GANITAM

WORLD OF MATHEMATICS

CLASS IV
PART 1

Name:

School:

Ganitam

The World of Mathematics

Part I

Ganitam

The World of Mathematics

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MRP ₹ 200/-

Preface

‘Ganitam’ – The World of Mathematics

Mathematics builds hope. It helps us believe that every problem has a solution.

Education imparted in classrooms should be linked to life outside school. Hence the knowledge and skills acquired in school should help children understand the world around them better, and thereby contribute towards its betterment. This series of books on Mathematics titled “Ganitam-The World of Mathematics”, has been prepared with that thought on our minds. The book has been designed in such a way that it enhances inquisitiveness in children by encouraging them to ask questions and seek answers rather than just learn what is listed in the books.

The content has been carefully curated, so that it reflects the rich cultural diversity of our motherland Bharat, enabling the child to intuitively understand the unifying values that bond the citizens of this great country together. Thus, the book will help a child gain various skills required for the 21st century and be a universal citizen with a passion for following Indian values.

The core content of the book originates from the Vedas which provide the key concepts of Mathematics. For example, the sutra एकाधिकेन पूर्वेण (Ekaadhikena Purvena) indicates an interesting mathematical application. Great ancient Indian scholars like Acharya Aryabhatta, Brahmagupta, Bhaskaracharya, Pingala, Mahavira, and more contemporary ones like Srinivasa Ramanujan along with their counterparts from other parts of the world, have further developed this body of knowledge. Numerous teachers from the DAV Group of Schools, with their decades of rich experience, have compiled the existing knowledge in a child-friendly form.

 Considering the social orientation of the organization, we have consciously ensured that the cost of the textbook is affordable without

compromising on the quality of paper/print. Also, the e-copy of the entire book will always be downloadable for free from our website – davchennai.org/publications.

This is the first version of the book and could contain not only omissions, but also areas of improvement. We request the reader to excuse us for the omissions, but please do bring to our notice any feedback for correction and improvement in subsequent versions. We will remain grateful to you for your support and feedback.

Lastly, before signing off, we would like to express our profound gratitude to Almighty for guidance and encouragement in this endeavour. As the great mathematician, Srinivasa Ramanujan, rightly said - **"An equation for me has no meaning unless it expresses a thought of God."**

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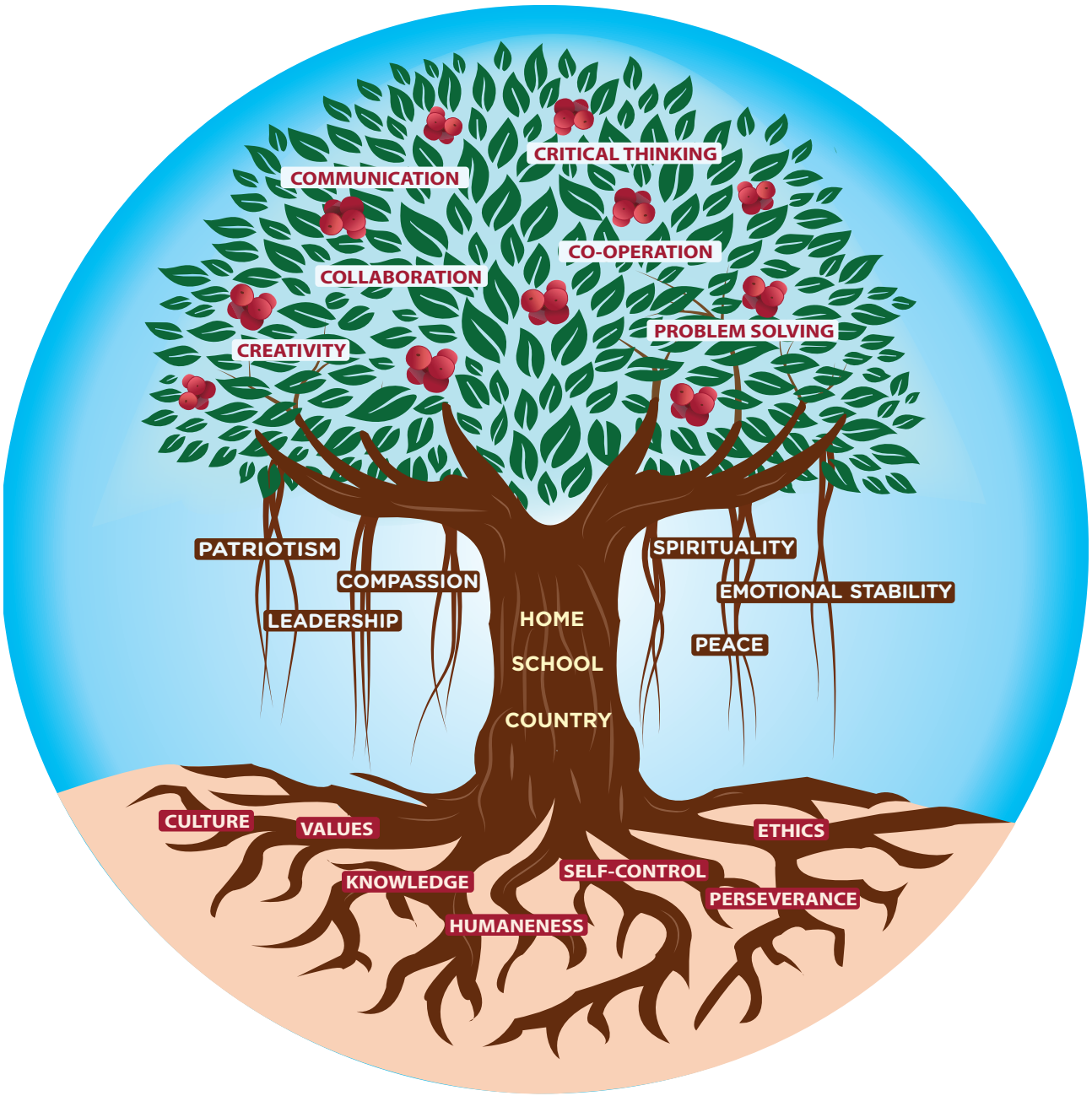
The Learning Tree



Contents

LARGE NUMBERS

Learning Outcomes

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

Read and write 5 and 6-digit numbers, Identify place, place value and face value of numbers, Write 5 and 6-digit numbers in expanded and standard form, Compare large numbers, Find the successor and predecessor of large numbers, Arrange large numbers in ascending and descending order, Build the greatest and the smallest 5 and 6 digit numbers, using the numerals given.

Pranav and Surya are friends. After the yearly examinations they decide to join the school summer camp. Both are great fans of Sachin Tendulkar. They have his achievement records at their finger tips.

Pranav: Hai! Surya, shall we join the summer camp for cricket coaching? I love to play cricket.

Surya: Of course, I have already made up my mind to join. Even yesterday I was looking at Sachin's one-day international record on the runs scored. It was a 5-digit number and I was not able to read it correctly.

Pranav: Oh! that is easy. The greatest place in a 5- digit number is ten thousands.

TTh	Th	H	T	O
1	8	4	2	6

In order to make reading easy, the digits are grouped into periods.

Ones, tens and hundreds digit ⟶ Ones period

Thousands, Ten thousands digit ⟶ Thousands period

Step1: Read the digits in the thousands period together

Step2: Read the digits in the ones period together

20,516 Twenty thousand five hundred sixteen

Use of commas in reading and writing 5-digit numbers

Commas are used to distinguish the periods in a number. A comma is placed after the thousands period to distinguish it from ones period.

For example:

In the number 19487 a comma has to be placed after the first three digits from the right i.e. the hundred place. Thus the ones, tens and hundreds place that form the ones period is separated from the thousands period by a comma.

We read 19,487 as **Nineteen thousand** four hundred eighty-seven

50231 is written as 50,231

We read 50,231 as **Fifty thousand** two hundred thirty-one

Place value chart

Ten Thousands (T Th)	Thousands (Th)	Hundreds (H)	Tens (T)	Ones (O)
1	3	5	4	8

Place value of 1 = 10 000
Place value of 3 = 3 000
Place value of 5 = 500
Place value of 4 = 40
Place value of 8 = 8

→ 13548

Megala: Amma, Pranav was excited about Sachin's run record. He reads the newspaper, specially to know the sports news. How many would get to read a newspaper in a day?

Amma: Newspapers are printed in lakhs. Lakhs of people read them not only to know the sports news, but also to know the happenings in all spheres of life.


Tendulkar's still on top of the world

MASTER BLASTER SACHIN TALKS ABOUT HIS AMAZING JOURNEY AND NEW DOCUMENTARY FILM

Little Master's award winning dream team

Megala: Lakhs! What is it?

1 more than the greatest 4-digit number 9,999 is 10,000.

It is the smallest 5- digit number.

The greatest 5- digit number is 99999

1 more than 99,999 is 1,00,000

Amma: 1,00,000 (Read as 1 Lakh) is the first or the smallest 6-digit number.

The Postal Index Number (PIN) of different places is a 6-digit number. The PIN helps the postal and courier department to categorize the letters, parcels, etc, according to region, area, district and state.

Periods in a 6-digit number

Ones, tens and hundreds digits ⟶ Ones period

Thousands, Ten thousands digits ⟶ Thousands period

Lakhs digit ⟶ Lakhs period

Step 1: Read the digits in the lakhs period

Step 2: Read the digits in the thousands period together

Step 3: Read the digits in the ones period together

Use of commas in reading and writing 6-digit numbers

As discussed earlier, commas are used to distinguish the periods in a number. A comma is placed between the ones and thousands period and also between the thousands and lakhs period.

For example:

In the number 469737, a comma has to be placed as follows 4,69,737

We read 4,69,737 as **Four lakh sixty nine thousand seven hundred thirty seven**

193602 is written as 1,93,602

We read 1,93,602 as **One lakh ninety three thousand six hundred two**

Place Value Chart

Lakhs Period	*Thousands Period*		*Ones Period*		
Lakhs	*Ten Thousands*	*Thousands*	*Hundreds*	*Tens*	*Ones*
3	1	8	4	7	2

Place value of 3 = 3 x 1,00,000 = 3,00,000

Place value of 1 = 1 x 10,000 = 10,000

Place value of 8 = 8 x 1,000 = 8,000

Place value of 4 = 4 x 100 = 400

Place value of 7 = 7 x 10 = 70

Place value of 2 = 2 x 1 = 2

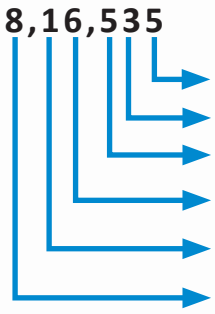
3,18,472

It is read as Three lakh eighteen thousand four hundred seventy-two.

Face value of a digit in a number is the value of the digit itself. This value is the same wherever it is placed in a number.

Example:

8,16,535



Place Value	Face Value
5 ones or 5	5
3 tens or 30	3
5 hundreds or 500	5
6 thousands or 6000	6
1 ten thousand or 10,000	1
8 lakhs or 8,00,000	8

The face value of 8 in the above number is 8. Its place value however is 8,00,000 since it is in the lakhs place.

EXERCISE 1.1

1) Rewrite the following numbers using periods (commas) and write their number names

   a) 47025 b) 109957 c) 212121

   d) 830869 e) 361490 f) 539201

2) Write the period, place, place value and face value of the coloured digit

Number	Period	Place	Place Value	Face Value
a) 7**8**429				
b) **5**47308				
c) 6**2**2412				
d) 1097**0**				
e) 28**3**216				

3 Write in figures

a) Sixty three thousand three hundred two

b) Five lakh ten thousand three hundred seventeen

c) Two lakh seventy thousand two hundred sixty eight

d) Thirty nine thousand one hundred

e) Nine lakh sixteen thousand twelve

f) One lakh one

g) Forty nine thousand thirteen

4) Draw the place value chart for the following numbers

a) 29,057 b) 6,74,125 c) 78,109 d) 34,622 e) 8,01,753

5) Fill in the blanks:

a) 16,503 has

_____ thousands +____ tens +___ ones +___ hundreds +___ ten thousands

b) 3,04,782

___thousands +___ tens +___ ones +___ hundreds +___ ten thousands ___ lakhs

DO YOU KNOW

Environmentalist Shri Tulsi Gowda from Karnataka was awarded Padma Shri for her immense contribution towards conservation of trees. She planted more than 30,000 saplings.

Expanded form and standard form

To write the expanded form we need to know the place values of all the digits of the number.

For example: Write the expanded form of 6,54,321

Lakhs Period	*Thousands Period*		*Ones Period*		
Lakhs	*Ten Thousands*	*Thousands*	*Hundreds*	*Tens*	*Ones*
6	5	4	3	2	1

Place value of 6 is 6 x 1,00,000 = 6,00,000

Place value of 5 is 5 x 10,000 = 50,000

Place value of 4 is 4 x 1,000 = 4,000

Place value of 3 is 3 x 100 = 300

Place value of 2 is 2 x 10 = 20

Place value of 1 is 1 x 1 = 1

Now, the expanded form of 6,54,321 = 6,00,000+50,000+4,000+300+20+1

6 lakhs + 5 ten thousands + 4 thousands + 3 hundreds + 2 tens + 1 ones

It is expressed in words as six lakh fifty four thousand three hundred twenty one

EXERCISE 1.2

1. Write the expanded form in two ways.

   a) 2,57,349 b) 1,05,678 c) 9,99,999 d) 7,00,640

2. Write the standard form.

   a) 5,00,000+ 80,000+ 6,000+100+70+3

   b) 60,000+2,000+400+30+7

   c) 9+80+300+7000+50,000+8,00,000

   d) 3,00,000+90+6,000+4

   e) Four lakhs + six thousands + eight hundreds + five ones

   f) Seven lakhs seven

Successor and predecessor

Successor of any number is the number that comes immediately after the number. It is 1 more than the given number.

Example: Successor of 2,229 = 2,229 + 1 = 2,230

Predecessor of any number is the number that comes immediately before the number. It is 1 less than the given number

Example: Predecessor of 4,09,000 = 4,09,000 – 1 = 4,08,999

EXERCISE 1.3

1. Write the successor of the given number.

   a) 15,340 b) 90,909 c) 2,25,416

   d) Three lakhs ninety-one e) 4lakhs + 66 thousands + 7ones

   f) 250 hundreds g) 9,00,000 + 80,000 + 50 + 9

   h) The greatest 6 digit even number

2. Write the predecessor of the given number.

   a) 16,543 b) Sixty-nine thousand c) 5,48,268

   d) Nine lakhs e) 3,00,216 f) 941 tens

   g) The smallest 5-digit number

   h) The smallest 6-digit odd number

Higher Order Thinking Skills

My hundreds digit is one less than the smallest odd number

My tens digit is two more than hundreds digit.

My ten thousands digit is twice of my tens digit.

My ones digit is the greatest one digit even number.

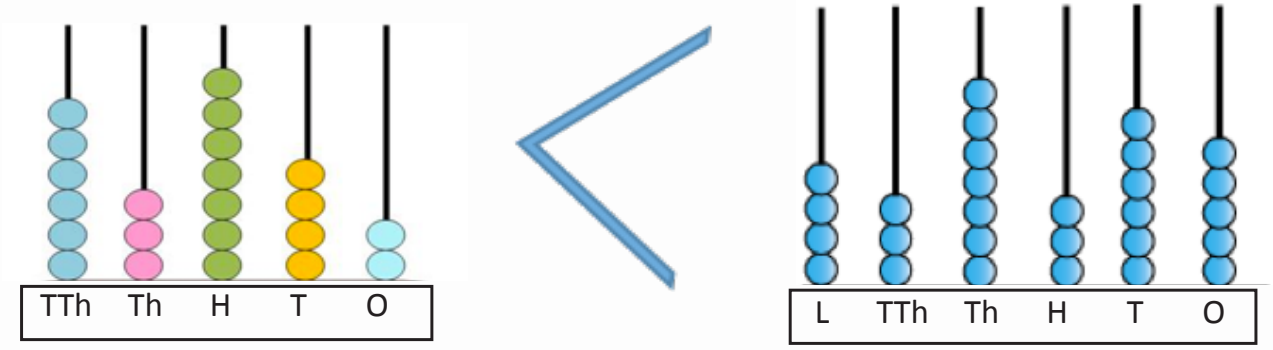
My thousands digit is same as my hundreds digit.

