HICON SERIES

CLASS 4 LESSON 2

MATHEMATICS
FUNDAMENTAL OPERATIONS

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LESSON
PART 1

+ − x ÷ + − x ÷ + − x ÷ + − x ÷

2 FUNDAMENTAL OPERATIONS

READY ... STEADY

A. Answer the following.

1. If 4562 + 1324 = 5886, what is 5886 – 4562 ? _____
2. If 6523 – 5754 = 769, is 5754 – 6523 also equal to 769 ? _____
3. If 1346 + 3824 = 5170, is 3824 + 1346 also equal to 5170 ? _____
4. What is 5025 + 0 equal to ? _____ 5. What is 5025 – 0 equal to ? _____
6. What is 5025 – 5025 equal to ? _____

B. Multiply the following.

1. 82 × 3	2. 34 × 4	3. 105 × 5	4. 156 × 4
5. 305 × 10	6. 22 × 14	7. 48 × 27	8. 26 × 33

C. Divide the following.

1. 72 ÷ 9	2. 56 ÷ 8	3. 60 ÷ 6	4. 58 ÷ 8
5. 29 ÷ 3	6. 85 ÷ 6	7. 92 ÷ 5	8. 297 ÷ 2
9. 377 ÷ 4	10. 367 ÷ 8	11. 300 ÷ 6	12. 705 ÷ 7

ADDITION

Combining two or more numbers together is called *addition*. Addition of numbers can be done with and without regrouping. The numbers that are added are called *addends* and the answer is called the *sum*. The term used for addition is *plus* and the symbol for addition is + (plus).

Addition of 4-digit numbers

Sometimes when you add 4-digit numbers, you get a 5-digit answer.

Example : Add 6543 and 7676.

Step 1 : Add the ones.

3 + 6 = 9

TTh	Th	H	T	O
	①	①		
	6	5	4	3
+	7	6	7	6
1	4	2	1	9

Step 2 : Add the tens and regroup.

$4 + 7 = 11$

11 tens = 1 hundred + 1 ten

Step 3 : Add the hundreds and regroup.

carried $1 + 5 + 6 = 12$

12 hundreds = 1 thousand + 2 hundreds

Step 4 : Add the thousands and regroup.

carried $1 + 6 + 7 = 14$

14 thousands = 1 ten thousand + 4 thousands

Exercise 2.1

A. Add the following.

1.

	Th	H	T	O
	7	7	7	7
+	3	3	3	3

2.

	Th	H	T	O
	5	0	7	6
+	4	9	3	7

3.

	Th	H	T	O
	9	3	6	7
+	2	7	5	5

4.

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

5. 7081 + 5539 6. 3868 + 6967 7. 6789 + 9876 8. 4038 + 9999

B. Solve these word problems.

1. Dev's parents bought a cooler for ₹ 5683 and an oven for ₹ 4985. How much money did they spend ?
2. A flight left New Delhi and flew 6707 km to London in 8 hours 10 minutes. It then travelled 5576 km from London to New York in 7 hours 20 minutes. What is the distance from New Delhi to New York ? (Hint : There is some extra information in the sum which you do not require.)

Addition of 5-digit numbers

Addition of 5-digit numbers is done in the same way as addition of 4-digit numbers.

Example : Add 36,436, 4597 and 18,099

Step 1 : Add ones : 6 + 7 + 9 = 22 ones = 2 tens + 2 ones. Write 2 under ones column and carry 2 to tens column.

Step 2 : Add tens : 2 (carried) + 3 + 9 + 9 = 23 tens = 2 hundreds + 3 tens. Write 3 under tens column and carry 2 to hundreds column.

Step 3 : Add hundreds : 2 (carried) + 4 + 5 + 0 = 11 hundreds = 1 thousand + 1 hundred. Write 1 under hundreds column and carry 1 to thousands column.

Step 4 : Add thousands : 1 (carried) + 6 + 4 + 8 = 19 thousands = 1 ten thousand + 9 thousands. Write 9 under thousands column and carry 1 to ten thousands column.

Step 5 : Add ten thousands : 1 (carried) + 3 + 0 + 1 = 5 ten thousands. Write 5 under ten thousands column.

	TTh	Th	H	T	O
	1	1	2	2	
	3	6	4	3	6
+	0	4	5	9	7
+	1	8	0	9	9
	5	9	1	3	2

Answer : 59,132

Exercise 2.2

A. Add the following.

1.

	TTh	Th	H	T	O
	5	4	3	9	0
	3	7	3	1	8
+	1	8	5	7	6

2.

