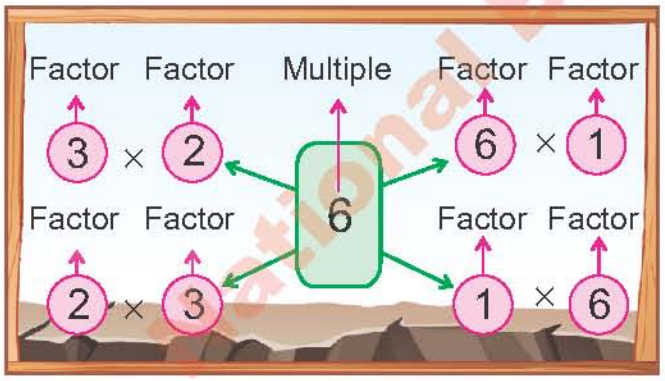
3 rows of 2 sharpeners

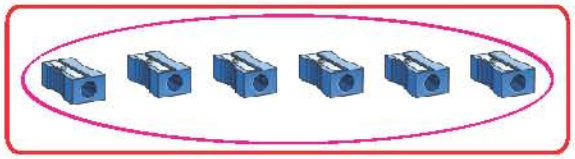
$3 \times 2 = 6$



6 rows of 1 sharpener

$6 \times 1 = 6$





1 row of 6 sharpeners

$1 \times 6 = 6$

1, 2, 3 and 6 divide 6 completely. Therefore 1, 2, 3 and 6 are factors of 6 and 6 is their multiple.

A Multiple is the product of one factor multiplied by an other factor.

Key Fact

Every number is a factor of itself and 1 is the factor of every number.

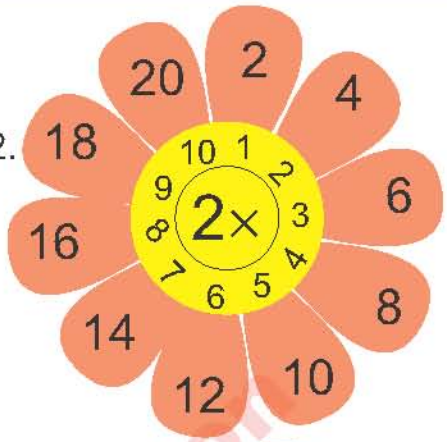
Example:

Find the first 10 multiples of 2.

To find the first 10 multiples of 2, recall the table of 2.

So the first ten multiples of two are as follows-

2, 4, 6, 8, 10, 12, 14, 16, 18, 20



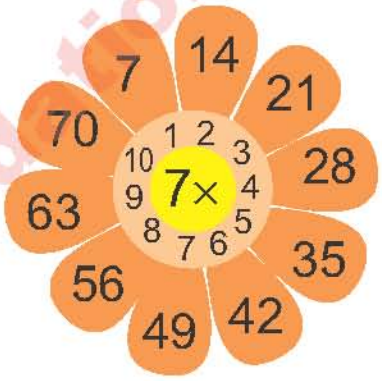
Example:

Find the first 10 multiples of 7.

To find the first 10 multiples of 7, recall the table of 7.

So the first ten multiples of 7 are as follows-

7, 14, 21, 28, 35, 42, 49, 56, 63, 70



Example:

Find the factors and first 10 multiple of 8.

Let's consider the factors and multiples of 8.

Factors of 8

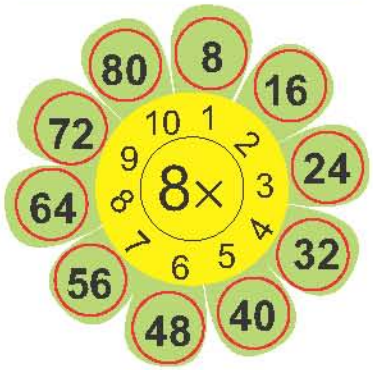
$8 = 1 \times 8$

$8 = 2 \times 4$

$8 = 4 \times 2$

$8 = 8 \times 1$

Multiples of 8



1, 2, 4 and 8 are the factors of 8.