I am_____

Who Am I?

Comparison of Numbers

Comparing numbers with different number of digits



Greater the number of digits, greater the number

Comparing numbers with the same number of digits

According to the 2021 Census, population of Tirunelveli was 5,74,000.

The population of Hosur was 5,28,951. Which is more populous?

To answer this question, we need to compare the numbers.

Let's compare the numbers and find the answer.

5,74,000

5,28,951

The number that has the greater number of numerals is the greater number. If they are the same proceed the same way with the other digits. If all the numerals have the same value in both numbers, then the numbers are equal.

Compare the lakhs digits: **5**,74,000 **5**,28,951

Here the lakhs digit is same, compare the ten thousands digit

5,74,000 > 5,28,951

Now we can say 5,74,000 > 5,28,951

EXERCISE 1.4

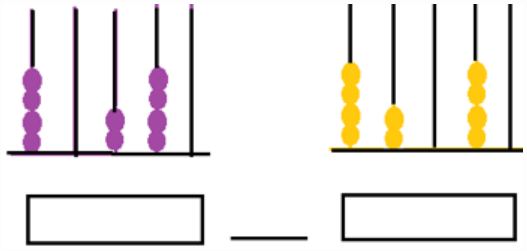
1. Compare the given numbers and put the correct sign (> , < , =)

   a) 52,364 _____ 1,01,214

   b) 3,81,698 _____ 99,999

   c) 2,04,637 _____2,04,887

   d) 6,77,510 _____6,78,510

   e) 

2. Ring the greatest number.

   a) 20,364 / 23,064 / 20,634 / 20,463

   b) 1,17,256 / 1,71,256 / 1,72,156 / 1,27,651

   c) 25 thousands / 250 tens / 2 ten thousands / 20 hundreds

   d) 50,000+3,000+9 / 50,000+9,000 / 50,000 + 3000 / 50,000+900

   e) 2 lakhs / 300 hundreds / 5000 tens / 2 ten thousands

3. Ring the smallest number.

   a) 2,92,560 / 1,99,245 / 2,00,009 / 2,29,650

   b) 4,05,050 / 40,050 / 40,00,050 / 4,00,050

   c) 80 hundreds / 8 lakhs / 80,000 ones / 80 tens

   d) 30 + 4,000 + 60,000 / 40,000 + 6,000 + 30 / 30,000 + 6,00,000 / 3,00,600

   e) Smallest 5-digit number / 9999 / 1,00,000 / 1000

Ordering of Numbers

Arranging the given numbers in increasing order or ascending order (from the smallest to the greatest)

Example: 2,05,400 52,100 1,97,200 2,64,000

Answer: 52,100 1,97,200 2,05,400 2,64,000

Arranging the given numbers in decreasing order or descending order (from the greatest to the smallest)

Example: 78,300 96,660 1,05,250 27,580

Answer: 1,05,250 96,660 78,300 27,580

EXERCISE 1.5

1. Arrange the numbers in ascending order.
   a) 86,472 / 64,784 / 91,000 / 45,485
   b) 5,04,250 / 2,05,550 / 4,00,640 / 1,07,700
   c) 3,75,124 / 1,96,255 / 4,00,047 / 89,645
   d) 320 tens / 104 hundreds / 600 ones / 15 thousands
   e) 90,000+90 / 1,00,000+8 / 40,000+100 / 36000

2. Arrange the numbers in descending order.
   a) 77,310 / 85,678 / 2,514 / 59,999
   b) 2,09,450 / 5,15,000 / 2,62,750 / 3,00,505
   c) 4,71,104 / 3,17,280 / 66,890 / 92,423
   d) 50 thousands / 28 lakhs / 640 hundreds / 750 tens
   e) 5,000+400 / 20,000+300 / 4,000+10,000 / 54,000

Think :

1) There are nine 1-digit numbers, how many 5-digit numbers are there?
2) How many 2-digit numbers have different digits?
3) If a digit is moved from the hundreds place to the ten thousands place, what will be the difference between their place values?

Building Numbers

We can build our own numbers using any digits. For example, I have the numbers in 5, 2, 8, 3 and 4. We need to build a 5-digit number using the given digits.

Shall we write them down on a piece of paper and arrange them in each of the position from **ten thousands** place to the **ones** place.

T Th	Th	H	T	O
5	2	8	3	4

We got 52,834. Some other numbers that can be built are a) 38,524 b) 82,483 and so on.

Now, let us find the smallest and greatest 5-digit numbers that can be built using the given numbers without repeating the digits

Greatest 5-digit number:

To build the greatest 5-digit number using the given digits, our first step is to arrange those numbers in descending order.

8 > 5 > 4 > 3 > 2

Then position them in that order itself from **ten thousands** place to the **ones** place.

T Th	Th	H	T	O
8	5	4	3	2

So, the greatest number that can be built using the given digits is **85,432.**

The number name of **85,432** is _____

_____

Smallest 5-digit number:

Now for the smallest 5-digit number using the given digits, we need to write the above arranged numbers in ascending order from **ten thousands** place to the **ones** place.

2 < 3 < 4 < 5 < 8

T Th	Th	H	T	O
2	3	4	5	8

So, the smallest number that can be built using the given digits is **23,458.**

Food for thought:

What is the biggest and smallest 5-digit number that can be built using the digits 0,0,9,0,0?

Special case of 0

Let's consider the digits 1, 9, 0, 6,7 for building greatest and smallest 5-digit numbers.

Greatest number : **97,610.** 9>7>6>1>0

Smallest number : 01679 [i.e. 1,679]. It is not a 5-digit number.

So we will consider the next smallest number for the first position and then zero. Here in this case 1 should considered first, then 0 and then the remaining numbers should be written in ascending order.

Smallest number : **10,679**

EXERCISE 1.6

1. Build the greatest and the smallest numbers using the given digits without repeating them.

Digits	Number of digits	Greatest number	Smallest number
1) 5, 3, 6, 1, 7	5		
2) 4, 1, 8, 5	4		
3) 9, 0, 2, 3, 6	5		
4) 3, 9, 8, 0, 4, 5	6		

2. Find the greatest 5-digit even number that can be formed using the digits 5, 2, 3, 1 and 7

3. Which is the smallest 6-digit odd number that can be formed using the numbers 5,7 ,6 ,4 ,8 and 2?

Higher Order Thinking Skills

1. Find the largest possible number if the smallest number formed is 40789.
2. The predecessor of one lakh will have ____ digits.
3. If a new number is formed by interchanging the digits at tens and ten thousands place of 7,93,943, then which of the following is correct?

    a. New number > 7,93,943

    b. New number < 7,93,943

    c. New number = 7,93,943

4. My tens place is 8 and ones place is not 0, 6, 2 or 4. I lie between 7150 and 7200. I am also an even number. I am _____.
5. 2,57,870 = _____ thousands + ____ tens.
6. The greatest 6-digit number which starts and ends with 5 is _____.
7. A carton contains 5000 books. There were 1280 Maths books, 880 Science books and the rest were English books. The number of English books should be

    a) Greater than 3000

    b) Lesser than 2800

    c) Lesser than 3000 but greater than 2800

    d) Equal to 2800

Memorising 28 digits in just 4 seconds, a man from Alappuzha sets Guinness World Record...

Vivek's skills in mental maths has never failed him. He set a new Guinness record for India by recollecting a 28 digit number in front of the officials of Guinness World record. Vivek Raj had broken the record of an Iranian who had memorized 27 digits.

He was able to recollect the 28 digit number randomly selected by the judges which were shown to him just for 4 seconds!

How many digits can you memorize and recollect in 4 seconds?

Try it with your friends.

Worksheet - 1

1. Find the smallest 5-digit even number using the digits 7,6,0,1,4.

2. What period would the 4th and 5th digit from the right of a number occupy in the place value chart?

3. a) Find all possible 4-digit numbers formed using the digits 5, 3, 0, 1.
   b) How many numbers can be formed?
   c) Which two pairs of numbers thus formed would give the largest difference?

4. What are the places in the ones period?

5. a) Write any 6-digit number without repeating the digits. _____
   b) Reverse the digits to get another number _____.
   c) Which of the two numbers is greater? _____.

6. The place value of 6 in 9,60,235 is _____
   a) 6 x 1000 b) 10000 x 6 c) 6 lakhs d) 60

7. Which would be smaller?
   a. Smallest number of 5 digits using 4,0,9,7,6 OR b. Greatest number of 5 digits using 1, 2, 0, 3, 4

8. Which amongst the given value is true?
   a) 1 lakh = 100 thousand
   b) 1 ten thousand = 10 hundreds
   c) 100 hundreds = 10 ten thousands
   d) 10 thousands = 100 tens

9. Find the largest and smallest 4-digit number that can be formed with digit 9 in the tens place. Also find the sum and difference between the two numbers.

10. The smallest 7-digit number is
    a) 1111111 b) 1000001 c) 1100010 d) 1000000

11. The largest 5-digit even number is
    a) 99990 b) 90000 c) 99900 d) 99998

12. The sum of the face value of all the digits in the number 64,187 is _____

13. The sum of _____thousands and _____hundreds is 72,900

14. Compare using >, <, or =

a) 4,83,707_____ 4,38,707

b) 29,592_____2,95,920

c) One lakh ten_____1,00,010

15. Arrange in ascending order

a) 63,497 / 6,34,977 / 63,794 / 6,43,797

b) 2 Th + 3 H + 90 / 23,900 / 23,090 / 23,009

16. _____ is the successor of 99,910

17. The difference between the place values of 8 in 8,12,834 is _____

18. The predecessor of the greatest 6-digit number with different digits is _____

19. Write a 5-digit number with 3 in the thousands place and 7 in the ones place

20. Draw the place value chart for the smallest even number that can be formed using 4,0,2,6,5

Logical Reasoning

1. There are 3 numbers. The first number is the successor of the second number. The second number is 1000 more than the third number. If the third number is 4,98,639, find the first number.

   a) 4,99,639 b) 4,97,639 c) 4,99,640 d) 4,99,638

2. R is older than S. M is older than R. Who is the eldest?

   a) R b) S c) M d) R and S

3. Complete the series

   1+3 = 4 16+9 = 25

   4+5 = 9 25+_____=____

   9+7 = 16 _____+13 = _____

ROMAN NUMERALS

Learning Outcomes

At the end of this lesson, children will be able to

- Count and write Roman Numerals from 1 to 100, i.e. from I to C
- Rewrite Arabic Numerals in Roman numerals and vice-versa

Ancient Romans developed a system of numerals which were predominantly used in Europe. These were called Roman numerals. They had many limitations. When the Hindu-Arabic system came into existence, Roman Numerals lost its significance. They are now used only for aesthetic purposes.

The numbers we use today are built based on ten symbols - 0,1,2,3,4,5,6,7,8,9. They are called the Hindu-Arabic numerals.

Roman numerals include seven symbols

Roman numeral	I	V	X	L	C	D	M
Hindu-Arabic system	1	5	10	50	100	500	1000

Other numbers in this system are built using these symbols based on certain rules.

1. When a lower value symbol appears on the right of greater value symbol, we add the value.

   Example: XI = 10 + 1 = 11.

2. When a lower value symbol appears on the left of a greater value symbol, we subtract the symbol. Symbols V, L, D cannot be placed on the left of another symbol.

   Example: IV = 5 - 1 = 4

   VX is not valid

3. Only symbols I, X, C, M can be repeated up to 3 times on to the right of another symbol and only once on the left. Other symbols should not be repeated on the left and right.

4. The symbol of lower value cannot be subtracted when the higher value is more than 10 times its value.
   i.e., I can be subtracted from V and X only. X can be subtracted from L and C only.

Roman numeral	Hindu-Arabic system	Roman numeral	Hindu-Arabic system
I	1	X	10
II	2	XX	20
III	3	XXX	30
IV	4	XL	40
V	5	L	50
VI	6	LX	60
VII	7	LXX	70
VIII	8	LXXX	80
IX	9	XC	90
		C	100

Building Roman numbers from 10 to 100

For building the Roman numeral, write the number in expanded form and then write the Roman equivalent. Example: 48 = 40 + 8 [40 = XL; 8=VIII] 48 = XLVIII

Complete the table

Hindu-Arabic Numerals	Roman Numerals	Hindu-Arabic Numerals	Roman Numerals
1	I	26	XXVI
2	II		
			XXXIII
10	X		
		41	
	XVIII		
25		50	

Complete the table

Hindu-Arabic Numerals	Roman Numerals	Hindu-Arabic Numerals	Roman Numerals
51	LI	76	
52	LII		
53	LIII		
60			LXXXV
		91	
	LXVII		
			XCVII
74			
		100	

The year 2020 is written as MMXX in Roman numeral.

Write the following in Roman numeral.

a) The year you were born

b) The current year

c) The year in which India got Independence

d) The year in which you will celebrate your 10th birthday

Fact

M = 1000 stands for Millennium

C = 100 stands for Century

EXERCISE 2.1

1. Write the Roman number equivalent for the following Hindu-Arabic numerals.
   a) 39 b) 65 c) 93 d) 78 e) 16 f) 49

2. Convert to Hindu-Arabic numerals
   a) XLIV b) XCIX c) XXXVII d) LX e) XXVI f) XLV

3. The number of days in the month of August is
   a. XXX b. XXIX c. XXXI d.XXLI

4. The sum of 20 and 13 in Roman numerals is _____

5. The Hindu-Arabic numeral for XXX minus IX is _____.

6. Form 5 different Roman numerals using the symbols X, V, I.

7. LVI multiplied by XVI is _____.

8. The Roman numeral for 64 is _____-

9. XL – XXIII = _____

10. 29 + 45 in Roman numeral is _____

Activity

"I **V**alue **X**ylophone **L**ike **C**ows **D**o **M**ilk " is a mnemonic to remember the seven symbols of Roman Numerals in the correct order. Try to make your own mnemonic?

Worksheet

1. Express the value in Roman numeral.

   i) XXIV + XXXV =

   ii) LIX + LXXVI =

   iii) LVII - XII =

   iv) XLI - XVII =

2. Which Roman numeral that is less than 100 has maximum number of symbols?

3. Using the Roman Numerals I to IX, fill the magic square so that the numbers add up to 15 vertically and horizontally. (without repeating the numerals)

	VI	
IX		
		III

4. The product of VI and VI in Roman numeral is _____

5. Which of the following is valid?

   a) XXIIII b) LVL c) LXXXIII d) IIIXV

6. Ashwin is XXIX years old. His sister is XV years old. What is their total age?

7. The Roman numeral for the greatest 2-digit number is _____.

8. Surya scored XCV in Maths in the Term-1 examination. Write his score in Hindu-Arabic numeral _____

9. Find the value of C minus XLIII

   a. LXV b. XLVII c. LVI d. LVII

10. Arrange in ascending order: XXXIX, L, LXXX, XXVIII

11. Compare and fill in with >,< or =

    a) XXIV ____ XV + IX b) XXV + LI _____ LXXXV c) LXXX ____ LXIX

12. Fill in the blanks with the correct Roman numerals

    a) A year has _____ weeks.

    b) The number of days in February during the year 2024 _____.