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

3.

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

4.

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

5. 41,362 + 38,653 + 28,794

6. 42,357 + 37,429 + 30,315

7. 32,053 + 8,607 + 51,640

8. 44,229 + 2,789 + 16,452

B. Solve the word problems.

1. Daya attended college in Mumbai. His parents calculated that they needed ₹ 26,880 for tuition fee, ₹ 15,450 for hostel fee and ₹ 10,800 for transport and other things, every year. How much money do Daya's parents need in a year for Daya's college education ?

2. Every month Parul's mother deposits some money in the bank. She deposited ₹ 12,980 in January and ₹ 15,880 in February. How much money did she deposit in the two months ?

3. In a town there are 34,560 men, 32,169 women and 9876 children. What is the population of the town ?
4. In a village there are 45,356 men. The number of women is 2879 more than the number of men. How many women are there in the village ?
5. Mr. Arora bought a car. He paid ₹ 18,670 from his savings. He took a loan of ₹ 68,790 from a bank to pay the rest of the money. What was the cost of the car ?
6. For a wedding, the decoration was done only with yellow and golden marigold flowers. 32,456 yellow and 68,493 golden marigolds were used. How many flowers were used in all ?

SUBTRACTION

Taking away a number from a greater number is called *subtraction*. The term used for subtraction is *minus* and the symbol for minus is '–' . The number which is subtracted is called *subtrahend* and the term from which you subtract is called *minuend*. The number left after subtraction is called *remainder* or *difference*.

Subtraction of 5-digit numbers

Subtraction of 5-digit numbers is done in the same way as subtraction of 4-digit numbers.

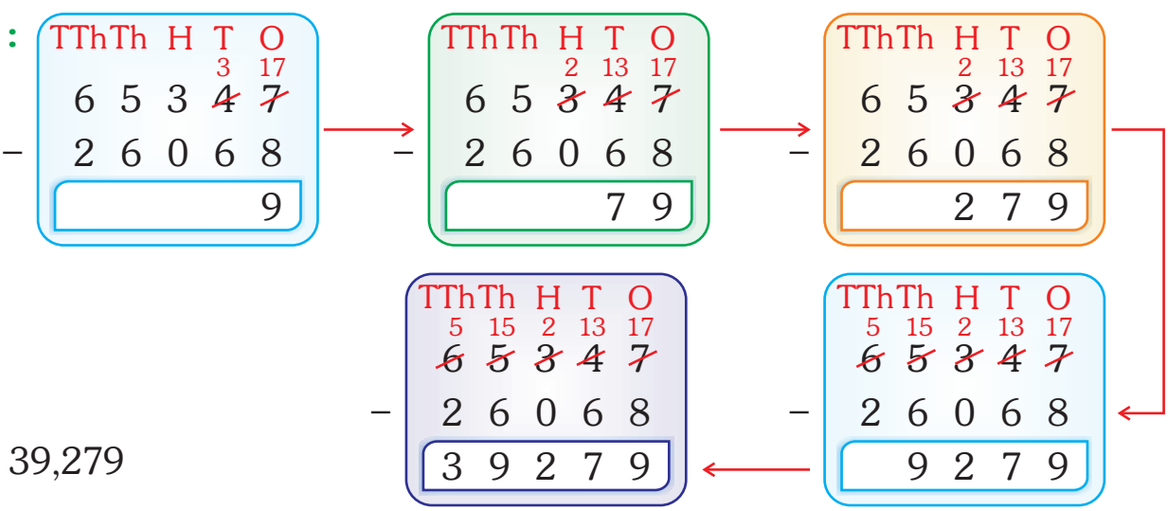
Write the numbers one below the other according to place values, with the greater number on top.

Subtract in order : ones → tens → hundreds → thousands → ten thousands

Regroup where required.

Example : Subtract 26068 from 65347.

Solution :



Answer : 39,279

PROPERTIES OF ADDITION

- A zero added to a number does not change the value of the number.

  Example : 25,965 + 0 = 25,965

- 1 added to a number gives the successor of the number as the sum.

  Example : 896 + 1 = 897

- If two numbers are added in any order, their sum remains the same.

  Example : 1445 + 2216 = 2216 + 1445 = 3661

- If three or more numbers are added in different groups, their sum remains the same in all cases.