The first ten multiples of 8 are as follows:

8, 16, 24, 32, 40, 48, 56, 64, 72, 80

TEACHING POINT

Explain the difference between factors and multiples to the students. Ask them to write some numbers in their notebooks and find their factors and multiples. Give some flash-cards of numbers to the students and ask them to separate prime and composite numbers.

Prime and Composite Numbers

Let's find the factors of 7.

$7 \times 1 = 7$

$1 \times 7 = 7$

The factors of 7 are 1 and 7.

Here, 7 is a prime number.

The numbers greater than 1, having only two factors, 1 and the number itself, are called Prime numbers.

Let's find out the factors of 21.

$1 \times 21 = 21$

$3 \times 7 = 21$

$7 \times 3 = 21$

$21 \times 1 = 21$

So, 1, 3, 7 and 21 are factors of 21.

Here 21 is a composite number.

Try Yourself

i. Write any 5 prime numbers.
ii. What is the greatest and smallest composite number between 1 and 100?

Key Fact

The numbers having more than two factors are called Composite numbers.

EXERCISE-2

1. Write all composite numbers between 30 and 50.

2. Encircle the prime numbers.

a) 15	b) 31	c) 42	d) 67
e) 11	f) 52	g) 98	h) 89

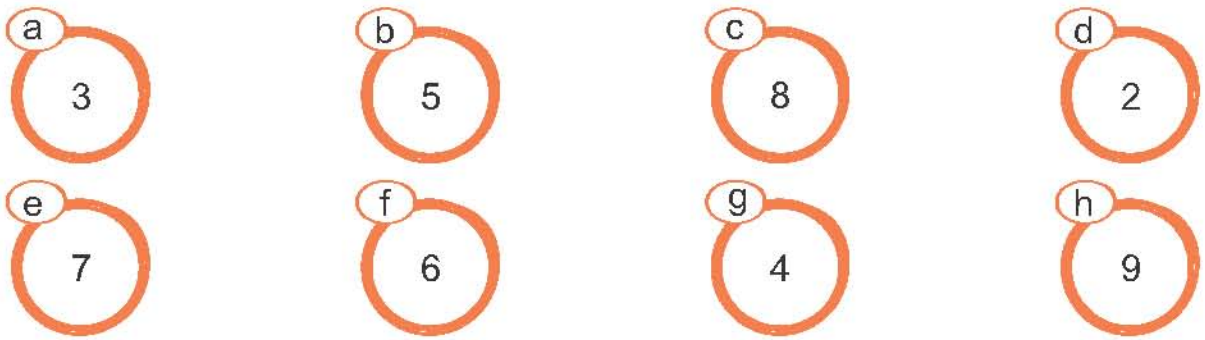
3. Write the first 15 prime numbers.

4. Identify the composite numbers and colour them.

1	11	21	31	41	51	61	71	81	91
2	12	22	32	42	52	62	72	82	92
3	13	23	33	43	53	63	73	83	93
4	14	24	34	44	54	64	74	84	94
5	15	25	35	45	55	65	75	85	95
6	16	26	36	46	56	66	76	86	96
7	17	27	37	47	57	67	77	87	97
8	18	28	38	48	58	68	78	88	98
9	19	29	39	49	59	69	79	89	99
10	20	30	40	50	60	70	80	90	100

5. Write the factors of the given numbers.

6. Write the first ten multiples of the given numbers.



Prime Factorization

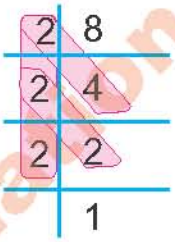
Do you know what is Prime factorization?

Let's find the prime factors of 8.