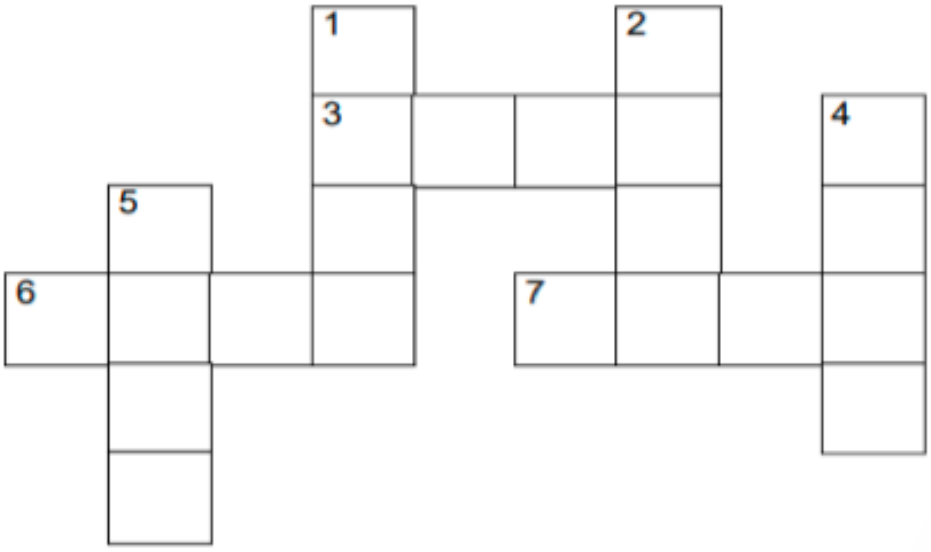
ADDITION AND SUBTRACTION

Learning Outcomes

At the end of this lesson, children will be able to

- Add 5 and 6-digit numbers without and with regrouping
- Understand the properties of addition and subtraction
- Subtract 5 and 6-digit numbers without and with regrouping
- Check subtraction using addition
- Use the skill of addition and subtraction to solve real life problems
- Solve problems involving both addition and subtraction.

Recap...



ACROSS

3) 9558-8190
6) 6029 is more than 1344 by
7) Subtract 7113 from 9902

DOWN

1) 2649 + 3536
2) The difference between 5062 and 2185
4) The sum of 2185 and 4409
5) 1611 added to 7009

Properties of Addition:

- When a number and 0 are added, the sum will be the number itself

  Ex. 38,201 + 0 = 38,201

- When a number and 1 are added, the sum will be the successor.

  Ex. 59,999 + 1 = 60,000

- Two or more numbers can be added in any order, their sum remains the same.

  Ex. 21,373 + 302 + 8,342 = 8,342 + 21,373 + 302

Addition of 5- and 6-digit numbers

Sonam Wangchuk is an Indian engineer, innovator and education reformist. He started a project called the Ice Stupa. His aim was to find a solution to the water crisis faced by the farmers of Ladakh in the critical planting months of April and May before the natural glacier melts and water starts flowing. In 2014, he and his team successfully built a two-storey prototype of an ice stupa which could store roughly 1,50,000 litres of winter stream water which nobody wanted at that time.

One ice stupa can hold 1,35,875 litres and the other 2,27,927 litres of water. What is the total water holding capacity of the two ice stupas?

STEP 1:

Write the numbers one below the other aligning the digits properly according to their places.

STEP 2:

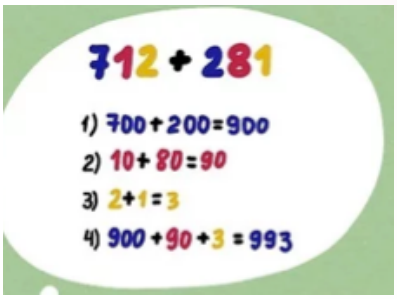
- Add the ones and regroup
- Add the tens and regroup
- Add the hundreds and regroup
- Add the thousands and regroup
- Add the ten thousands and regroup.
- Add the lakhs

	L	TTH	TH	H	T	O	
		1	1	1	1		
	1	3	5	8	7	5	← Addend
+	2	2	7	9	2	7	← Addend
	3	6	3	8	0	2	← Sum

They can hold 3,63,802 litres of water together.

Example 1: **Arrange and add 29,871 + 3,108 + 4,02,896**

1. Arrange the digits as per the Place Value system
2. Proceed by adding from the ones place



	L	TTH	TH	H	T	O
		1	1	1	1	
	4	0	2	8	9	6
		2	9	8	7	1
+			3	1	0	8
	4	3	5	8	7	5

EXERCISE 3.1

1. Fill in the blanks

a) 20,284 + _____ = 20,284

b) _____ + 1 = 7,00,000

c) 108 + _____ + 28,754 = 3,230 + _____ + 108

d) 0 + _____ = 1,03,922

e) _____ + 5,00,009 = 5,00,010

2. Arrange and add

a) 3,02,125 + 8,355

b) 6,81,047 + 44,872 + 1,20,345

c) 54 + 9,023 + 3,75,122

d) 2,009 + 47,392 + 3,659

e) 1,492 + 308 + 5,83,026

f) 77,892 + 14,033

g) 1,89,899 + 63,481 + 80,808

h) 35,102 + 4,045 + 909

i) 666 + 31,824 + 5,05,055

j) 1,00,000 + 10,000 + 1,000

3. Find the sum of forty-eight thousand eight hundred nineteen and six lakh twenty

4. What is the sum of the place value of 8 in 58,293 and place value of 4 in 4,02,197?

EXERCISE 3.2

Applications in real life

1. The height of Mettur dam in Tamil Nadu is 6,617cm. If its height is increased by 1022cm, what will be its new height?
2. For an exhibition, 8569 items were on display. If 4635 more were brought in, how many items would be on display?
3. In a library, there are 3736 books on mystery, 6709 fictions and 482 autobiographies. How many books are there in all?
4. The first day of a Chess Olympiad competition was witnessed by 64,678 people. The second day there were 26, 593 spectators. How many watched the matches on both these days?
5. Anna Nagar in Chennai has 87,128 male and 80,129 female residents. How many residents are there in all?
6. For a music concert 4,75,836 tickets were sold to the general public. The remaining 24,164 were bought by organisations. How many tickets were sold in all?

Properties of Subtraction:

When 0 is subtracted from any number, the difference will be the number itself

Ex. 69,203 - 0 = 69,203

When 1 is subtracted from any number, the difference will be the predecessor.

Ex. 3,00,410 - 1 = 3,00,409

When a number is subtracted from itself, the difference will be zero.

Ex. 7,35,829 – 7,35,829 = 0

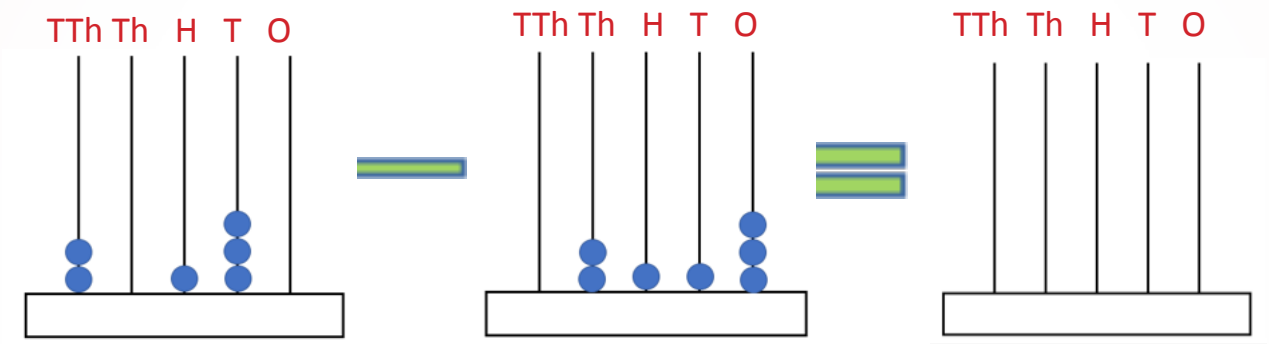
Subtraction of 5 and 6-digit numbers

Example: Subtract 35,814 from 6,02,913

	L	TTH	TH	H	T	O	
		9			10		
	5	~~10~~	12	8	~~0~~	13	
	~~6~~	~~0~~	~~2~~	~~9~~	~~1~~	~~3~~	← Minuend
–		3	5	8	1	4	← Subtrahend
	5	6	7	0	9	9	← Difference

EXERCISE 3.3

1. Find the number represented on the abacus and subtract. Express your answer in abacus and in figures.



2. Subtract

a)
	2	3	4	5
-	1	2	3	4

b)
	7	6	5	7	2
-	4	2	6	8	0

c)
	8	0	2	0	5	1
-	5	7	5	4	2	3

d)
	8	0	0	0	0	0
-	2	5	1	3	8	1

e)
	1	0	5	3	4	1
-			9	6	8	7

f)
	9	0	4	3	8	5
-				2	9	9

3. Solve:

a) Subtract 2509 from 7128.

b) Find the difference between 54,257 and 29,170.

c) Subtract 1,05,845 from 2,00,360.

d) How much less is 3,47,600 than 5 lakhs ?

e) Subtract the place value and face value of 8 in 8,04,637.

f) Find the subtrahend if the minuend is 32,145 and the difference is 4,000.

g) How much less is 2,461 than 8,000 ?

h) Subtract 313 thousands from the greatest 6-digit even number.

i) Subtract the smallest number from the greatest number in the given series:

2,00,100 2,10,001 2,11,000 2,01,100

4. Fill in the missing numerals

a)
$$\begin{array}{cccccc} 3 & 6 & \square & 1 & \square \\ + & \square & 0 & 2 & \square & 5 \\ \hline 5 & \square & 6 & 8 & 9 \end{array}$$

b)
$$\begin{array}{cccccc} \square & 4 & \square & 0 & \square & 6 \\ + & 2 & \square & 6 & \square & 4 & \square \\ \hline 4 & 1 & 9 & 9 & 2 & 8 \end{array}$$

c)
$$\begin{array}{cccccc} 5 & \square & 7 & \square & 2 \\ - & \square & 6 & \square & 8 & \square \\ \hline 3 & 2 & 2 & 0 & 0 \end{array}$$

d)
$$\begin{array}{ccccc} 6 & 0 & 0 & 0 & 0 \\ - & 2 & \square & 5 & \square & 5 \\ \hline 3 & 2 & 4 & 6 & 5 \end{array}$$

5. Subtract 10/100/1,000/10,000/1,00,000

a) 10 less than 1,25,004 _____

b) 100 less than 6,04,821 _____

c) 1000 less than 3,00,000 _____

d) 10,000 less than 9,82,000 _____

e) 1,00,000 less than 7,01,235 _____

What number should be subtracted from 5000 such that the subtrahend and the difference will be same? _____

EXERCISE 3.4

Applications in real life

1. Out of 35,689 people in a village, 33,012 were vaccinated against COVID-19. How many were not vaccinated?
2. In a week, 52,312 people attempted to scale the Mount Everest. 30,789 returned to the base camp unable to do it. How many reached the top of the mountain?
3. A factory produced 65,005 crystal dolls a week. Of them, 1637 were damaged. How many were in good condition?
4. Aavin produces 9,12,009 sachets of milk a day. 68,777 are processed as long shelved milk sachets and the rest as short shelved. How many milk sachets are processed as short shelved?

DO YOU KNOW

Aavin set up its first dairy plant in Chennai in the year 1972

Subtract and Check

A garment factory made 15000 shirts a day. 238 of them were damaged. Find how many shirts were in good condition. Verify your finding.

Answer:

To know how many shirts were in good condition, let us subtract the damaged shirts from the total number made and check the answer.

Step 1: Subtract the number of shirts damaged from the total shirts

15000 – 238

```
  1 5 0 0 0
-     2 3 8
-------------
  1 4 7 6 2  → Difference
-------------
```

Step 2: Now, check if the difference is correct

Difference + Subtrahend = Minuend

14,762 + 238

```
  1 4 7 6 2
+     2 3 8
-------------
  1 5 0 0 0  → minuend
-------------
```

Difference of 14,762 is correct.

To check whether the difference is correct

Add the difference and subtrahend. If the sum is equal to the minuend, your subtraction is correct.

Minuend – Subtrahend = Difference

DO YOU KNOW

Tiruppur is home to **10,000** garment manufacturing hubs, employing over **6,00,000** workers who make hosiery, knitwear, casual wear and sportswear.
Write the highlighted numbers in words.

_____

_____

EXERCISE 3.5

1. Subtract and check:

a) 2,10,440 – 62,015 b) 29,354 – 8,146 c) 1,05,943 – 24,000

d) 78,112 – 69,998 e) 4,03,010 – 43,884 f) 7,00,000 – 3,791

g) 6,48,752 minus 95,896 h) 3 lakhs – 47,000 i) 9 lakhs – 28,812

j) 35,000 less than 4 lakhs k) 1,20,00 – 564 tens l) 10 lakhs – 12,579

Addition and Subtraction

Example: 2154 + 1458 – 1953

Step 1 : Add the first number and the numbers that have a + sign before it.

Step 2 : From the sum subtract the number that has '–' sign before it.

```
  2 1 5 4
+ 1 4 5 8
-------
  3 6 1 2

  3 6 1 2
- 1 9 5 3
-------
  1 6 5 9
```

Now the answer is 1659.

EXERCISE 3.6

Solve

1) 1460 – 635 + 5780 2) 32,000 + 4500 – 26500 3) 2763 – 3840 + 6450

4) 4526 - 4400 + 1625 5) 10,570 + 1630 - 5850 6) 99,450 – 90,000 + 16,800

7) Add 25,000 to 14,350 and subtract 3467 from the sum.

8) Subtract 9892 from the sum of 5904 and 8968.

EXERCISE 3.7

1. A factory recycled 25,013 out of 38,111 plastic bottles on Monday. The remaining bottles and 20,981 more were recycled the next day. How many bottles were recycled on Tuesday?
2. A factory produces 3,25,000 moblie phones every week. Out of those 2,86,090 are packed and ready to be sold on Monday and 11,838 are packed to be sold the following day. How many are left unpacked at the end of Tuesday?
3. Find the sum of place values of the digit 7 in 7,08,371.
4. Find the sum of the largest 5-digit even number and successor of the smallest 6-digit number.
5. Find the difference between the smallest 5-digit number and 6 more than the largest 4-digit number.
6. Observe the table for the number of people who visited a museum over the two months and answer the questions that follow.

People	May	June
Men	58,009	21,711
Women	61,398	12,502
Children	70,680	25,036

a. How many people visited the museum in the month of May?

b. Find the difference between the number of children who visited in the months of May and June.

c. Find the difference between the total number of women and men who visited during the months

Addition and Subtraction of Money

EXERCISE 3.8

1. Subtraction of money

a) ₹ 1 0 3 0 7 5
- ₹ 4 8 1 5 3
_____
_____

b) ₹ 5 0 0 0 7
- ₹ 1 6 7 2 4
_____
_____

c) ₹ 3 2 4 6 1 0
- ₹ 9 8 7 6 5
_____
_____

d) Subtract ₹ 12,301.00 from ₹ 25,000.00

e) Subtract ₹ 36,500.00 from ₹ 79,860.00

f) Find the difference between ₹ 81,458.00 and ₹ 1,00,000.00

2. Mr. Ramesh paid ₹ 1,50,000 as advance for painting his house. After completion of the work, the total cost was ₹ 1,38,504. How much money should the painter return to Ramesh?

3. For a project the expense estimated was ₹ 6,59,482 and the actual cost was ₹ 7,08,060. What is the difference between the actual and the estimated cost?

EXERCISE 3.9

1. Priya went for monthly grocery shopping and bought the following items. Find the total amount she needs to pay.

GANGA STORES		
ITEM	QUANTITY	AMOUNT
1. Sugar	5kg	₹200.00
2. Rice	25kg	₹875.00
3. Jaggery	2kg	₹ 52.00
4. Toor dal	2kg	₹380.00
5. Cardamom	10g	₹ 42.00

2. Mohan went for shopping and bought a shirt for ₹1,536, pants for ₹2,100 and masks for ₹500. Prepare a bill for the purchase.

3. Mr. Gopal booked a washing machine for cost ₹43,659, a refrigerator for ₹1,00,650. He paid ₹ 58,000 in advance. How much does he need to pay on delivery?

4. Rani went to buy some furniture for her room. She had ₹15,000 with her. She bought a chair for ₹6,761. She had two options for a computer table. A wooden table for ₹9,675 or a plywood table for ₹6,965.

   i. Which table can she buy with the money that she has?

   ii. How much money will be left with her, if she does it?

5. Mr. Raju proposes to buy a car for ₹5,65,812. He sold his two-wheeler for ₹95,000 to buy the car. He also has ₹3,02,000 as savings in his account. How much more money does he need to buy the car?