  Example : (235 + 142) + 205 = 235 + (142 + 205)

  377 + 205 = 235 + 347

  582 = 582

Exercise 2.3

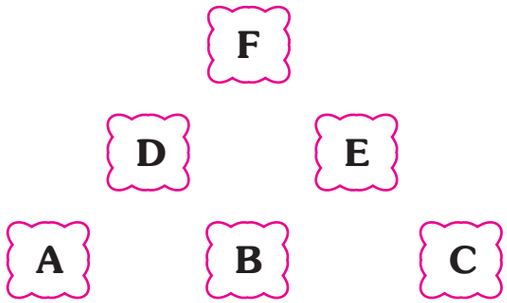
Fill in the missing numbers.

1. 4364 + _____ = 4364
2. 9999 + 1 = _____
3. 1676 + 300 = _____
4. _____ + 0 = 9888
5. 86,789 + 0 = _____
6. 84,380 + _____ = 84,400
7. 811 + 9 = _____
8. 99 + 139 + 1 = _____
9. 86500 + 0 = _____
10. 82,643 + _____ = 735 + 82,643

MATHS LAB

Objective : Learning subtraction with mountain sheet

Materials Required : Mountain sheet, number cards having 3-digit number



Steps :

1. Divide the class into groups.
2. Distribute mountain sheet and pack of number cards to each group.
3. Three members will choose one card from the pack randomly.
4. Write each number in each cell like A, B and C in the bottom line.
5. Choose two consecutive cells like A and B, B and C and subtract the smaller number from bigger number.
6. Write the answer of A and B in D and B and C in E in the middle line.
7. From D and E, subtract the smaller from the greater and write the answer in F.
8. Winner will be decided if someone climbs the mountain correctly.

PROPERTIES OF SUBTRACTION

- If 0 is subtracted from a number, the difference is the number itself.
  Example : 5265 – 0 = 5265
- 1 subtracted from a number gives the predecessor of the number as the difference.
  Example : 6895 – 1 = 6894
- A number subtracted from itself gives zero as the difference.
  Example : 3891 – 3891 = 0

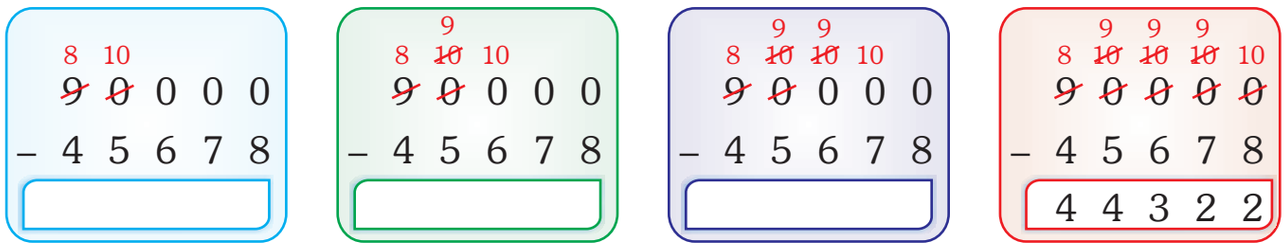
Subtraction with zeroes

Example : Subtract 45,678 from 90,000.

Solution :

To subtract the ones, you have to regroup. There are no tens, hundreds or thousands in the bigger number. So, you have to regroup the ten thousands.

Regroup ten thousands → Regroup thousands → Regroup hundreds → Regroup tens and subtract



Checking subtraction by adding

To check the answer to a subtraction problem, add the difference to the subtrahend. If your answer is correct, you will get the minuend number.

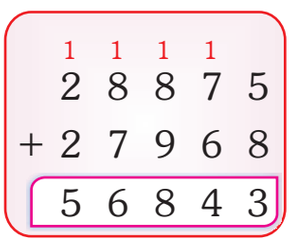
Example : Check : 56,843 – 27,968 = 28,875

Solution : Difference + Subtrahend = Minuend

28,875 + 27,968 = 56,843

Therefore the answer is correct.

Check



Exercise 2.4

A. Subtract the following. In each case, check the answer by addition.

1.
$$\begin{array}{r} 8\,3\,6\,0\,2 \\ -\,5\,7\,9\,8\,9 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 5\,8\,7\,3\,2 \\ -\,2\,6\,5\,8\,2 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 6\,0\,4\,6\,3 \\ -\,2\,0\,0\,6\,6 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 6\,0\,0\,0\,0 \\ -\,2\,7\,5\,3\,5 \\ \hline \end{array}$$

B. Solve the following.

1. Find the difference between 35,287 and 47,363.
2. Find the difference between 23,000 and 9999.
3. Subtract 4990 from 55,434.
4. Subtract 12,345 from 50,000.