$8 = 1 \times 8$

$8 = 2 \times 4$

$8 = 2 \times 2 \times 2$



The prime factor of 8 = 2, 2, 2

So, the prime factorization of 8 = $2 \times 2 \times 2$

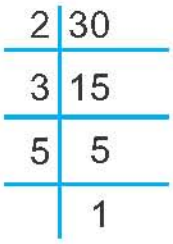
The process of writing a number as a product of its factors is called factorization. The factorization in which all factors are prime is called Prime factorization.

Example:

Find the prime factors of 30.

Prime factors of 30 = 2, 3, 5

Prime factorization of 30 = $2 \times 3 \times 5$



Common Factors

When two or more numbers have the same factor, that factor is called the Common factor.

Write a few numbers on the board and ask the students to find the factors using the prime factorization method.

Example:

Find the common factors of 12 and 16.

Factors of 12 = 1, 2, 3, 4, 6, 12

Factors of 16 = 1, 2, 4, 8, 16

$12 = 1 \times 12$
$12 = 2 \times 6$
$12 = 3 \times 4$

$16 = 1 \times 16$
$16 = 2 \times 8$
$16 = 4 \times 4$

The common factors of 12 and 16 are 1, 2, 4.

Example:

Find the common factors of 18 and 27.

Factors of 18 = 1, 2, 3, 6, 9, 18

Factors of 27 = 1, 3, 9, 27

$18 = 1 \times 18$
$18 = 2 \times 9$
$18 = 3 \times 6$

$27 = 1 \times 27$
$27 = 3 \times 9$

The common factors of 18 and 27 are 1, 3, 9.

Example:

Find the common factors of 9, 15 and 12.

Factors of 9 = 1, 3, 9

Factors of 15 = 1, 3, 5, 15

Factors of 12 = 1, 2, 3, 4, 6, 12

$9 = 1 \times 9$
$9 = 3 \times 3$

$15 = 1 \times 15$
$15 = 3 \times 5$

$12 = 1 \times 12$
$12 = 2 \times 6$
$12 = 3 \times 4$

The common factors of 9, 15 and 12 are 1, 3.

Try Yourself

Find the common factors of 30 and 45.

TEACHING POINT

Write a few numbers on the board and ask the students to find the common factor.

Common Multiples

Let us find the first two common multiples of 6 and 8.

To find the common multiples of 6 and 8:

(a) Find the first 10 multiples of 6 and 8

(b) **Circle the common multiples.**

Multiples of 6 = 6, 12, 18, (24), 30, 36, 42, (48), 54, 60

Multiples of 8 = 8, 16, (24), 32, 40, (48), 56, 64, 72, 80

So, first two common multiples of 6 and 8 are 24 and 48.

A number that is a multiple of two or more numbers is called the Common multiple.

Example:

Find first common multiple of 10, 15 and 12.

Multiples of 10 = 10, 20, 30, 40, 50, (60), 70, 80, 90

Multiples of 15 = 15, 30, 45, (60), 75, 90, 105, 120, 135

Multiples of 12 = 12, 24, 36, 48, (60), 72, 84, 96, 108

Thus, first common multiple of 10, 15 and 12 is 60.

Try Yourself

1. Find first two common multiples of 9 and 15.
2. Find the first common multiple of 8 and 24.

EXERCISE-3

1. Find the prime factors of the given numbers.

a) 17	b) 21	c) 34	d) 18	e) 44
f) 33	g) 4	h) 14	i) 48	j) 39

TEACHING POINT

Write a few numbers on the board and ask the students to find the common multiples of the numbers.

2. Find the common factors of the given numbers.

a. 6, 18
b. 10, 20
c. 24, 32, 18
d. 14, 30
e. 7, 21, 28
f. 20, 25, 15
g. 4, 8
h. 13, 39
i. 5, 30, 12

3. Find the first common multiple of the given numbers.

a. 3, 5
b. 9, 12
c. 10, 20, 30
d. 12, 22
e. 8, 4, 16
f. 51, 17, 34
g. 7, 14
h. 6, 15
i. 2, 5, 10

I Have Learnt

- identifying the divisibility rule of 2, 3, 5 and 10.
- using the divisibility rule of 2, 3, 5 and 10 up to 5-digit numbers.
- identifying and differentiating between prime and composite numbers.
- finding the factors of numbers up to 50.
- finding the multiples of 1-digit numbers.
- finding the difference between factors and multiples.
- use of prime factorization.
- finding the common factors of two or more numbers.
- finding the common multiples of two or more numbers.