6. Mrs. Kumar and her family went on a trip to Mahabalipuram for two days. She spent ₹ 26,830 on the first day and double the amount on the second day. How much did she spend for the trip?

7. Nisha went to buy decoration items for a party. She bought the following items. Prepare a bill for the purchase.

   Party hats for ₹250.50
   Designer candles for ₹55.50
   Balloons for ₹170.75
   Banner for ₹135.25
   Apsara pencil kit for ₹1,100.00

If she paid ₹2,000 to the shop keeper. How much money should she get in return?

8. Rajiv went to a medical store to buy:

   a bottle of dettol - ₹332.00, hand sanitiser - ₹52.00 and a roll of cotton - ₹20.00. He had 2 two hundred rupee notes. Would he be able to pay the amount with the cash? If not, how much more money does he need?

Higher Order Thinking Skills

1. A wholesaler sold 70,803 pieces of electric bulbs a day. The next day he sold twice that number. How many electric bulbs were sold in two days?

2. In a math Olympiad, 8,17,235 students appeared for the first round. 2,63,101 got qualified after the first round. 48,529 of them were disqualified after the second round. How many students reached the third round?

3. Find the sum of the greatest 4-digit number with all digits as different even numbers and the smallest 4-digit number with all digits as different odd numbers.

4. Shiksha went to a stationary shop. She bought a box of colour papers for ₹200 and a box of plain papers for half the amount. She also bought a pencil kit for ₹100, a box of colours for ₹250. Prepare a bill for the purchase. If Shiksha gave the shopkeeper a five hundred rupee note and a two hundred rupee note, how much money should she get in return?

5. Jyoti's balance in a bank on 1st November was ₹58,709. During the month she withdrew ₹ 13,090 and ₹ 16,518 from her account and deposited ₹1,680. What would be the balance at the end of the month?

Subject Integration – Cross Curricular Activity

The Narendra Modi Stadium in Ahmedabad is the largest cricket stadium in the world. It has a seating capacity of 1,32,000.

1. The Melbourne Cricket Ground (MCG) in Australia has a capacity of 1,00,024 seats. The Narendra Modi Stadium surpasses it by _____ in seating capacity.
2. As the stadium is anticipating people coming in large numbers, it has a huge parking space that can accommodate 3,000 cars and 10,000 two-wheelers. How many vehicles can be parked in all? _____

Worksheet - A

1) The difference in the place value of 8 and face value of 3 in 2, 18, 536 is _____
2) What should be added to 75 tens + 89 hundreds to make it 1 lakh? _____.
3) The sum of a 5-digit number and a 4-digit number will be

   a) a 5-digit number b) 6-digit number c) either a 5 or 6-digit number

   d) only a 4-digit number
4) The sum of the greatest and the smallest 5-digit formed using different digits is _____.
5) If you subtract 1000 from the greatest 4-digit number, the difference is a _____ digit number.
6) Subtract 97 tens from 9 lakhs
7) 600 tens = 1250 + _____ + 1750
8) If 10,000 is added to me, I become 77,777. Who am I? _____
9) The sum of the all the even numbers between 0 and 10 is _____.
10) Take away the sum of 8944 and 9626 from 20 thousands.

Worksheet - B

1) What number should be added to 4,57,201 to get the sum as 5,36,871.
2) Find the sum of the greatest odd and even number that are less than 10000 _____.
3) Subtract the difference of 264 and 144 from their sum.
4) Add the difference of 2648 tens and 35 thousands to 3 lakhs
5) Read the information below and answer the questions:

State	Size (in sq. km)
Meghalaya	22,429
Bihar	94,163
Assam	78,438
Manipur	22,327
Mizoram	21,081
Arunachal Pradesh	83,743

a) What is the total size of Meghalaya and Manipur states?

b) What is the difference between the size of the Arunachal Pradesh and Mizoram?

c) Which two states have a total size of 1,00,765?

d) From the given table find the difference in size between the biggest and the smallest states.

6) In a certain state, 8,21,198 students were enrolled in various schools. Of these, 1,95,233 students enrolled in primary school, 2,00,647 students enrolled in high school and the rest in middle school. How many students enrolled in middle school?

7) A factory produced 9,00,663 tyres in the month of May. Out of these, 6782 tyres were found defective in the quality check. How many tyres were not defective?

8) Complete the addition square by finding the missing numbers. Also

+	11,341	6,009
22,683	A	B
49,720	C	D

a) Find the value of A – B

b) Find the value of C + D

LOGICAL REASONING

1. Select a number from the options which will replace '?' to complete the given series.

89 78 87 ? 85 82 83 84

a) 80 b) 79 c) 88 d) 81

2) If ★ + ★ + ▲ = 144 and ▲ = 30. If then what is the value of ★ ?

a) 114 b) 47 c) 57 d) 174

3) Arun is XIX years old. His sister is XXV years old. What is their total age?

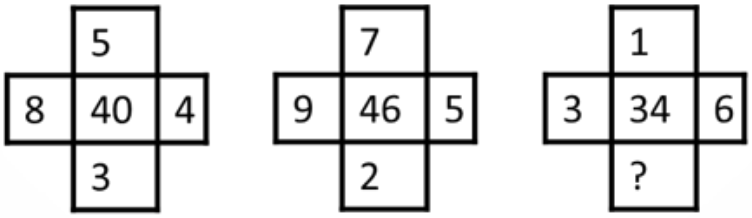
a) XLIV b) XXIV c) XLV d) XLVI

4) What is the number in the START box?

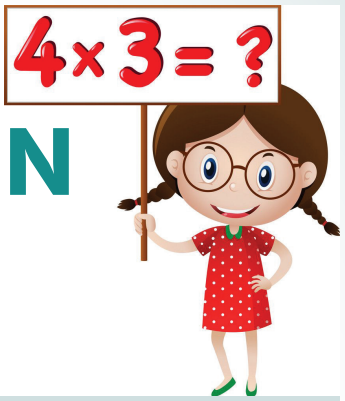
START + 58,011 – 240 = 81,425

a)57,771 b) 58,251 c) 23,414 d) 23,654

5) Find the missing number, if all the three figures, follow the same rule.



MULTIPLICATION



Learning Outcomes

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

- Elicit the properties of multiplication
- Multiply 2, 3 & 4-digit number by a 1-digit number
- Multiply a 2-digit number by a 2 and 3-digit number
- Multiply a 3-digit number by a 3-digit number
- Apply multiplication skills to solve real life problems

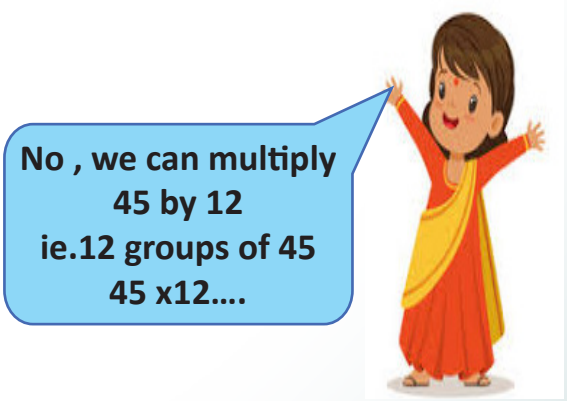
Recapitulate:

9	x	8	=	72
Multiplicand		Multiplier		Product

The numbers 9 and 8 are also called as factors.

Manav and Samhita were getting ready for the Diwali. Many of their relatives were joining them for the celebrations. Dadaji had a big box with him.

Manav asked, “What is in the box?”Dadaji replied, “There are 45 laddus in the box. I have made 12 such boxes. Can you tell me how many laddus are there in the boxes?”



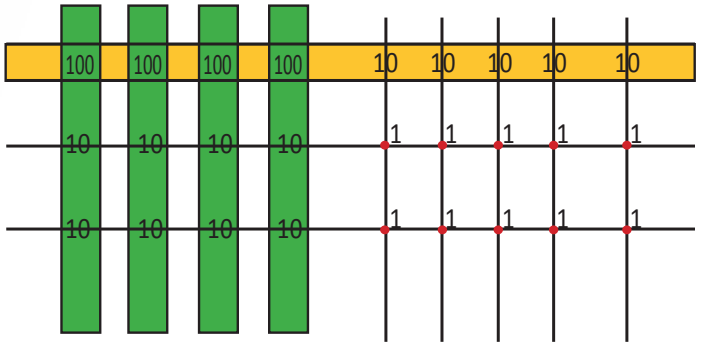
Dadaji was very happy to hear his grandchildren's conversation. Dadaji said "Yes, You are right Samhita". Manav recollected that repeated addition is multiplication.

45 x 12 = 540

Multiplicand Multiplier Product

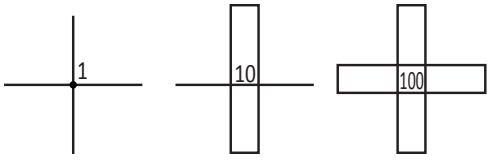
$$\begin{array}{r} 4\ 5 \\ \times\ 1\ 2 \\ \hline 9\ 0 \\ 4\ 5\ 0 \\ \hline 5\ 4\ 0 \end{array}$$

The product can also be found out using sticks and strips.



- ones

- tens



4 x 100 = 400
13 x 10 = 130
10 x 1 = + 10
540

EXERCISE 4.1

1. Write the multiplication fact :

a) 5 + 5 + 5 + 5 + 5 + 5 = ___ x __ = __ b) 9 + 9+ 9 + 9+ 9= ___ x ___ = __

2. Multiply:

a) 8 x 9 = __ b) 10 x 7 = ____ c) 7 x 6 = ___ d) 4 x 4 = ____

3. Multiply:

a) 43 x 2 b) 63 x 1 c) 123 x 3 d) 312 x 4 e) 521 x 2
f) 25 x 30 g) 80 x 80 h) 77 x 5 i) 99 x 9 j) 467 x 8

4. The price of a book is ₹48. Find the price of 6 such books?

5. Find the product of the greatest 2-digit number and the smallest 2-digit odd number.

Properties of multiplication

1. The product of 1 and any number is the number itself.
   1 x 8 = 8 450 x 1 = 450

2. The product of zero and any number is zero.

   13 X 0 = 0 94 x 0 = 0

3. Two or more numbers can be multiplied in any order, as the product remains the same.

   5 x 7 = 35 7 x 5 = 35

   2 x (4 x 5) (2 x 4)x 5 (2 x 5) x 4

   = 2 x 20 = 40 = 8 x 5 = 40 = 10 x 4 = 40

Therefore, 2 x (4 x 5) = (2 x 4)x 5 = (2 x 5) x 4 = 40

EXERCISE 4.2

1. Fill in the blanks using the properties of multiplication.

   a) 215 x 1 = _____ b) 0 x 0 = _____

   c) 312 x 0 = _____ d) ___ x 204 = 204

   e) 23 x 2 = _____ x 23 f) (12 x 5) x 2 = (2 x 12) x _____

   g) 2 x 3 x 4 = 4 x 2 x _____ h) 245 x ___ = 0

   i) 65 x ___ = 65 j) 11 x 4 x ___ = 20 x 11 x 4

   k) 723 x _____ = 0 l) 1 x _____ = 908

   m) 692 x _____ = 0 n) 34 x _____ x 76 = 51 x 34 x ___

Multiplication by multiples of 10 , 100 , 1000

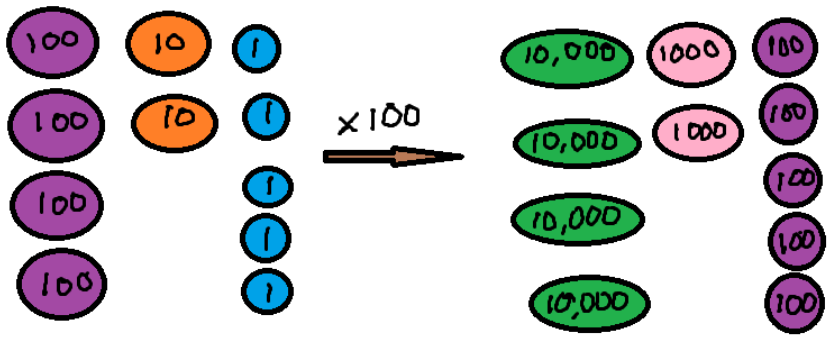
Example 1:

Multiply: 23 x 10 23 x 10 = 230

Example 2:

Multiply: 425 x 100

4 2 5 x 1 0 0 = 42500



Example 3: 23 x 20

Step 1 : 23 x 2 = 46

Step 2 : Place a 0 [20] to the right of 46.

The product is 460.

Example 4: 44 x 300

Step 1 : 44 x 3 = 132

Step 2 : Place two zeroes after 132.

The product of 44 x 300 is 13,200.

Example 5: 9000 x 31

Remember that the multiplier and multiplicand can be in any order.

Step 1 : 31 x 9 = 279

Step 2 : Place 3 zeros after 279. The product is 2,79,000.

EXERCISE 4.3

a) 18 x 100 = ____

b) 67 x 1000 =_____

c) 25 x ___ = 250

d) 304 x ___ = 3040

e) 24 x 300 = ____

f) 40 x 50 =____

g) 18 x 2000 =____

h) 45 x 4000 =____

i) ___ x 700 = 63,000

j) ____ x 90 = 81,000

Multiplication by a single digit number:

Example : 2134 x 3 = 6402

TH	H	T	O
2	1	3	4
	X		3
6	4	0	2

EXERCISE 4.4

1. Multiply

a) 2 1 4 8
x 6

b) 3 2 5 4
x 3

c) 7 1 2 4
x 2

d) 4 0 2 3
x 7

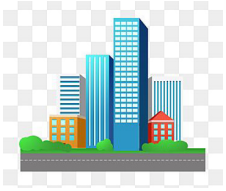
e) 8 0 6 5
x 4

f) 7 5 6 0
x 8

2. Find the product :

a) 3275 x 4
b) 6914 x 8
c) 8610 x 5
d) 3060 x 9
e) 4194 x6
f) 3409 x 7
g) 5264 x 2
h) 9007 x 3

3. a) Capacity of a water tank in an apartment is 1325 litres. Find the capacity of 7such tanks used in the apartment.



b) Mr. Anand pays ₹ 1800 to his domestic help every month. How much does he have to pay for 9 months.

c) Multiply the greatest 5-digit number whose units place is 2 by the greatest 1-digit even number

Multiplication by a 2- digit number

Example : 24 crayons are packed in a box.
How many crayons can be packed in 56 such boxes?

Crayons in one box = 24
Crayons in 56 boxes =

- 24 x 6
- 24 x 50

TH	H	T	O
		2	4
	X	5	6
	1	4	4
1	2	0	0
1	3	4	4

Example : A school planted 245 trees for Green India Campaign. If 36 schools participated, how many trees were planted in all?

	TH	H	T	O
		2	4	5
		X	3	6
➢ 245 x 6	1	4	7	0
➢ 245 x 30	7	3	5	0
➢ 245 x 36	8	8	2	0

Total trees planted= 8820

EXERCISE 4.5

1. Multiply

(a) 28 x 26	(b) 46 x 37	(c) 54 x 21	(d) 18 x 27
(e) 83 x75	(f) 96 x 78	(g) 90 x 84	(h) 35 x 98

2. Find the product

(a) 135 x 32	(b) 234 x 23	(c) 504 x 43	(d) 209 x 19
(e) 705 x 86	(f) 368 x 47	(g) 364 x 75	(h) 64 x 256

Multiplication by a 3-digit number

Example : There are 465 boxes. Each box is filled with 324 chocolates. How many chocolates are there in all?

	L	T TH	TH	H	T	O
				4	6	5
				X	3	2	4
➢ 465 x 4				1	8	6	0
➢ 465 x 20				9	3	0	0
➢ 465 x 300	1	3		9	5	0	0
➢ 465 x 324	1	5		0	6	6	0

Total no of chocolates = 465 x 324 =1,50,660

Example : There were 208 houses in a street. Each house recieved ₹ 850 as flood relief from the government. How much money was distributed in that street?