C. Solve the following word problems.

1. The population of Kishangarh is 38,497. The population of Ahmedpur is 77,486. Which town has a larger population ? How much more ?
2. In an election, candidate A got 3642 votes less than candidate B. If candidate B got 3,85,642 votes, how many votes did candidate A get ?
3. Mr. Verma had ₹ 40,000 in his bank account. He took out ₹ 21,895 to buy a television. How much money is left in his bank account ?
4. 70,000 copies of a book have to be printed and bound. In a week, 34,560 books were completed. How many are left ?
5. Mohit bought a television set and a music system for ₹ 93,436. The cost of the television set was ₹ 36,493. What was the cost of the music system ?
6. The population of Town A is 54,936. The population of Town B is 54,549. Which town has a larger population ? How much more ?
7. A car company produced 95,556 cars in a year. They sold 72,836 cars. How many cars were left unsold ?

HOTS

Fill in the missing digits.

1.
$$\begin{array}{r} 3\,1\,9\,4\,8 \\ 6\,3\,7\,\square \\ 4\,6\,\square\,5 \\ \square\,7\,8\,7 \\ +\ \square\,9\,2\,4\,6 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 2\,6\,\square\,3\,4\,\square \\ 1\,9\,2\,\square\,8\,9 \\ +\ 1\,2\,1\,3\,3\,\square \\ \hline \square\,7\,8\,1\,6\,0 \end{array}$$

3.
$$\begin{array}{r} 3\,7\,1\,7\,0\,0 \\ -\ \square\,\square\,\square\,\square\,\square\,\square \\ \hline 3\,5\,9\,0\,0\,8 \end{array}$$

4.
$$\begin{array}{r} 6\,6\,6\,9\,2\,3 \\ -\ \square\,\square\,\square\,\square\,\square\,\square \\ \hline 5\,0\,2\,6\,1\,9 \end{array}$$

5.
$$\begin{array}{r} 5\,6\,9\,1\,6 \\ -\ \square\,\square\,1\,\square\,3 \\ \hline 2\,0\,\square\,7\,\square \end{array}$$

6.
$$\begin{array}{r} 4\,\square\,5\,\square\,3 \\ -\ 3\,6\,\square\,5\,\square \\ \hline \square\,0\,0\,0\,0 \end{array}$$

COMBINING ADDITION AND SUBTRACTION

Example : Simplify 4672 – 2418 + 9345.

Step 1 : Add the first number to the number with the + sign before it.

Step 2 : From the sum, subtract the number with the – sign before it.

$$\begin{array}{r} 4\,6\,7\,2 \\ +\ 9\,3\,4\,5 \\ \hline 1\,4\,0\,1\,7 \end{array} \qquad \begin{array}{r} 1\,4\,0\,1\,7 \\ -\ 2\,4\,1\,8 \\ \hline 1\,1\,5\,9\,9 \end{array}$$

Exercise 2.5

A. Simplify the following.

1. 2335 + 1545 – 3666 = _____
2. 7763 + 4594 – 306 = _____
3. 2405 – 1209 + 3568 = _____
4. 3365 – 1302 + 2304 = _____
5. 5000 – 1234 + 3000 = _____
6. 9896 – 2723 + 6516 = _____

B. Solve the word problems.

1. Subtract 7891 from the sum of 8530 and 78542.
2. Find the difference between greatest 6-digit number and least 5-digit number.
3. Add 7325 to the difference of 6785 and 10185.
4. Three brothers started a business. At the end of the year they made a profit of ₹ 4,56,785. The elder brother got ₹ 17,650 as his share. The youngest brother got ₹ 11,150 as his share. How much did the middle one get ?

5. APSRTC has 56,750 drivers on the day shift and 21,565 drivers on the night shift and some drivers are temporary. There are 1,15,060 drivers altogether. How many temporary drivers are there ?
6. In the car section, there are 10,371 battery operated cars, 9200 push back cars and 5667 normal cars. How many cars are there in all in the Toy World ?
7. On Saturday evening 5450 people visited India Gate. Out of these 1265 were men, 1150 were women and the rest were children. How many children visited India Gate ?

Men = 1265	Women = 1150	Children = ?

← Total 5450 →

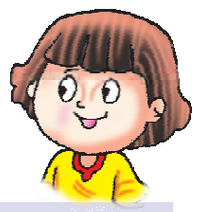
8. Mr. Roy earns ₹ 24,375 per month. Mrs. Roy earns ₹ 20,785 per month. They spend ₹ 30,500 in a month. How much money do they save every month ?