Vocabulary

prime numbers
composite numbers
divisibility rule
factors
multiples
prime factorization
common factors
common multiples

Review Exercise

1. Choose the correct option.

a) 13 is a_____ number.

i) composite ii) common iii) multiple iv) prime

b) If _____ of the all digits of a number is divisible by 3 then that number is divisible by 3.

i) sum ii) difference iii) product iv) quotient

c) The Prime factorization of 24 is:

i) 8×3 ii) 1×24 iii) $2 \times 2 \times 2 \times 3$ iv) $2 \times 6 \times 2$

d) The common factors of 2 and 4 is _____.

i) 1, 2 ii) 2, 4 iii) 4, 8 iv) 8, 12

e) The first common multiple of 5 and 10 is _____.

i) 5 ii) 10 iii) 20 iv) 50

2. Use the divisibility rule to complete the given table below.

	Numbers	Divisible by 2	Divisible by 3	Divisible by 5	Divisible by 10
a	112				
b	986				
c	5,409				
d	5,600				
e	81,810				
f	5,912				
g	53,800				
h	2,134				

3. Write the first 12 composite numbers.

4. Write the prime numbers between 21 and 60.

5. Find the factors of the given numbers.

a) 10	b) 25	c) 35	d) 46	e) 23
f) 16	g) 4	h) 47	i) 38	j) 20

6. Find the first 6 multiples of the given numbers.

a) 2	b) 6	c) 5	d) 9

7. Find the prime factors of the given numbers.

a) 5	b) 19	c) 22	d) 15	e) 40
f) 21	g) 8	h) 30	i) 41	j) 38

8. Find the common factors of the given numbers.

a) 4, 20	b) 16, 24	c) 28, 56, 14
d) 17, 34	e) 12, 6, 18	f) 5, 10, 20

9. Find the first common multiple of the given numbers.

a) 2, 7	b) 6, 10	c) 12, 14, 18
d) 15, 30	e) 5, 15, 20	f) 6, 12, 15

10. Identify the prime numbers and composite numbers.

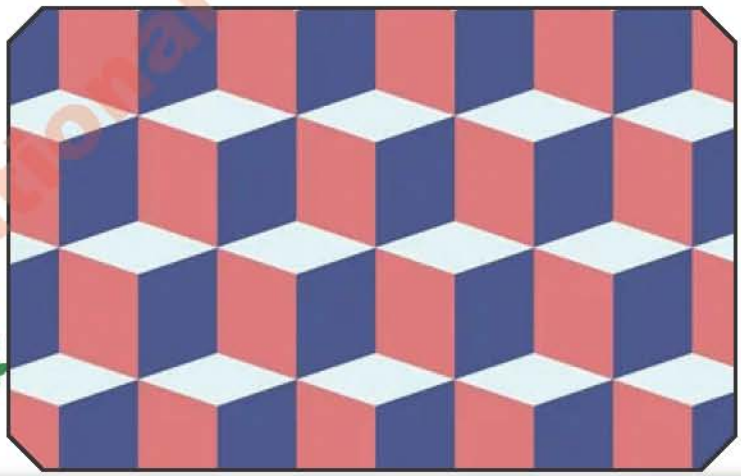
1	11	21	31	41	51	61	71	81	91
2	12	22	32	42	52	62	72	82	92
3	13	23	33	43	53	63	73	83	93
4	14	24	34	44	54	64	74	84	94
5	15	25	35	45	55	65	75	85	95
6	16	26	36	46	56	66	76	86	96
7	17	27	37	47	57	67	77	87	97
8	18	28	38	48	58	68	78	88	98
9	19	29	39	49	59	69	79	89	99
10	20	30	40	50	60	70	80	90	100

Unit-3

Algebra

By the end of this unit, you will be able to:

- recognize a given increasing and decreasing pattern by stating a pattern rule.
- describe the pattern found in a given table or chart.
- complete the given increasing and decreasing number sequence.
- Identify and write expressions or number sentences represent problems that may involve unknowns.
- identify and use relationships in a well -defined pattern (e.g., describe the relationship between adjacent terms and generate pairs of whole numbers given a rule).