	L	T TH	TH	H	T	O
				8	5	0
			X	2	0	8
➢ 850 x 8			6	8	0	0
➢ 850 x 0			0	0	0	0
➢ 850 x 200	1	7	0	0	0	0
➢ 850 x 208	1	7	6	8	0	0

Total money distributed in that street = ₹ 1,76,800

EXERCISE 4.6

1. Find the product:

a) 1 4 6 x 1 3 2	b) 3 4 5 x 2 7 8	c) 6 1 2 x 4 7 6
d) 3 4 9 x 2 0 2	e) 2 4 3 x 7 0 3	f) 4 3 3 x 2 0 4
g) 8 6 5 x 1 5 0	h) 5 2 4 x 3 2 0	i) 3 9 0 x 8 7 0
j) 7 9 3 x 4 2 8	k) 1 8 8 x 9 5 7	l) 2 3 5 x 1 4 6

2. An open air auditorium has 100 chairs arranged in each row. If there were 100 rows, how many chairs were arranged in all?
3. The multiplier is 681 and the multiplicand is 119 more than the multiplier. Find the product.

4. Double the product of 444 x 825
5. A bag holds 90 cherries. Arnav has 18 such bags of cherries. How many cherries does he have?
6. Janu uses the treadmill and sets a target to burn 550 calories a day. How many calories can she burn in 145 days if she strictly sticks to her target.?
7. A web offset printer can print 500 copies in one minute. How many copies can be produced in 120 minutes?
8. A train can carry 2400 passengers. How many people can travel in 376 such trains?
9. 578 dozen apples = _____ apples
10. Greatest 3-digit number x greatest 2-digit number = _____

11. Value Based Questions

a) Janhvi helps the children of an orphanage on Sundays. She teaches yoga for 100 minutes each Sunday. About how many hours would she teach during the year 2023?

Hint - How many Sundays are there in 2023?

b) Manasa wanted to donate sarees to an old age home. There were 250 women in a home. If each saree costs ₹205, find the amount that she has to spend on the sarees.

Problem Solving

12.Circle the correct operation

i). On Thursday ◯ parents came to school for the open day. On Friday ◯ parents came to school for the open day.How many parents attended the open day in all?

a] subtract b] divide c] multiply d] add

ii). Hema arranges ◯ photographs in ◯ pages of her album. How many photographs can each page hold?

a] add b] subtract c] multiply d] divide

iii). A train has ◯ coaches. A coach can carry ◯ people. How many passengers are there in the train if all the coaches are fully occupied?

a] add b] subtract c] multiply d] divide

iv). A box of paper has ◯ sheets. How many sheets will there be in ◯ boxes?

a] add b] subtract c] multiply d] divide

v). A bar of chocolate costs ₹ ◯. I have ₹ ◯ with me. How many bars can I buy ?

a] add b] subtract c] multiply d] divide

EXERCISE 4.7

Multiplication in Money

1) A watch costs ₹2145. What is the cost of 9 such watches?

2) Students of class I collected ₹2300 as donations for Daan Utsav. If all the classes from I to V donated the same amount, find the total amount collected.

3) A family of 12 members went on a trip. If the cost of the trip per member is ₹6495, find the total cost of the trip.

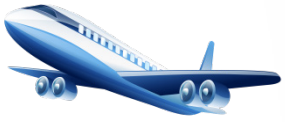
4) Vishal had 2 two thousand rupee notes, 5 five hundred rupee notes and 7 twenty rupee notes. Find the total amount he had.

5) Manav bought Kholapuri chappals for his family members at ₹585 per pair, on his tour to Mumbai. How much did he spend for 19 such pairs?

Kolhapuri chappals are Indian decorative hand-crafted and braided leather slippers that are locally tanned using vegetable dyes. Kolhapur is a district in Maharashtra.

6) A book costs ₹485. Find the cost of 35 such books.

7) The cost of a flight ticket from Chennai to Bangalore is ₹1388. If 12 people were travelling from Chennai to Bangalore, what would be the cost of the tickets?



Subject Integration – Cross Curricular Activity

The above picture shows an amla leaf. Can you find the number of leaves in a branch having 8 such sets of leaves? Also find out the vitamin that amla is rich in.

Higher Order Thinking Skills

1. 636 x 100 = 636 x 4 x

   a] 20 b] 28 c] 25 d] 50

2. The product of odd numbers between 3 and 8 is

   a] 105 b] 35 c] 12 d] 28

3. Find the missing digit

$$\begin{array}{r} 4\square 8 \\ \times\quad 8 \\ \hline 3\square 44 \end{array}$$

4. List the 3-digit numbers for which the product of the digits is 12. How many such numbers are there? Can we include 304 on the list? Why?

5. The product of 9th multiple of 14 and 6th multiple of 12 is _____

   a] 6012 b] 9072 c] 5616 d] 4092

6. 18 boxes of erasers were bought. Each box had 48 erasers. These were opened up and put into smaller packets of 6 each. How many packets could be made, if no erasers were left after repacking?

7. A TV set costs 13 times the cost of the given piano keyboard. Find the cost of the television set.

₹576

8. How many minutes are there in the month of January?

9. A man earns ₹ 825 per day. How much will he earn in 95 days?

10. Find the product of the place values of 9 in 5,60,48,994.

At the market.....

Ms. Sudha went to the market for her weekly shopping. Here are the things she bought and the amount she paid. Match the item to the person she bought it from.

Beans ₹24/kg
Carrots ₹25/kg

Onions ₹16/kg
Carrots ₹24/kg

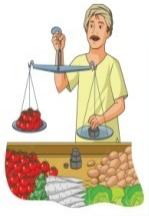
Brinjals ₹18/kg
Onions ₹17/kg

1. **Carrots 4 kg**
   ₹ 96
2. **Beans 3 kg**
   ₹ 69
3. **Potatoes 7kg**
   ₹ 140
4. **Onions 6kg**
   ₹ 96
5. **Brinjals 2kg**
   ₹ 34
6. **Tomatoes 4kg**
   ₹ 76

Tomatoes ₹20/kg
Beans ₹23/kg

Potatoes ₹20/kg
Brinjals ₹17/kg

Potatoes ₹21/kg
Tomatoes ₹19/kg



Worksheet

1. Fill in the blanks:

a) 12 x __ = 4 x___.

b) 60 x 50 = _____

c) 11 x 30 = ____.

d) 79 x _____ = 79,000

e) If 25 x 4 = 100 , 25 x3 = _____.

f) 300 x 51 x ____ = 51 x _____ x 663

g) If 37 x 3 = 111 , 37 x 4 =_____.

h) 25 x 4 = 50 x _____

i) 20 x 40 =____.

j) 42 x _____ = 8400

2. Find the product:

a) 93 x 6 b) 38 x 26 c) 234 x 17

d) 518 x 53 e) 486 x 208 f) 749 x 406

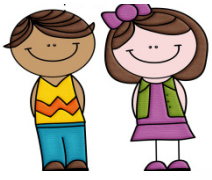
3. Balaji Eye Hospital sold 205 pairs of spectacles in a week. How many pairs were sold in 38 weeks?

4. Anushka, a fashion designer uses 3540 sparkling gemstones to create an extravagant evening gown. How many gemstones will she need to make 6 such gowns?

5. Each new dictionary purchased for the school has 345 pages. How many pages are there in 35 such dictionaries?

6. Mrs. Kavya baked 3 trays of 36 cookies each. After they cooled she packed the cookies equally in 4 paper boxes. How many cookies did Mrs.Kavya place in each paper box?

7. A school ordered 16 bundles of 125 notebooks each. If each notebook costs ₹27,find the amount to be paid by the school.



8. There are 55 schools in a city. Each school sends 6 boys and 4 girls for a painting competition. Find the total number of participants from the city.

9. If a mathematics text book costs ₹205, How much do 50 such books cost?

10. A factory makes 1720 ball pens a day. How many ball pens would have been made by the factory in February 2022?

11. If 230 x 70 = 16100 then 23 x 70 =

12. 4 weeks + 4 days =_____ days.

13. Find the total length of ribbon that would be needed for 45 girls, if each girl needs 110 cm.

Logical Reasoning

1. Vishal said that he visited his grandparents in Dwarka before 13th of May but after the 9th. His elder brother added that Vishal visited Dwarka after 11th May but before 14th. When did Vishal visit Dwarka?

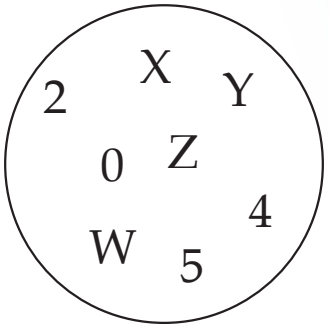
   a) 10th May b) 12th May c) 13th May d) 11th June

2. The ones digit of the sum of numbers from 7 to 19 is

   a) 6 b) 9 c) 8 d) 5

3. Four letters and 4 numbers are given in the circle.
   If the greatest 5-digit number formed using the given numbers is represented as YYWZX then the value of W would be

   a) 5 b) 0 c) 4 d) 2



Subject Integration – Cross Curricular Activity

Brihadeshwara Temple - Tanjavur

The temple is 214 ft (66m) tall and has the world's tallest Vimanam. The Kumbha on top of the Vimana weighs 80 tonnes. Placing a single rock at the top of the Vimana is an engineering feat that is unexplained even today. This temple was built by interlocking stones without the use of any binding material like cement or mortar. This technology is a marvel till the present day. The temple is entirely built of granite. More than 1,30,000 tonnes of granite is said to have been used in this structure.

1) If 1 ton = 1000kg then 80 tonnes =_____kg.

2) How many digits will 1,30,000 tonnes have when converted into kilograms?

5 DIVISION

Learning Outcomes

- At the end of this lesson, children will be able to:
- Understand the properties of division
- Divide 4-digit numbers by a 1-digit number (including money)
- Divide 3-digit and 4-digit numbers by a 2-digit number (including money).
- Apply the skills to solve real life problems

Kishore and Swetha love to spend their summer vacation in Ajji's (Grandmother in Kannada) home in Mysore. They were very fond of their Ajji, as she spends several hours with them narrating stories, playing native games etc.

One day she taught them a native game called Pallanguzhi. She gave 72 shells and asked them to place equally in the pits. Kishore said there are 2 rows with 7 pits in each, hence 14 pits altogether. Swetha started dropping the shells in each pit and filled 5 shells in each. However, 2 shells remained.

72 shells were equally divided into 14 pits.

Each pit had 5 shells and 2 were left.

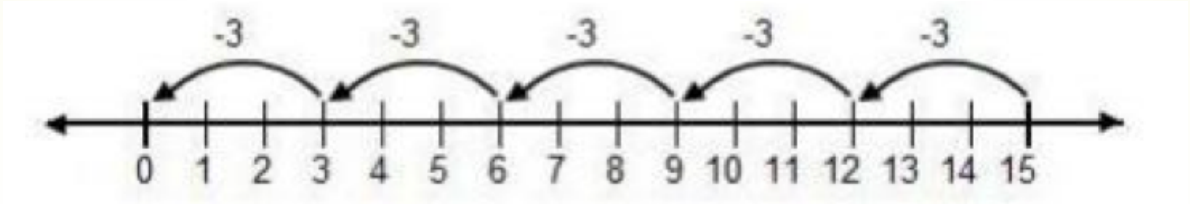
So, when 72 is divided by 14

72 ÷ 14 Quotient = 5 Remainder = 2

$$\begin{array}{r} 5 \\ 14\overline{)\,72} \\ -\,70 \\ \hline 2 \end{array}$$

Recapitulate

Division is repeated subtraction. 15 ÷ 3



15 - 3 - 3 - 3 - 3 - 3 = 0

15 ÷ 3 = 5

5 is the number of times you can subtract 3 from the entire 15.

- Sharing equally, or dividing into equal groups is called division.
- We can find out the number of items in a group or how many groups can be formed from the given items using division.
- The number to be divided is called the dividend.
- The number that is divided by is called the divisor

- **Checking Division**
- **Remainder < Divisor**
- **(Quotient × Divisor) + Remainder = Dividend**

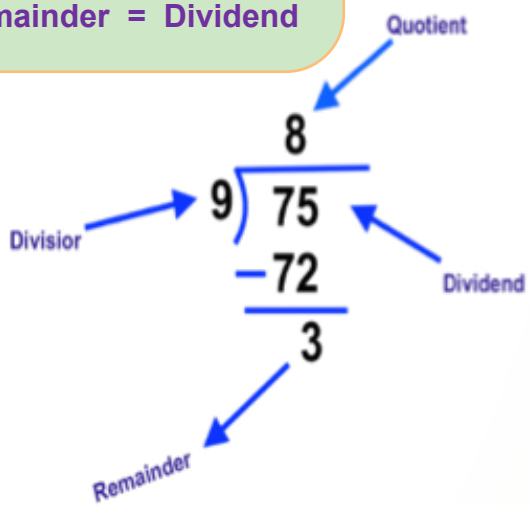
Example: 75 ÷ 9

Checking:

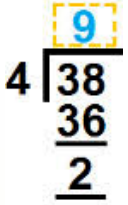
Dividend = (8 × 9) + 3

= 72 + 3

= 75



Example: 38 ÷ 4



- To verify

Remainder is less than the Divisor.

⟶ 2 < 4

(Quotient × Divisor) + Remainder = Dividend

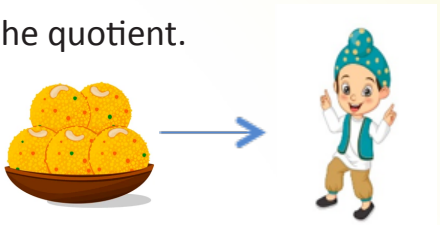
Q = 9 ; R = 2 (9 × 4) + 2 = 38

Hence the answer is correct.

Properties of division

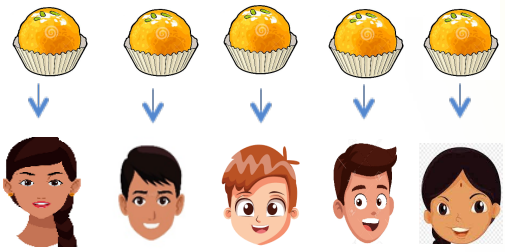
- Any number divided by 1 gives the same number as the quotient.

  5 ÷ 1 = 5



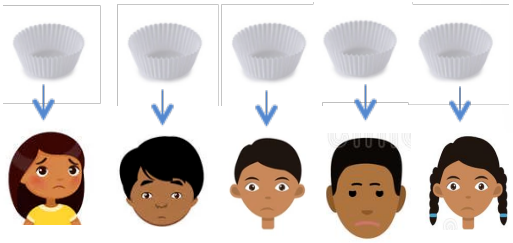
- Any number divided by itself gives 1 as the quotient.

  5 ÷ 5 = 1



- Zero divided by any number (other than 0) gives zero as the quotient.

  0 ÷ 5 = 0



- Division by 0 is not defined.

5
0 ----- (1)
5
0 ------ (2)
5
0 ------ (3)
5

How are Multiplication and Division related?

For each multiplication fact, there are two division facts.

$9 \times 8 = 72$ → $72 \div 8 = 9$, $72 \div 9 = 8$

$15 \times 6 = 90$ → $90 \div 6 = 15$, $90 \div 15 = 6$

Can you find two division facts for the given multiplication fact 11 × 11 = 121? If not why? Find more such multiplication facts.