MULTIPLICATION

Multiplication is repeated addition of the same number. It is a quick way of finding the answer where you have to add the same number successively, several times. However, the multiplication tables have to be memorised.

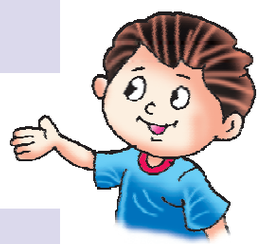
The numbers that you multiply together are called the *multiplicands* and the answer you get is called the *product*.

Properties of multiplication



Two numbers can be multiplied in any order. The product remains the same.

$6 \times 8 = 48$	$15 \times 5 = 75$	$123 \times 4 = 492$
$8 \times 6 = 48$	$5 \times 15 = 75$	$4 \times 123 = 492$



Three or more numbers being multiplied together can be grouped in any way. The product remains the same.

$6 \times (2 \times 5) = 60$	$16 \times (3 \times 10) = 480$
$(6 \times 2) \times 5 = 60$	$(16 \times 3) \times 10 = 480$

The product of 1 and any number is the number itself.

$8 \times 1 = 8$	$1 \times 25 = 25$	$342 \times 1 = 342$

The product of 0 and any number is 0.

$7 \times 0 = 0$ $38 \times 0 = 0$ $0 \times 389 = 0$

Multiplying by 10, 100, 1000

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

$46 \times 10 = 460$ $159 \times 10 = 1590$

To multiply a number by 100, put two zeroes to the right of the number.

$38 \times 100 = 3800$ $798 \times 100 = 79800$

To multiply a number by 1000, put three zeroes to the right of the number.

$29 \times 1000 = 29000$ $643 \times 1000 = 643000$

Multiplying by 200, 300, ..., 2000, 3000, ...

By 200 → multiply by 2 and put two zeroes to the right : $18 \times 200 = 3600$

By 300 → multiply by 3 and put two zeroes to the right : $24 \times 300 = 7200$

By 2000 → multiply by 2 and put three zeroes to the right : $16 \times 2000 = 32000$

By 5000 → multiply by 5 and put three zeroes to the right : $15 \times 5000 = 75000$

Exercise 2.6

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

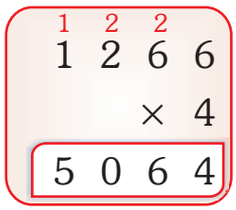
1. $324 \times 1 =$ _____
2. $650 \times$ _____ $= 0$
3. _____ $\times 1 = 409$
4. _____ $\times 1 = 1$
5. $123 \times 0 =$ _____
6. $0 \times 5 =$ _____
7. $13 \times 4 \times$ _____ $= 20 \times 13 \times 4$
8. $23 \times 49 \times 65 = 49 \times$ _____ $\times 23$
9. $190 \times 10 = 10 \times$ _____
10. $(34 \times 46) \times 12 = 34 \times ($ _____ $\times 12)$

B. Multiply the following.

1. 135×10
2. 625×100
3. 403×20
4. 215×300
5. 33×1000
6. 14×6000
7. 28×500
8. 35×4000

Multiplying a 4-digit number by a 1-digit number

Example : Multiply 1266 by 4.



Step 1 : Multiply 6 ones by 4.

4×6 ones $= 24$ ones

Regroup : 24 ones = 2 tens + 4 ones

Write 4 in the ones column.

Carry 2 to the tens column

Step 2 : Multiply 6 tens by 4.

4×6 tens $= 24$ tens

Add the carried over 2 : 2 tens + 24 tens = 26 tens

Regroup : 26 tens = 2 hundreds + 6 tens

Write 6 in the tens column.

Carry 2 to the hundreds column.

Step 3 : Multiply 2 hundreds by 4.

4×2 hundreds $= 8$ hundreds

Add the carried over 2 : 2 hundreds + 8 hundreds = 10 hundreds

Regroup : 10 hundreds = 1 thousand + 0 hundreds

Write 0 in the hundreds column :

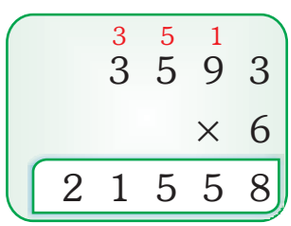
Carry 1 to the thousands column.

Step 4 : Multiply 1 thousand by 4.

4×1 thousand $= 4$ thousands

Add the carried over 1 : 1 thousand + 4 thousands = 5 thousands.

Write 5 in the thousands column.



Sometimes the product of a 4-digit number and a 1-digit number may be a 5-digit number, for example $3593 \times 6 = 21558$.