Basit visits a pizza shop with his classmates. They ask for menu to order a pizza. They saw different pizza each with size and prices. They observe that with increase in size of pizza, it price also increases. So, they found a pattern in size and prices of different pizza.

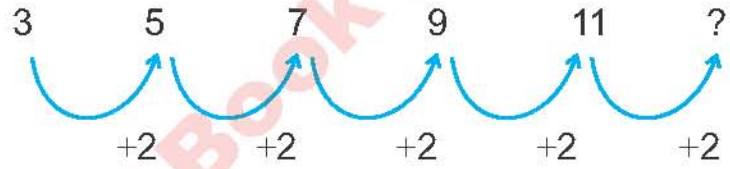
Patterns

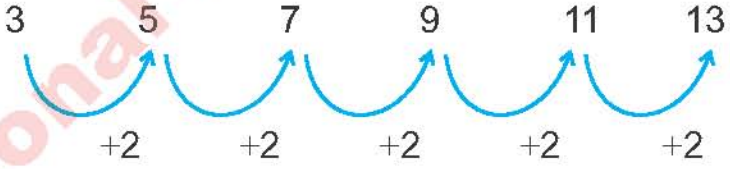
Ibrahim learns a few new words with meanings every week. In the first week, he learns 3 words. In the second week, he learns 5 words. In the third week, 7 words. In the fourth week 9 words, and in the fifth week he learns 11 words. If he keeps on learning new words like this, find the number of words he would learn in the sixth week?

Write in order all the number of words that he learnt:

3, 5, 7, 9, 11, _____

Now identify the rule in this order.





He would learn 13 words in the sixth week.

Ibrahim is learning with a special order. Here the rule, "add 2", means that to get the next term, we add 2 in the previous term. This sequence is known as an Arithmetic sequence.

Try Yourself

Find the next two terms of this sequence.

5, 10, 15, 20, ____, ____

Key Fact

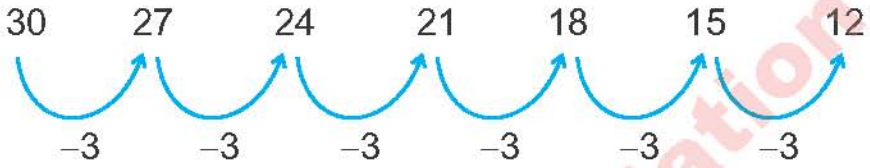
The rule of number patterns, tells us how one member, or number, in this pattern is derived from another member, or number.

Example:

Look at the number pattern: 30, 27, 24, 21, 18, _____, _____

Observe the pattern given above. Identify the rule and find the next two terms.

If we look at terms of this pattern we observe that we get the next number or term by subtracting 3 from the previous term.



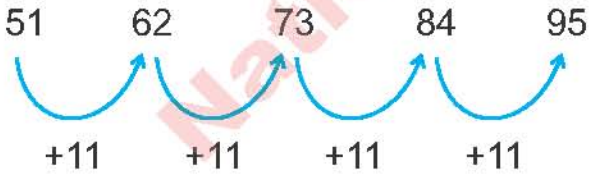
So, the rule of the pattern is "subtract 3".