EXERCISE 5.1

1. Fill in the boxes using the properties of division

a) 534 ÷ 1 = _____

b) 2478 ÷ 2478 = _____

c) 0 ÷ 4230 = _____

d) 3512 ÷ 1 = _____

e) 9237 ÷ _____ = 1

f) 418 ÷ _____ = 1

g) 8225 ÷ _____ = 8225

h) _____ ÷ 432 = 0

i) _____ ÷ 1 = 6413

j) _____ ÷ 2222 = 1

2. Write the division facts for the given multiplication facts

a) 15 x 50 = 750

b) 625 x 8 = 5000

c) 54 x 14 = 756

d) 90 x 10 = 900

e) 240 x 6 = 1440

f) 23 x 69 = 1587

g) 40 x 40 = 1600

h) 25 x 25 = 625

i) 45 x 35 = 1575

EXERCISE 5.2

1. Divide using multiplication tables

a) 56 ÷ 7 = ☐

b) 45 ÷ 9 = ☐

c) 24 ÷ 2 = ☐

d) 40 ÷ 4 = ☐

e) 99 ÷ 11 = ☐

f) 18 ÷ 3 = ☐

g) 64 ÷ 8 = ☐

h) 60 ÷ 5 = ☐

2. Divide by short division method

a) 5 ⟌ 35

b) 2 ⟌ 14

c) 7 ⟌ 49

d) 11 ⟌ 55

e) 6 ⟌ 48

f) 4 ⟌ 36

g) 8 ⟌ 32

h) 10 ⟌ 60

3. Divide by long division method

a) 3 ⟌ 24

Q = ___ R = ___

b) 6 ⟌ 42

Q = ___ R = ___

c) 5 ⟌ 43

Q = ___ R = ___

d) 9 ⟌ 65

Q = ___ R = ___

e) $2\overline{)46}$ Q = ___ R =___

f) $4\overline{)54}$ Q = ___ R =___

g) $7\overline{)75}$ Q = ___ R =___

h) $6\overline{)95}$ Q = ___ R =___

i) $3\overline{)453}$ Q = ___ R =___

j) $9\overline{)648}$ Q = ___ R =___

k) $8\overline{)436}$ Q = ___ R =___

l) $10\overline{)877}$ Q = ___ R =___

4. Divide

a) 85 ÷ 4 b) 98 ÷ 8 c) 314 ÷ 2 d) 690 ÷ 6

e) 378 ÷ 9 f) 412 ÷ 3 g) 505 ÷ 5 h) 749 ÷ 7

Division of a 4-digit number by a 1-digit number

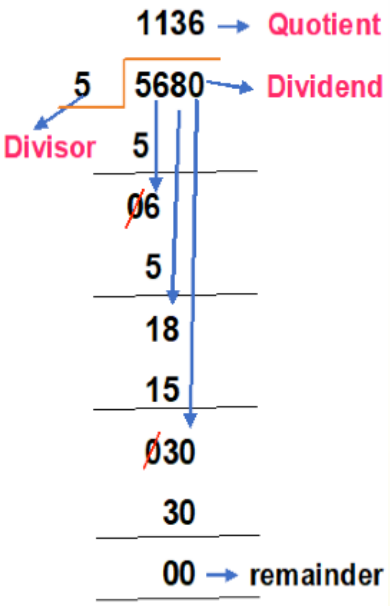
Example 1: Chennai Traffic Police arranged an awareness campaign to ensure that all two-wheeler riders wear helmets for their own safety. If 5680 helmets were distributed free of cost in 5 camps across the city, how many helmets were given in each camp?

Steps 1: Take the first digit '5' from the left. Find how many 5s can be taken away from 5. (5×1=5) Write the number of times in the quotient's place.

Step 2: Subtract and drop the next digit 6. Find how many 5s can be taken away from 6. (5×1=5) Write the number of times in the quotient's place.

Step 3: Subtract and drop the next digit 8. Find how many 5s can be taken away from 18. (5×3=15) Write the number of times in the quotient's place.

Step 4: Subtract and drop the next digit 0. Find how many 5s can be taken away from 30. (5×6=30) Write the number of times in the quotient's place. Again, subtract to get the remainder 0.



Ans:**1136 helmets were given in each camp.**

Division by expanding the number 5680

```
        1000  +  100  +  30  +  6   = 1136
  5 | 5000  +  600  +  80  +  0
    - 5000     -500    +100   +30
      0000      100     180    30
                      - 150  - 30
                        30     00
```

Checking: **(Quotient x Divisor) + Remainder = Dividend**

(1136 x 5) + 0 = 5680 ⟶ Dividend

Example 2: Lalith bought three bats for ₹ 1971. If the cost of all the bats is the same, what is the cost of each bat?

Cost of 3 bats = ₹1971

Cost of 1 bat = ₹ 1971 ÷ 3

=₹ 657

```
      657 ⟹ Q
  3 | 1971
      18
      ---
       17
       15
       --
        21
        21
        --
        00 ⟹ R
```

Step1: As the first digit from the left is smaller than the divisor 3, take the first two digits (19). Find how many 3s can be taken away from 19. (3×6=18)

Write the number of times in the quotient's place.

Step 2: Subtract and drop the next digit 7.

Find how many 3s can be taken from 17. (3×5=15)

Write the number of times in the quotient's place.

Step 3: Subtract and drop the next digit 1. Find how many 3s can be taken from 21. (3×7=21) Write the number of times in the quotient's place. Again, subtract to get the remainder 0.

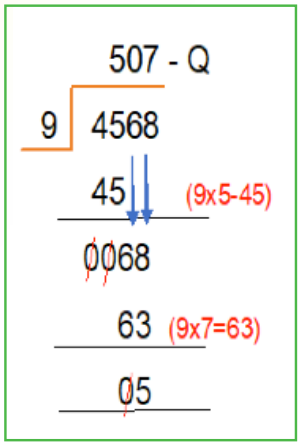
Checking: **(Quotient x Divisor) + Remainder = Dividend**

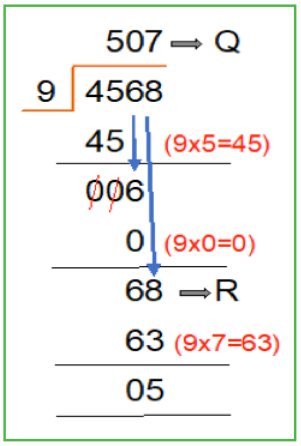
= (657 x 3) + 0 =1971

Think of a number. Multiply it by 3 and add 9. Now divide it by 3 and take away the number you thought.

⟹ **You are left with 3.**

Example 3: Divide 4568 by 9





Note: As 6 is smaller than the divisor 9 put '0' in quotient place and drop the next digit 8 in the same step.

Checking: (507x9) + 5= 4563 + 5 = 4568

When we divide a four-digit number by a 1-digit number, the quotient is either a 3-digit or a 4-digit number.

EXERCISE – 5.3

1. Find the quotient and remainder

a) 6537 ÷ 4	b) 4586 ÷ 2	c) 9240 ÷ 8	d) 9068 ÷ 6
e) 1379 ÷ 3	f) 2195 ÷ 5	g) 5120 ÷ 7	h) 6818 ÷ 9
i) 4859 ÷ 8	j) 6214 ÷ 6	k) 2700 ÷ 3	l) 3000 ÷ 5

2. Divide and check your answer

a) 6149 ÷ 4	b) 8065 ÷ 2	c) 7749 ÷ 8	d) 1059 ÷ 3
e) 4510 ÷ 5	f) 6300 ÷ 9	g) 9743 ÷ 7	h) 2496 ÷ 6

3. Applications in real life

a) A gardener plants equal number of rose plants in 4 rows. If he had planted 852 such plants, how many rose plants would there be in each row?

b) Reshma prepares 3539 laddoos for a wedding. If she had packed 6 laddoos in a box,

i) How many boxes would be needed to pack all the laddoos?

ii) How many laddoos would be left after packing?

c) The product of two numbers is 6210. If one number is 9, find the other number.

Division by 10, 100 ,1000

Dividing by 10 - Observe the pattern:

a)

```
      4
10 | 4  6
   - 4  0
   ------
      6
```

46÷10

Q = 4 R = 6

b)

```
      7  5
10 | 7  5  3
   - 7  0
   ---------
      5  3
   -  5  0
   ---------
         3
```

753 ÷ 10

Q = 75 R = 3

c)

```
      1  9  8
10 | 1  9  8  5
   - 1  0
   ------------
      9  8
   -  9  0
   ------------
         8  5
      -  8  0
   ------------
            5
```

1985÷10

Q = 198 R = 5

When a number is divided by 10, the digit in the ones place is the remainder, the rest of the digits make the quotient.

Dividing by 100 - Observe the pattern:

a)

```
        2
100 | 2  4  7
    - 2  0  0
    ---------
       4  7
```

247 ÷ 100

Q = 2 R = 47

b)

```
        3  4
100 | 3  4  9  1
    - 3  0  0
    ------------
       4  9  1
    -  4  0  0
    ------------
          9  1
```

3491÷100

Q = 34 R = 91

c)

```
        8  6
100 | 8  6  4  5
    - 8  0  0
    ------------
       6  4  5
    -  6  0  0
    ------------
          4  5
```

8645÷100

Q = 86 R = 45

When a number is divided by 100, the digit in tens and ones places make the remainder, the rest of the digits make the quotient

Dividing by 1000 - Observe the pattern:

a)
$$\begin{array}{r|llll} & & & & 6 \\ \hline 1000 & 6 & 8 & 1 & 2 \\ - & 6 & 0 & 0 & 0 \\ \hline & & 8 & 1 & 2 \end{array}$$

6812 ÷ 1000

Q = 6 R = 812

b)
$$\begin{array}{r|llll} & & & & 3 \\ \hline 1000 & 3 & 0 & 5 & 7 \\ - & 3 & 0 & 0 & 0 \\ \hline & & & 5 & 7 \end{array}$$

3057 ÷ 1000

Q = 3 R = 57

c)
$$\begin{array}{r|llll} & & & & 9 \\ \hline 1000 & 9 & 0 & 0 & 7 \\ - & 9 & 0 & 0 & 0 \\ \hline & & & 0 & 7 \end{array}$$

9007 ÷ 1000

Q = 9 R = 7

When a number is divided by 1000, the digit in hundreds, tens and ones places make the remainder, the rest of the digits make the quotient.

EXERCISE – 5.4

1) Find the quotient and remainder without doing actual division

a) 372 ÷ 10
Q = ___ R = ___

b) 8915 ÷ 100
Q = ___ R = ___

c) 40,089 ÷ 100
Q = ___ R = ___

d) 92,746 ÷ 1000
Q = ___ R = ___

e) 1365 ÷ 10
Q = ___ R = ___

f) 20,693 ÷ 1000
Q = ___ R = ___

2) Guess the dividend in each of the following

a) ____ ÷ 10 = 400

b) ____ ÷ 100 = 80

e) _____ ÷ 1000 = 43

c) ____ ÷ 1000 = 5

d) ____ ÷ 100 = 200

f) _____ ÷ 100 = 75

Value Based Question

3) Agni charitable trust helps the needy. They provide education to under privileged children. They collect funds by selling their products like cookies, bread, bun, rusk, etc.

a) They produce 6575 cookies a day. If 10 cookies are packed in a jar,
(i) How many jars are packed in a day?
(ii) How many cookies would be left unpacked?

b) If 100 loaves of bread were loaded in a carton,
how many cartons will be needed to load 8000 such loaves of bread?

c) If 12,008 buns are to be packed in 1000 packets, how many buns will there be in each packet? How many buns would be left after packing ?

Division of a 3-digit number by a 2-digit number

Example 1: Divide 608 by 12

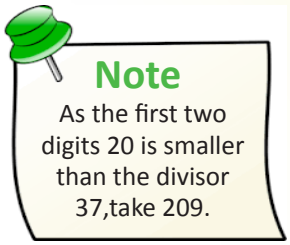
```
        5  0  – quotient
    ┌──────
12  │ 6  0  8
  – │ 6  0  ↓   (12x5=60)
    ├──────
        0  8
    –   0     (12x0=0)
    ──────
           8  – remainder
```

Checking:

(50x12)+8=600+8=608

Example 2: Divide 209 by 37

```
        5  – Q
    ┌──────
37  │ 2  0  9
  = │ 1  8  5
    ├──────
        2  4  – R
```



Checking:

(5x37)+24=185+24=209

Example 3: If 962 books are equally distributed among 15 students,how many books would each student receive. How many books would be left?

Number of books = 962

Number of students = 15

Number of books received by each student = 962 ÷ 15

```
        64
    ┌──────
15  │ 962
  – │ 90 ↓
    ├──────
        062
  – │ 60
    ──────
        02
```

Step 1: As the divisor is a 2-digit number, take the first two digits from the left. Find how many 15s can be taken away from 96. **(15x6=90)** Write the number of times in the quotient's place.

Step 2: Subtract and drop the next digit 2. Again find how many 15s can be taken away from 62. (15x4=60) Subtract to get the remainder 2.

Ans: Each student would receive 64 books and 2 books would be left.

Checking: (Quotient x Divisor) +Remainder = Dividend

(15 x 64) + 2 = 962 = Dividend

When a 3-digit number is divided by a 2 digit number, the quotient is either a 1 digit or 2 digit number.

EXERCISE – 5.5

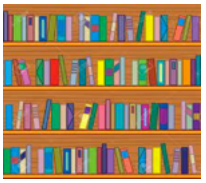
1) Divide and check your answer

a) 812 ÷ 11 b) 900 ÷ 32 c) 108 ÷ 15 d) 458 ÷ 17

e) 573 ÷ 62 f) 246 ÷ 43 g) 777 ÷ 19 h) 609 ÷ 28

2) Application of division in real life

a) On sports day,375 students were standing in 25 rows for marchpast. How many students were there in 1 row?



b) A shopkeeper has 252 books. If he arranges 18 books in a rack, how many racks would be needed to arrange all the books?

c) Divide the product of the greatest 3-digit number and the smallest even number by 2 tens.

d) Roshitha has 500 stamps. If she pastes 30 stamps in a page, how many pages would be needed to paste all the stamps. How many stamps would be left?

e) In a multiplication sum, the multiplier is 78 and the product is 40,872. What is the multiplicand?

```
   201
45 | 9049
   - 90      (45x2=90)
   ---
    049
   - 45      (45x1=45)
   ---
     4
```

Division of a 4-digit number by a 2-digit number

Example 1 : Divide 9049 by 45

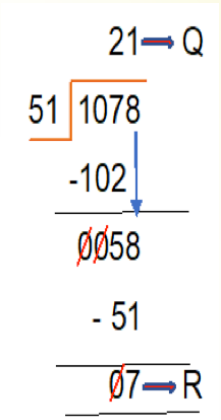
Note: As 4 is smaller than 45, drop 9 also in the same step.

Checking :

(Quotiend x Divisor) + Remainder = Dividend

(201 x 45) + 4 = 9045 +4=9049

Example 2: Divide 1078 by 51



Step 1: As the first two digits from the left is smaller than the divisor 51, take three digits 107.

Find how many 51s can be taken away from 107. (51×2=102) Write the number in quotient's place.

Step 2: Subtract and drop the next digit 8.

Find how many 51s can be taken away from 58. (51×1=51) Write the number in quotient's place.

Again subtract. You get the remainder 7.

Quotient = 21 Remainder = 7

When a 4-digit number is divided by a 2 digit number, the quotient is either a 2 digit or a 3-digit number.

EXERCISE – 5.6

1) Divide

a)	4689 ÷ 23	b)	2111 ÷ 40	c)	7014 ÷ 14	d)	1603 ÷ 16
e)	8964 ÷ 81	f)	3005 ÷ 56	g)	5295 ÷ 70	h)	9632 ÷ 95

2) Application in real life

a) A factory manufactures the same number of sweaters every week. If it had manufactured 1664 sweaters in 52 weeks, how many sweaters would it have manufactured in a week?

b) An artisan made 1248 Tanjore dolls in a year. How many dolls did he make in a month, if he makes equal number of dolls each month?

c) What number must be multiplied by 96 to get 2976 ?

d) 1089 mL of mango juice is poured equally into 11 glasses. Find the quantity of juice in 1 glass.

The Tanjore doll is a type of a traditional Indian toy made of terracotta. There are two types of Tanjore dolls named bobble head Bommai and tilting doll Bommai. They have been recognised as unique by providing a Geographical Indication by the Government of India in 2008-09. These dolls are handmade and painted by skilled artists

Higher Order Thinking Skills

A shopkeeper bought 4000 flowers to make garlands.

He used 42 flowers for each garland.

i) How many garlands can be made

a) if no flowers are thrown away.

b) if 35 flowers could not be used.

ii) How many flowers would remain in each case.

DIVISION IN MONEY

Example : Manisha bought 28 notebooks for ₹8680.

What is the cost of 1 notebook?