Exercise 2.7

A. Multiply the following.

1. 1245×5
2. 5284×5
3. 2304×3
4. 2113×7
5. 3409×7
6. 5206×8
7. 3194×6
8. 2354×9

B. Solve these word problems.

1. The distance from Delhi to Mumbai is 1432 km. If I go from Delhi to Mumbai and come back, how much distance have I covered ?
2. A bicycle costs ₹ 1267. What is the cost of 5 such bicycles ?

Multiplying by a 2-digit number

Example : Multiply 395 by 42.

Step 1 : Multiply 395 by 2.

$395 \times 2 = 790$

Step 2 : Multiply 395 by 40

$395 \times 40 = 15800$

Step 3 : Add the products.

$790 + 15800 = 16590$

$$\begin{array}{r} 395 \\ \times\ 42 \\ \hline 790 \end{array} \longrightarrow (40 + 2) \quad (395 \times 2)$$

$$\begin{array}{r} 395 \\ \times\ 42 \\ \hline 790 \\ 15800 \\ \hline \end{array} \longrightarrow (395 \times 40)$$

$$\begin{array}{r} 395 \\ \times\ 42 \\ \hline {\scriptstyle 1}\,790 \\ +15800 \\ \hline 16590 \end{array}$$

Answer : $395 \times 42 = 16590$

Sometimes the product of a 3-digit number and a 2-digit number is a 5-digit number. But it cannot have more than 5 digits.

Example : Multiply 465 by 85.

$$\begin{array}{r} 4\ 6\ 5 \\ \times\ 8\ 5 \\ \hline 2\ 3\ 2\ 5 \\ 3\ 7\ 2\ 0\ 0 \\ \hline 3\ 9\ 5\ 2\ 5 \end{array}$$

(80+5)
→ 465×5 (multiply by ones)
→ 465×80 (multiply by tens)
→ 2325+37200 (add the products)

Answer : 39,525

Multiplying by a 3-digit number

The method of multiplying by a 3-digit number is similar to the method of multiplying by a 2-digit number.

Example : Multiply 532 by 356.

Step 1 : Multiply by 6

$$\begin{array}{r} 5\ 3\ 2 \\ \times\ 3\ 5\ 6 \\ \hline 3\ 1\ 9\ 2 \end{array}$$ ⟶ (532 × 6)

Step 2 : Multiply by 50.

$$\begin{array}{r} 5\ 3\ 2 \\ \times\ 3\ 5\ 6 \\ \hline 3\ 1\ 9\ 2 \\ 2\ 6\ 6\ 0\ 0 \end{array}$$ ⟶ (532 × 50)

Step 3 : Multiply by 300.

$$\begin{array}{r} 5\ 3\ 2 \\ \times\ 3\ 5\ 6 \\ \hline 3\ 1\ 9\ 2 \\ 2\ 6\ 6\ 0\ 0 \\ \hline 1\ 5\ 9\ 6\ 0\ 0 \end{array}$$ ⟶ (532 × 300)

Step 4 : Add the products.

$$\begin{array}{r} 5\ 3\ 2 \\ \times\ 3\ 5\ 6 \\ \hline 3\ 1\ 9\ 2 \\ {\scriptstyle 1}\ 2\ 6\ 6\ 0\ 0 \\ +1\ 5\ 9\ 6\ 0\ 0 \\ \hline 1\ 8\ 9\ 3\ 9\ 2 \end{array}$$

Answer : 1,89,392

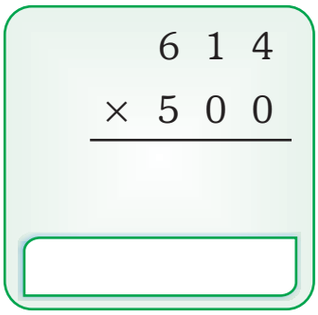
Exercise 2.8

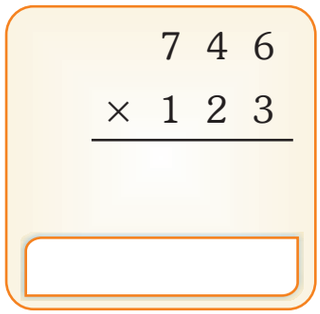
A. Multiply the following.