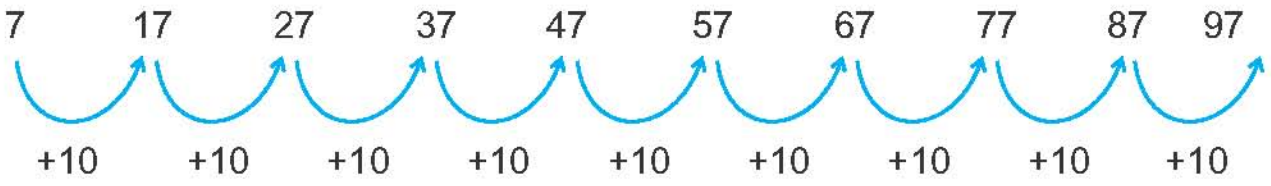
The next two terms of this pattern will be 15 and 12.

We can observe different patterns in charts and tables. Look at the given hundreds chart.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

The pattern of red boxes shows that, each next number is obtained by adding 10 to the previous number.





Divide the students into two groups. Ask them to make at least 5 patterns. Give the pattern developed by one group to the other group and ask them to identify the rule of these patterns.

If we follow the number pattern shown in the yellow boxes from 95, we can observe that every next digit in the pattern is being formed by subtracting 11 from the previous number.

Example:

The table below shows the number of pages of a story that Sehrish reads daily. If she continues to read the pages of the story with the same pattern, how many pages will she read on Friday?

Days	Pages Read
Saturday	2
Sunday	4
Monday	6
Tuesday	8
Wednesday	10
Thursday	12
Friday	

If we observe the terms of the number pattern in this table, we will find that two pages are being added every day. It means, that this is a pattern of addition.
Rule of the pattern: "Add 2"
2, 4, 6, 8, 10, 12, 14
Therefore, Sehrish will read 14 pages on Friday.

Try It!

Complete the patterns.

a) 2, 3, 5, 8, 12, _____, _____.
b) 40, 35, 29, 22, _____, _____.

Try Yourself

Observe the Hundreds chart and find at least two patterns of different mathematical operations. Also find the rules of these patterns.

EXERCISE-1

1. Observe the given patterns, describe the rule and write the next two terms.

a) 11, 15, 19, 23, 27, _____, _____.

b) 30, 60, 90, 120, 150, _____, _____.

c) 6, 12, 18, 24, 30, _____,_____.

d) 850, 800, 750, 700, 650, _____, _____.

e) 106, 103, 100, 97, 94_____, _____.

f) 284, 288, 292, 296,_____, _____.

g) 560, 540, 520, 500, _____, _____.

2. Observe the given chart and find at least 5 patterns. Also find the rules for these patterns.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

3. Observe the table given below and describe the rule of the pattern.

a)

Rule:_	
Weeks	Height of the plant
1	4 cm
2	8 cm
3	12 cm
4	16 cm
5	20 cm

b)

Rule:____	
Boxes of blocks	Total number of blocks
1	20
2	40
3	60
4	80
5	100

Identifying and Writing Expressions

A group of students have to participate in a science fair. They need to hire a stall to show their products which cost Rs.250 per hour. The science fair will take 6 hours. How much will the stall cost?

A number sentence will help you to solve the problem.

Given information:
- Stall costs Rs. 250 per hour
- Science fair takes 6 hours

To know: How much the stall will cost for 6 hours.

Operation: Multiplication

Let 'x' be a variable for unknown.

So, 'x' stands for how much the stall will cost.

$$x = 6 \times \text{Rs.}250$$

Solve for 'x'

$$x = \text{Rs. } 1{,}500$$

Thus, the stall will cost Rs. 1,500 for 6 hours.

Here, are some equations we called them number sentences:

$x + 3 = 8$	$\blacksquare - 6 = 19$	$6 - \blacksquare = 4$	$x \times 4 = 24$	$x + 4 = 16$
Expression	**Unknown**	**Constant**	**Variable**	Equations

An equation is a combination of two expressions joined by an equal sign. Each number sentence has one unknown.

The value of the unknown which makes the number sentence true is the solution of the equation.

Example:

$x + 6 = 11 \longrightarrow$ (i)

To solve an equation is to find the value of unknown ' x'.