Cost of 28 notebooks = ₹ 8680

Cost of 1 notebook = ₹ 8680 ÷ 28

= ₹ 310

[Checking: (310 x 28) + 0 = 8680]

```
       310
28 ) 8680
     84      28x3= 84
     ----
      28
      28     28x1=28
     ----
      00
       0     28x0=0
     ----
       0
```

EXERCISE – 5.7

1. Divide:

a) ₹ 8906 by 9 b) ₹ 7205 by 4 c) ₹ 5680 by 8 d) ₹3214 by 9

2. In each of the following, find the cost of 1 item

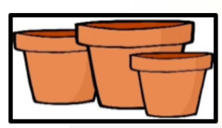
a) 6 books cost ₹ 2358

b) 5 frocks cost ₹ 1400

c) 9 suitcases cost ₹ 9099

d) 8 chairs cost ₹ 1168

3. Application of division in real life



a) A potter sells 8 pots for ₹1000. What is the cost of each pot?

b) Bhavesh bought 16 kg of rice for ₹ 864. What is the cost of 1 kg of rice?

c) A shopkeeper sold jackfruits for ₹ 2040. If the price of a jackfruit is ₹ 85, how many jackfruits did he sell?

Subject Integration – Cross Curricular Activity

From a log of wood to a symbol of melody.

Tanjore veena is unique. We cannot get veenas with this kind of craftsmanship in other parts of the country. K. Mariappan, a kudum carver works 20 days a month. His forefathers were also such craftsmen. If he carves 180 kudums in 3 months, working everyday, how many kudums will be carved in a day?

Observe the picture and make your own story sum involving division

Thinking skills

a) How many  notes will make  rupees?

b) How many  notes will make  rupees?

c) How many  notes will make  rupees?

d) How many ₹5 coins make ₹500?

e) How many ₹ 200 notes will make ₹ 2000?

f) How many ₹2 coins will make ₹ 100?

g) Mrs. Leela distributed a sum of ₹ 2460 equally among her 4 children namely Nithin, Nithish, Naren and Naveen. Out of his share Naren recharged his mobile for ₹ 179. Find the amount left with Naren.

Worksheet - 1

1) Divide

a) 4859 ÷ 8 b) 6214 ÷ 6 c) ₹ 753 ÷ 25 d) ₹ 4902÷ 70

2) Divide and check your answer

a) 1068 ÷ 9 b) 4235÷4 c) 315 ÷11 d) 854 ÷ 22

e) ₹ 2810÷ 13 f) ₹ 2220÷50 g) 7693 ÷ 36 h) 9351 ÷ 93

3) Solve

a) Avanthika makes a bouquet with 13 flowers. How many bouquets can she make with 4912 flowers. How many flowers would be left after making such bouquets?

b) In a football stadium, 2835 chairs are placed equally in 35 rows. How many chairs are placed in each row?

c) The cost of 8 ladders is ₹ 9152. What is the cost of 1 ladder?

d) Find the number to be multiplied by 40 to get 8800.

e) Mithran wants to celebrate Pongal at his native place with his family. He booked bus tickets for ₹ 770. If the price of a ticket is ₹ 70, how many tickets did he buy?

4) Decide the operations and solve

a) Srijith bought apples for ₹ 1250, oranges for ₹ 1980 and pomegranates for ₹ 650. Find the total amount spent by him.

b) The distance from Chennai to New Delhi is 2080 km. Roshan covers the distance in 4 days by car. How many kilometres did he drive daily if he covered an equal distance every day?

c) Usha runs 3000 metres and her sister runs 1840 metres in 10 minutes. Who runs faster by how much?

d) Chairs were arranged for a meeting in a hall. If 35 chairs were arranged in each of the 15 rows, find the total number of chairs.

e) Ajit bought a pair shoes worth ₹ 785 for his brother and a dress worth ₹ 1260 for his sister. If ₹ 420 was left with him. How much money did he have to start with?

Higher Order Thinking Skill

Mohan and his sister Aruna went to an orchard with his parents. The gardener plucked 50 apples each from 20 trees and 15 guavas each from 18 trees and placed them in a container.

Mohan's father asked him to find the following.

a) Number of fruits in the container.

b) If 8 apples are packed in a box how many boxes are needed?

c) If all the guavas are packed in 9 boxes, how many guavas will there be in each box?

Puzzle Time

1) Division squares

Divide horizontally and vertically and write the answer in the circle

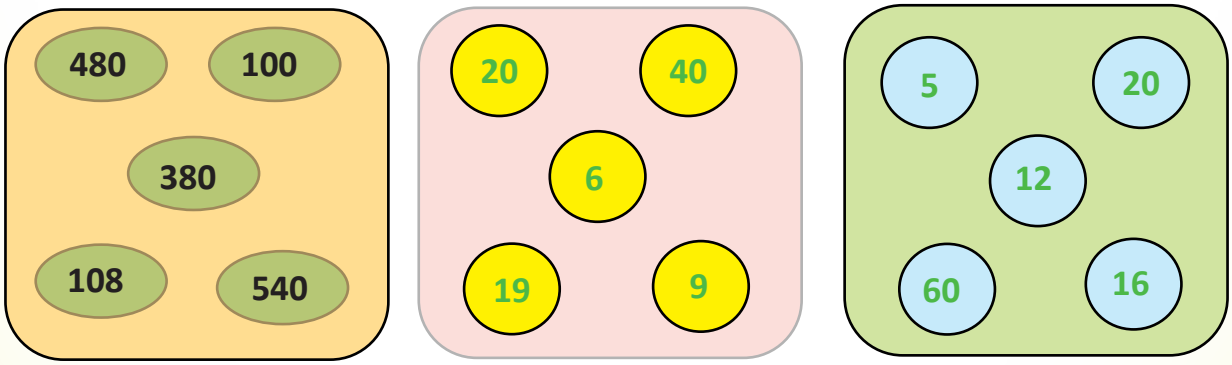
a)

90	5	○
6	1	○
○	○	○

b)

560	○	56
○	○	○
70	5	○

2) Find some **division facts using the** dividends in the first box, the divisors in the second box and the quotients in the third box. One has been done for you.



100 ÷ 20 = 5

Worksheet – 2

1) Divide:

a) 2714 ÷ 3 b) ₹ 910 ÷ 9 c) ₹ 296 ÷ 14 d) ₹ 6175÷33 e) 1498 ÷ 16

2) Divide and check your answer.

a) 1647÷6 b) 2419 ÷ 8 c) 900 ÷ 30 d) 108 ÷ 42

e) ₹ 1649 ÷ 25 f) ₹ 5177÷ 51 g) ₹ 1675 ÷ 18 h) ₹ 1927 ÷ 61

i) ₹ 2258÷ 75 j) ₹ 9104 ÷ 91

3) Choose the correct option and solve

a) Akshara reads 13 pages of a story book every day. If there are 910 pages in the book, how many weeks does she need to complete the book?

Add and subtract/ multiply and divide

b) The population of a village is 9750. If 4610 are men and 4580 are women and the rest are children, find the number of children in the village?

Add and subtract / Multiply and divide

c) Seema bought 5 red umbrellas for ₹ 120 each and 3 blue umbrellas for ₹150 each. How much did she spend on umbrellas?

Subtract and divide/ Multiply and add

d) Manswini buys 85 colour pencils to distribute on her birthday. She keeps 5 pencils for herself. If she had distributed the remaining pencils to 40 students, how many pencils would each student get?

Add and divide / Subtract and divide

e) Rohith packs 32 kilograms of apples and 25 kilograms of mangoes in a carton. How many kilograms of fruits would be packed in 30 such cartons?

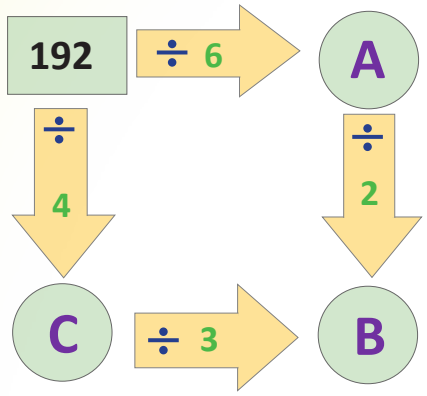
Add and multiply / Multiply and divide

f) In a factory 6,875 nails were produced. Out of which 550 were damaged. The rest were packed in boxes with 275 nails in each. Determine the number of boxes used.

Subtract and divide / Subtract and multiply

Logical Reasoning

1)



The values of A, B and C would be respectively

a) 32, 16, 48 b) 48, 16, 32 c) 32, 48, 16 d) 16, 48, 32

2) How many 6s are there which are preceded by 9 but not followed by 3 in the given number series?

9 6 3 9 4 3 6 6 9 3 3 6 9 3 6 3 9 6 3 6 9

a) 1 b) 2 c) 3 d) 0

3) There are 2478 candies in a jar. If all the candies are in pairs, how many pairs are there in all?

a) 1489 b) 1234 c) 1546 d) 1239

4) Look at the series: 3, 9, 27, 81, _____. What number should come next?

a) 243 b) 162 c) 324 d) 216

5) Observe the picture and write all possible addition, subtraction, multiplication and division facts.

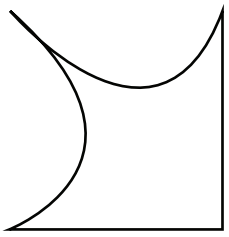
GEOMETRY- (PART 1)

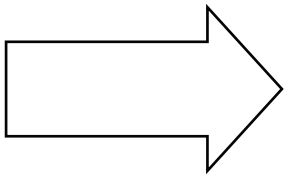
Learning Outcomes

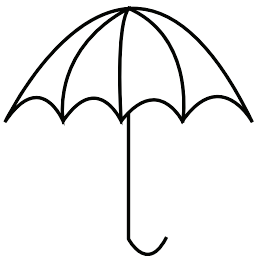
- At the end of this lesson, children will be able to:
- Define simple geometrical concepts such as point, line, ray and line segment.
- Measure a line segment and draw a line segment of the given length.
- Identify different kinds of closed figures and name them.

Recapitulate

1. Count and write the number of horizontal, vertical, slanting and curved lines in each figure.

a) 

b) 

c) 

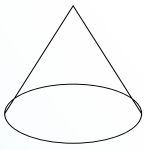
Horizontal lines : _____ _____ _____

Vertical lines : _____ _____ _____

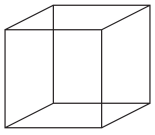
Slanting lines : _____ _____ _____

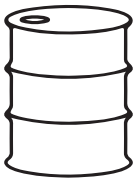
Curved lines : _____ _____ _____

2. Name the shapes. Count the number of faces, edges and corners each has.

a) 

b) 

c) 

d) 

Shape	:	_____	_____	_____	_____
Straight faces	:	_____	_____	_____	_____
Curved faces	:	_____	_____	_____	_____
Straight edges	:	_____	_____	_____	_____
Curved edges	:	_____	_____	_____	_____
Corners	:	_____	_____	_____	_____

Basic Geometrical Concepts

Point

A point is the basic unit of geometry. A point is an exact location on a plane surface. It is denoted by a dot and is named using a capital letter.

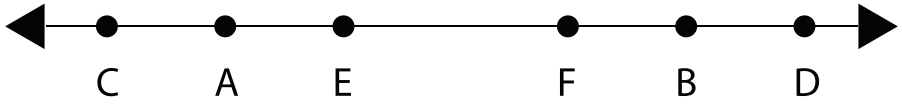
● M - Point M

Line

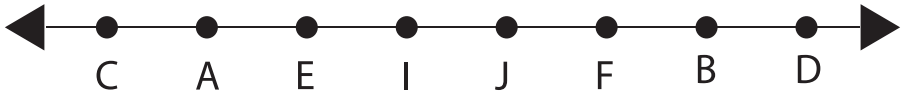
A line is a collection of points extended indefinitely in both the directions along a straight path. A line has no end points and it has no fixed length. A line is represented by arrowheads on both sides to show that it can be extended on both sides. A line can be named using any two points on it.

Line AB or BA is represented as $\overleftrightarrow{AB}$ / $\overleftrightarrow{BA}$

Now let us mark points C, D, E and F on $\overleftrightarrow{AB}$ as shown.



The points A, B, C, D, E and F lie on the same line. We can mark any number of points on the line as shown below.



Thus, a line is made up of infinite number of points.

Line segment

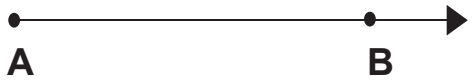
A line segment is a part of line. A line segment is formed when two points on the same path are joined. The two points are called the end points of the line segment and are used to name the line segment. A line segment has a definite length.

Line segment XY or YX .

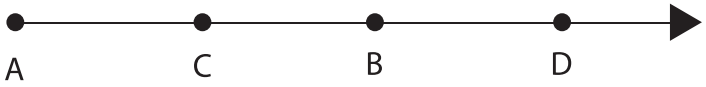
Line segment XY or YX is represented as $\overline{XY}/\overline{YX}$. O,T,K and N are points on the line segment. A line segment is also made of infinite number of points.

Ray

A line is formed when a line segment is extended on both sides. What happens if we extend the segment only on one side?



The above figure has one fixed point A. But it can extend beyond B. So, it is not a line segment. Since it has only one fixed point, it is not a line. This figure is called a ray. The above ray is identified as $\overrightarrow{AB}$. The arrowhead is only in the direction of B. Instead of B, any point on the ray can be used to represent the ray.



The rays AC and AD are the same as $\overrightarrow{AB}$. Like a line and line segment, a ray is also made up of a infinite number of points.

EXERCISE 6.1

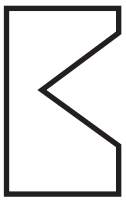
1. Identify the line, line segment and ray from the given figures.

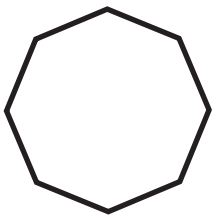
a. 

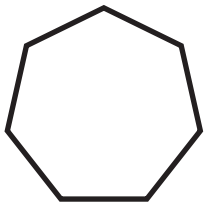
b.

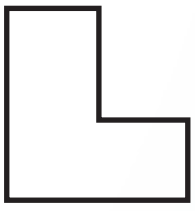
c. 

2. Count and write the number of corners and line segments in each figure.

a. 

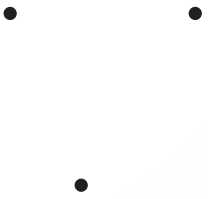
b. 

c. 

d. 

3. Join the points to draw as many line segments as you can.

a. 

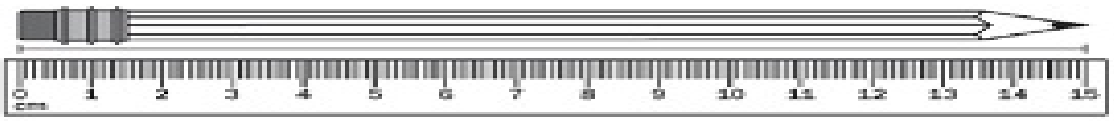
b. 

Measuring line segments

You can measure the length of this pencil with a scale.

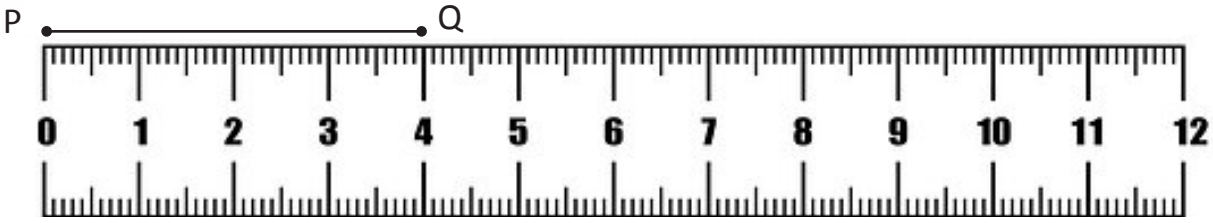
Step 1 : Keep the pencil along the scale such that one end is at the 0 mark of the scale.

Step 2 : Read the scale measure at the other end of the pencil.



The length of the pencil is 15 cm.

You can measure the length of this line segment in the same way.



The length of the line segment PQ is 4 cm.