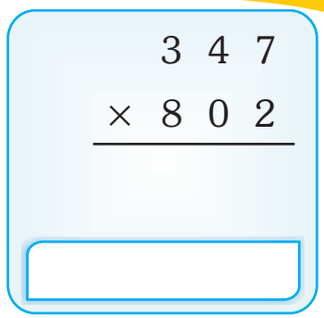
1. $\begin{array}{r} 2\ 0\ 8 \\ \times\ 6\ 4 \\ \hline \end{array}$

2. $\begin{array}{r} 1\ 9\ 4 \\ \times\ 3\ 3 \\ \hline \end{array}$

3. $\begin{array}{r} 3\ 4\ 2 \\ \times\ 5\ 6 \\ \hline \end{array}$

4. 

5. 

6. 

7. 793 × 33
8. 914 × 38
9. 496 × 72
10. 375 × 109
11. 754 × 208
12. 273 × 752
13. 346 × 249
14. 648 × 440
15. 532 × 123

B. Solve these word problems.

1. The cost of the Class 5 Maths textbook is ₹ 186. What is the cost of 32 Maths textbooks of the same class ?
2. In a farm, 240 potato plants are planted in one row. If there are 24 such rows, how many potato plants are there ?
3. Meenu's school fee is ₹ 975 per month. What is the fee for 10 years ?
4. A book has 369 pages. How many pages do 235 such books have ?
5. The cost of a bicycle is ₹ 1965. What is the cost of 8 such bicycles ?
6. 2496 bags of wheat were loaded into a lorry. If each bag weighs 52 kg, what is the total weight of all the bags ?
7. Karan's salary in a company is ₹ 14,750 per month. What is his salary for the whole year ?
8. A factory produces 2795 scooters per day. How many scooters will it be able to produce in 195 days ?

DIVISION

Division is repeated subtraction of the same number. It also means 'sharing equally'. The number to be divided is called *dividend*. The number used for carrying out division is called *divisor*. The number you get is the *quotient*. The leftover number is called the *remainder*.

Dividend = Divisor × Quotient + Remainder

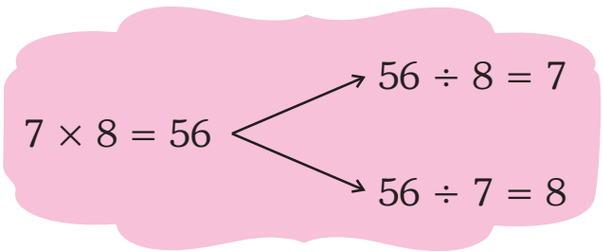
In division sums, when no remainder is left or the remainder is 0, the dividend is exactly divisible.

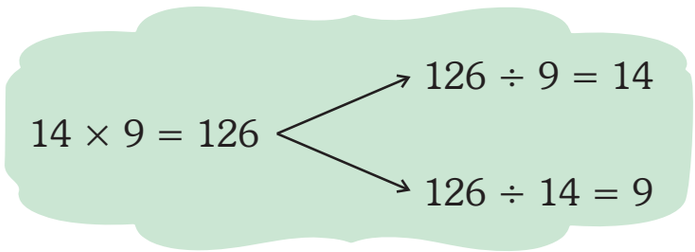
The remainder is always less than the divisor.

Dividend = Divisor × Quotient, when the Remainder = 0

Properties of division

- Multiplication and division are related. For each multiplication fact there are two division facts.





- When a number is divided by itself, the quotient is 1 (except when the number is 0).

  8 ÷ 8 = 1 35 ÷ 35 = 1 567 ÷ 567 = 1

- When a number is divided by 1, the quotient is the number itself.

  9 ÷ 1 = 9 46 ÷ 1 = 46 899 ÷ 1 = 899

- When 0 is divided by any number, the answer is always 0.

  0 ÷ 10 = 0 0 ÷ 99 = 0 0 ÷ 578 = 0

Exercise 2.9

A. Find the dividends in these divisions using multiplication facts.

1. ☐ ÷ 5 = 7 2. ☐ ÷ 9 = 8 3. ☐ ÷ 4 = 16 4. ☐ ÷ 14 = 8

B. Find the divisors in these divisions.

1. 60 ÷ ☐ = 10 2. 125 ÷ ☐ = 25 3. 76 ÷ ☐ = 4 4. 110 ÷ ☐ = 11

C. Fill in the blanks.

1. 37 ÷ 1 = _____ 2. 0 ÷ 436 = _____
3. 341 ÷ 341 = _____ 4. 736 ÷ _____ = 1
5. 0 ÷ 5936 = _____ 6. _____ ÷ 856 = 0

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

Example 1: Divide 9842 by 8.

Step 1 : Since 9 > 8, divide the thousands and subtract.