Since '6' is added on left side of an equation (i), so subtract '6' on both sides of (i)

$$x + 6 - 6 = 11 - 6$$

$$x = 5$$

Check

From (i)

$x + 6 = 11$

Put $x = 5$

$5 + 6 = 11$

$11 = 11$

Example:

$x - 7 = 3 \longrightarrow$ (i)

To solve an equation is to find the value of unknown 'x'.

Since '7' is subtracted on left side of an equation (i), so add '7' on both sides of (i)

$$x - 7 + 7 = 3 + 7$$

$$x = 10$$

Check

From (i)

$x - 7 = 3$

Put $x = 10$

$10 - 7 = 3$

$3 = 3$

Key Fact

- A same number can be added/ subtracted on both sides of an equation.
- A same number except zero can be multiplied/ divided on both sides of an equation.

Example:

$\blacksquare \times 4 = 20$

To solve an equation is to find the value of unknown '■'.

Since '4' is multiplied on left side of an equation (i),

so divide '4' on both sides of (i)

$$\blacksquare \times 4 \cdot \frac{1}{4} = 20 \cdot \frac{1}{4}$$

$$\blacksquare = 5$$

Check

From (i)

$\blacksquare \times 4 = 20$

Put $\blacksquare = 5$

$5 \times 4 = 20$

$20 = 20$

Example:

$$\blacksquare \times \frac{1}{5} = 20$$

To solve an equation is to find the value of unknown '■'.

Since '$\frac{1}{5}$' is divided on left side of an equation (i),

so multiply '5' on both sides of (i)

$$\blacksquare \times \frac{1}{5} \cdot 5 = 20 \cdot 5$$

$$\blacksquare = 100$$

Check

From (i)

$$\blacksquare \times \frac{1}{5} = 20$$

Put $\blacksquare = 100$

$$100 \times \frac{1}{5} = 20$$

$$100 = 100$$

Example:

I am a number. If you subtracted 12 from me you will get 78. What number am I?

Number $= x$
According to Question

$$x - 12 = 78$$
$$x = 90$$

Thus, Number $= x = 90$

EXERCISE-2

1. Write a number sentence or a number expression:
   (i) Saad added a number to 32, and he gets a sum of 50.
   (ii) A number is added to 4 and then multiplied by 12, the result is 96.
   (iii) When a number is subtracted from 12 and then multiplied by 4, the result is 16.
   (iv) When a number is added to 6 and the sum is divided by 2, the result is 8.
   (v) Iqra added a number to 42, and she obtained a sum of 80.

2. Solve following equations and also check your answer.

i	$n - 7 = 13$	ii	$17 - x = 13$
iii	$18 \div \blacksquare = 3$	iv	$x + 29 = 58$
v	$\blacksquare \div 4 = 13$	vi	$\frac{x}{10} = 4$
vii	$63 \div x = 7$	viii	$42 - m = 32$
ix	$\blacksquare \times 9 = 81$	x	$x - 5 = 12$

Identifying and Using Relationship

Teacher asked two students to participate in a number game. First, Mooed think an input number and then Basit do something and generate an output number.

Mooed	Basit
Input	Output
2	8
3	12
4	16
8	32
9	36
10	?

Now, teacher asked the whole class to see numbers in both columns and think what is output number for input number 10.

Input Number	Rule	Output Number
10	× 4	40

This "× 4 "is called the rule because all output numbers are obtained by multiplying input numbers with "4".

Example: How each input number is related to its corresponding output number in the following

Input	Rule		Output
12	÷ 3	=	4
18	÷ 3	=	6
21	÷ 3	=	7
27	÷ 3	=	9
30	÷ 3	=	10

Input	Output
12	4
18	6
21	7
27	9
30	10

The rule is "÷3".