The teacher asked the students to draw a line segment of length 8cm. Vinod measured from 1cm to 8cm whereas Vineet measured from 0 to 8cm in the scale and drew the line segment. Who is correct? Why?

Drawing line segments

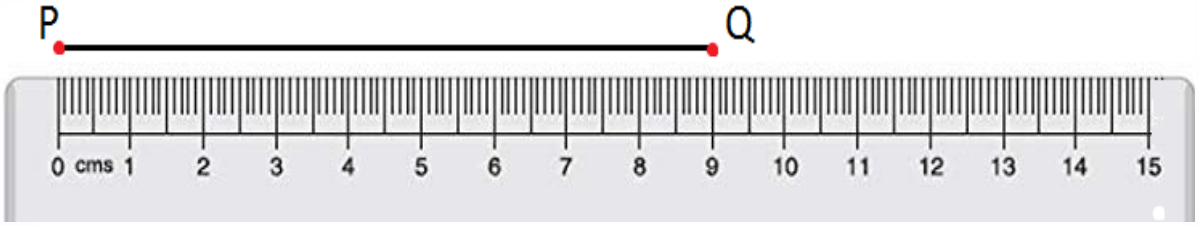
You can draw line segment of given length using a scale and pencil. To draw a line segment of 9 cm, follow the steps.

Step 1 : Keep the ruler on the paper and firmly press it with one hand.

Step 2 : Mark a sharp pencil point “P” against the 0 mark on the ruler.

Step 3 : Mark a sharp pencil point “Q” against the 9 cm mark on the ruler.

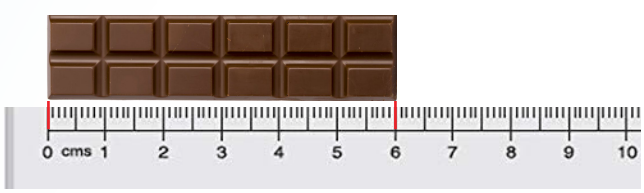
Step 4 : Join the two points.



Line Segment PQ measures 9 cm.

EXERCISE 6.2

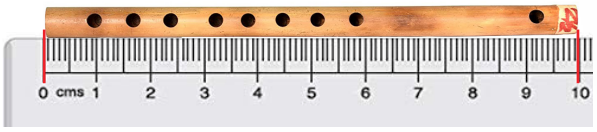
1. Write down the lengths of the objects.



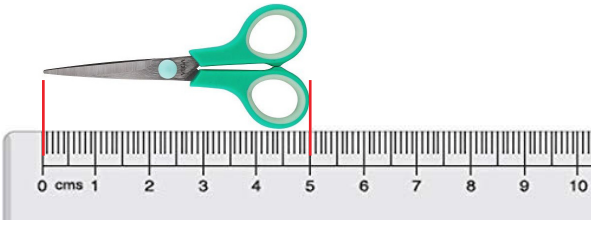
The chocolate bar is _____cm long.

The pencil is _____cm long.

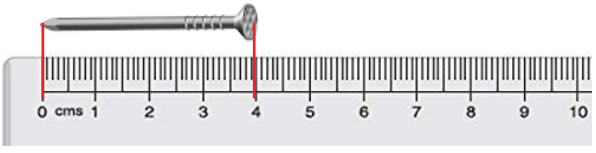
The spoon is _____cm long.



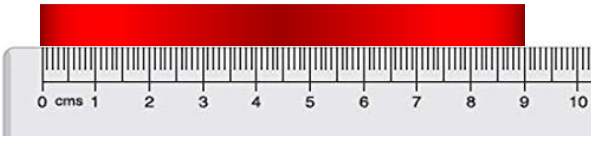
The flute is _____cm long.



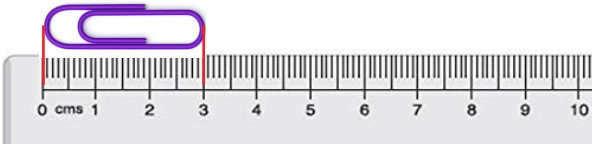
The scissors are _____cm long.



The nail is _____cm long.



The ribbon is _____cm long.



The paper clip is _____cm long.

2. Measure the line segments using a ruler. Write the measurement in the boxes.

a) A B

b) P Q

c) M N

3. Draw line segments of the following lengths.

a. 12 cm b. 7 cm c. 8 cm d. 10 cm e. 9 cm

Higher Order Thinking Skills

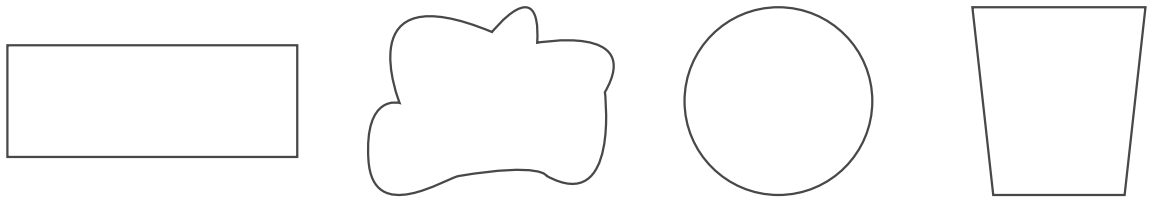
1. Lakshman measured a line segment. Instead of keeping one end of the line segment at the 0 cm mark on the scale, he kept it at the 1 cm mark. The reading at the other end was 10 cm. What was the length of the line segment?
2. Draw a line segment AB of any length. Cut out PQ of length 5 cm from AB what will be the length of the remaining part? (Remember that AB can be of any length).

Open Figures

Figures that start at one point and end at another point are open figures.

Closed Figures

Figures that start at one point and end at the same point are closed figures.

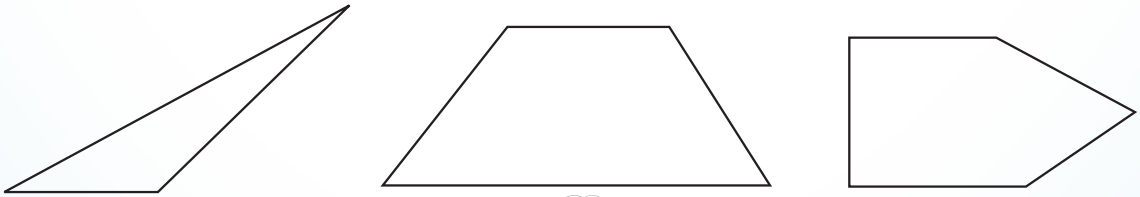


Simple Closed Figures

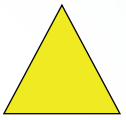
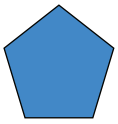
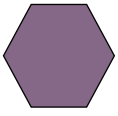
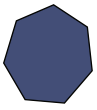
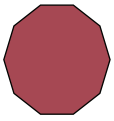
Closed figures in which the lines do not cross themselves are simple closed figures.

Polygons

Closed figures that are made of straight-line segments only are called polygons. Polygons are named according to the number of their sides.



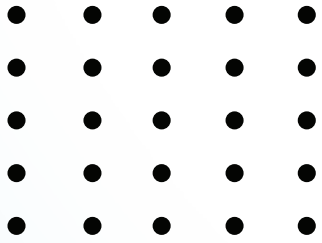
Names of the polygons based on their sides

Name of the Polygon	Number of sides	Shapes of the Polygon
Triangle	3	
Quadrilateral	4	
Pentagon	5	
Hexagon	6	
Heptagon	7	
Octagon	8	
Nonagon	9	
Decagon	10	

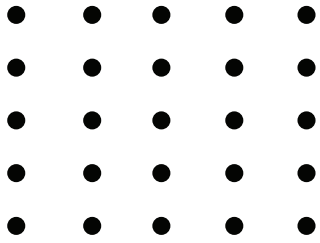
A rectangle is a quadrilateral in which opposite sides are equal.
A square is a quadrilateral in which all sides are equal.

EXERCISE 6.3

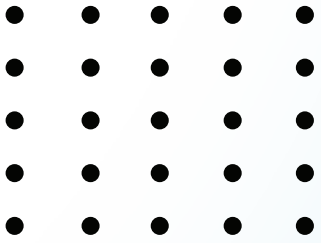
1. Make polygons by joining the dots.

a) 

Triangle

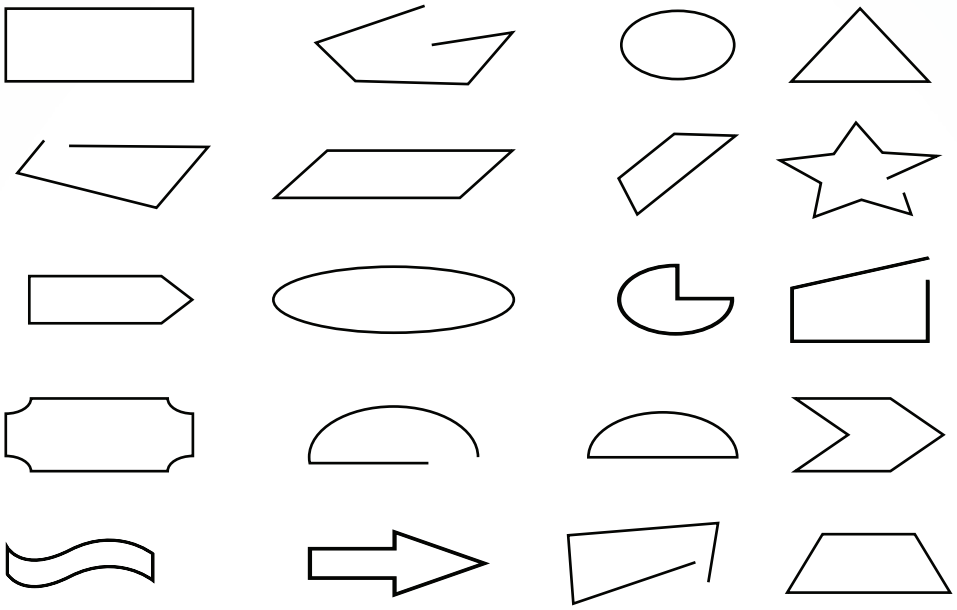
b) 

Quadrilateral

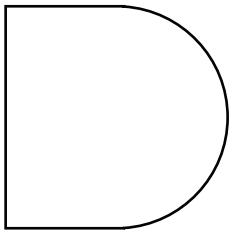
c) 

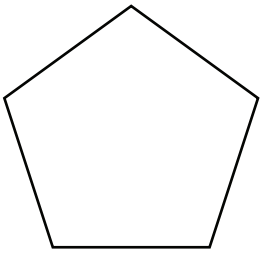
Hexagon

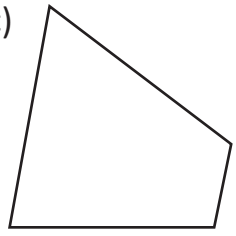
2. Colour the closed figures.

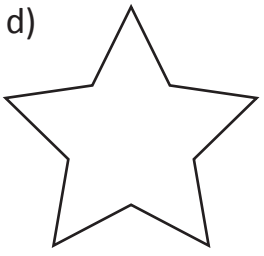


3. Colour the polygons

a) 

b) 

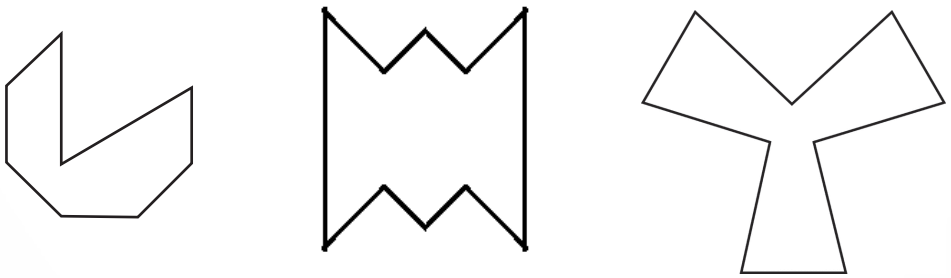
c) 

d) 

4. Trace the base of a dice. Is it a polygon? If yes, name it according to the number of sides.

5. Identify the English alphabets (capitals) which are example of simple closed figures.

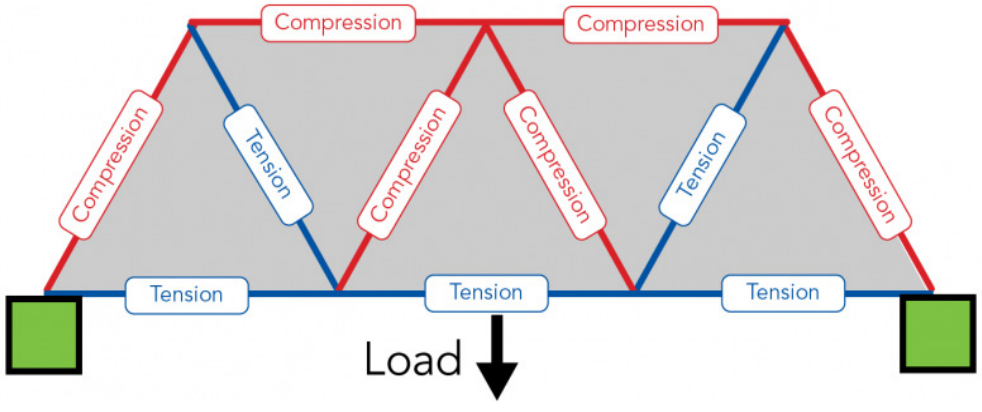
6. Write the number of sides for the given polygons



Subject Integration – Cross Curricular Activity

Howrah Bridge

Howrah Bridge is a balanced cantilever bridge over the Hoogly river in West Bengal. It replaced a pontoon bridge at the same location linking the cities of Howrah and Kolkata. It carries a daily traffic of approximately 1,00,000 vehicles and more than 1,50,000 pedestrians making it the busiest cantilever bridge in the world. It was the third longest cantilever bridge at the time of its construction and currently the sixth longest bridge of its type in the world. Howrah Bridge has a very long span of 457m.



1) What is the most common shape used in bridge designs?
2) What is the least number of triangles required to make a quadrilateral?
3) Draw a pentagon using only 3 triangles.

Vedic Mathematics

BEEJANKA (DIGITAL ROOT)

Meaning: Beeja - seed Anka - digit

The sum of the digits of a number is called Beejanka

Eg. Beejanka of 526 = 5 + 2 + 6 = 13 → 1 + 3 = 4

The result of the four arithmetic operations can be checked using Beejanka.

Examples

736 + 245

7 3 6 → 7 + 3 + 6 = 16 → 1 + 6 = 7

+ 2 4 5 → 2 + 4 + 5 = 11 → 1 + 1 = +2

9 8 1 → 9 + 8 + 1 = 18 → 1 + 8 = 9

954 - 476

9 5 4 → 9 + 5 + 4 = 18 → 1 + 8 = 9

- 4 7 6 → 4 + 7 + 6 = 17 → 1 + 7 = -8

4 7 8 → 4 + 7 + 8 = 19 → (10 → 1+0) 1 + 9 = 1

13 x 14

13 → 1 + 3 = 4

x 14 → 1 + 4 = x 5

1 8 2 → 1 + 8 + 2 = 11, 1 + 1 = 2 } 20 2+0=2

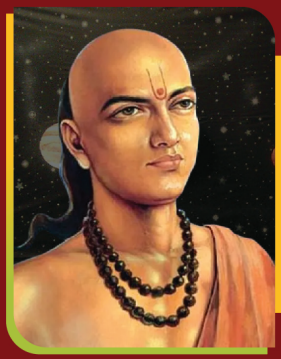
256 ÷ 7 quotient = 36, remainder = 4

DR of dividend = DR (q x dr + r)

DR (256) = DR (36 x 7 + 4)

2 + 5 + 6 → 13 → 1 + 3 → 4

9 x 7 + 4 (DR of 36 is 9) → 67 → 6 + 7 = 13 → 1 + 3 → 4



Zero

- Aryabhatta gave the world the concept of Zero (0)
- Means everything and nothing
- Binary numbers in computers would not have been possible without '0'

0
10
100
1000