Example: Complete the following tables:

	Rule: −6			Rule: +13			Rule: × 3			Rule: × 7	
a.	Input	Output	b.	Input	Output	c.	Input	Output	d.	Input	Output
	8	2		4			2				49
	13			9			3				63
	17			11			7				77
	28			15			9				98
	37			19			11				112

	Rule: +12			Rule: ÷ 8			Rule: −5			Rule: ÷ 15	
e.	Input	Output	f.	Input	Output	g.	Input	Output	h.	Input	Output
		16			4			20		60	
		26			6			27		75	
		34			9			36		120	
		45			11			50		180	
		48			13			63		210	

Try It!

*	2	3	4
#	2	7	14

a. * + 0 = # b. # −4 = * c. * × *−2 = # d. * × *+2= #

Example:

Consider a table with rule $y = 3x$. Then following will be the pairs of whole numbers:

When $x = 0, y = 0 \Rightarrow (x, y) = (0, 0)$
When $x = 1, y = 3 \Rightarrow (x, y) = (1, 3)$
These pairs of whole numbers known as ordered pairs.

Input (x)	Output (y)
0	0
1	3
2	6
3	9
4	12
5	15

EXERCISE - 3

1. Consider a table with rule $y = x \div 4$. Then answer the following questions:

Rule $y = x \div 4$					
Input (x)	4	8	12	16	20
Output (y)					

Complete the above table.

Use the values of x and y and find the ordered pairs.

2. Find the rule and answer the following questions:

Rule: ?						
Input (x)	0	1	2	3	4	5
Output (y)	0	5	10	15	?	?

Complete the above table.
Use the values of x and y and find the ordered pairs.

3. For each equation, complete the table with 6 values of x and y.

a. $y = x \times 3$
b. $y = x \div 4$
c. $y = 3x + 1$

I Have Learnt

- Observing the given pattern of whole numbers.
- Completing the given pattern in ascending or descending order.
- Identifying and write expressions or number sentences.
- Determining the unknown in the given equation.
- Identifying and use relationships in a well defined pattern.
- Describing the relationship between adjacent pattern.
- Using rule generate pairs of whole numbers.

Vocabulary

pattern
expressions
Number sentences
functions/rules
whole numbers
ordered pairs
equations

Review Exercise

1. Encircle the correct answer.

a) Find the next term in the pattern: 6, 18, 30, 42,_____.

i) 48 ii) 54 iii) 56 iv) 46

b) The next term in 88, 78, 68, is _____ .

i) 98 ii) 58 iii) 48 iv) 47

c) If 16 + ☐ = 23, then value of unknown ☐ is:

i) 7 ii) 9 iii) 39 iv) 29

2. Observe the given patterns, identify the rule and write the next two terms.

a) 3, 9, 15, 21, _____, _____.

b) 100, 90, 80, 70, 60 _____, _____.

c) 12, 18, 24, 30, 36, _____,_____.

d) 2, 10, 18, 26, 34_____, _____, _____.

e) 106, 95, 84, 73, 62,_____, _____.

3. See the pattern of input and output numbers and write the rule for the following tables:

a.

Rule:	
Input	Output
5	40
9	72
11	88
14	112
18	144

b.

Rule:	
Input	Output
80	69
71	60
65	54
53	42
47	36

c.

Rule:	
Input	Output
9	34
17	42
23	48
31	56
37	62

4. I am a number. If you added 8 in me you will get 48. What number am I?

5. Find the number that "m" stands for in each equation:

i. $m + 12 = 3 \times 7$ ii. $m \times 12 = 36 - 12$ iii. $4 \times 6 = 48 \div m$

iv. $42 \div 6 = 21 \div m$ v. $m \times 5 = 50 \div 5$ vi. $12 \div 9 = m - 4$

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قومی ترانہ

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تو نِشانِ عزمِ عالی شان ارضِ پاکستان
مرکزِ یقین شاد باد!

پاک سر زمین کا نِظام قُوّتِ اُخوّتِ عوام
قوم ، مُلک ، سلطنت پائندہ تابندہ باد!
شاد باد منزلِ مُراد!

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