1 × 8 = 8 9 – 8 = 1

Step 2 : Bring down the hundreds digit. Divide the hundreds and subtract.

$2 \times 8 = 16$ $\quad 18 - 16 = 2$

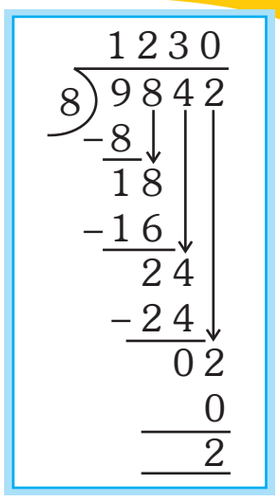
Step 3 : Bring down the tens digit. Divide the tens and subtract.

$3 \times 8 = 24$ $\quad 24 - 24 = 0$

Step 4 : Bring down the ones digit. Divide the ones and subtract.

$0 \times 8 = 0$ $\quad 2 - 0 = 2$ (remainder)

Q : 1230; $\quad R = 2$



Check : Remainder $= 2 < 8$

Quotient (1230) $\times$ divisor (8) + remainder (2) $= 9840 + 2 = 9842 =$ dividend

Hence, the answer is correct.

Example 2: Divide 1464 by 6.

Step 1 : Since $1 < 6$, there aren't enough thousands to divide by 6. So, go to hundreds.

Step 2 : Since $14 > 6$, there are enough hundreds. Divide the hundreds and subtract.

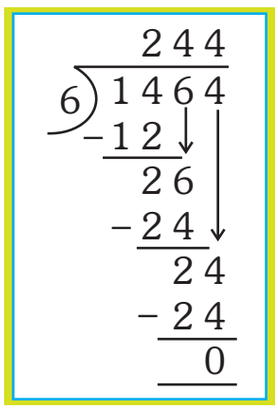
$2 \times 6 = 12$ $\quad 14 - 12 = 2$

Step 3 : Bring down the tens digit. Divide the tens and subtract.

$4 \times 6 = 24$ $\quad 26 - 24 = 2$

Step 4 : Bring down the ones digit. Divide the ones and subtract.

$4 \times 6 = 24$ $\quad 24 - 24 = 0$



Check : There is no remainder.

Quotient (244) $\times$ divisor (6) + remainder (0) $=$ 1464 $=$ dividend

Hence, the answer is correct.

Exercise 2.10

A. Divide the following.

1. $2895 \div 5$	2. $6436 \div 6$	3. $9286 \div 2$	4. $3524 \div 3$	5. $7939 \div 9$
6. $2487 \div 3$	7. $4657 \div 7$	8. $2249 \div 6$	9. $2589 \div 8$	10. $6179 \div 9$
11. $4000 \div 5$	12. $4048 \div 4$	13. $6300 \div 9$	14. $3054 \div 6$	15. $6335 \div 7$
16. $6475 \div 5$	17. $5123 \div 9$	18. $6087 \div 4$	19. $5680 \div 8$	20. $626 \div 3$

B. Solve these word problems.

1. Four friends decided to put in equal amounts of money to buy a tablet computer for ₹ 5872. How much money did each of them give ?
2. A factory produced 2348 markers in a day. These were packed at 8 in a box. How many boxes were packed ? How many markers were left over ?

Dividing by 10, 100 and 1000

Observe the following pattern carefully.

$50 \div 1 = 50$, Remainder $= 0$ $\quad$ $161 \div 10 = 16$, Remainder $= 1$

$6436 \div 10 = 643$, Remainder $= 6$ $\quad$ $2593 \div 10 = 259$, Remainder $= 3$

Now, see the pattern when we divide a number by 100.

$999 \div 100 = 9$, Remainder $= 99$ $\quad$ $3767 \div 100 = 37$, Remainder $= 67$

$1000 \div 100 = 10$, Remainder $= 0$ $\quad$ $7947 \div 100 = 79$, Remainder $= 47$

Following the same pattern, we divide a number by 1000.

$7383 \div 1000 = 7$, Remainder $= 383$ $\quad$ $9542 \div 1000 = 9$, Remainder $= 542$

$3840 \div 1000 = 3$, Remainder $= 840$ $\quad$ $6000 \div 1000 = 6$, Remainder $= 0$

Thus, we conclude that

- If the divisor is 10, the last digit (right most) of the dividend is the remainder and the number formed by the remaining digits of the dividend is the quotient.
- If the divisor is 100, the number formed by the last two digits of the dividend is the remainder and the number formed by the remaining digits of the dividend is the quotient.
- If the divisor is 1000, the number formed by the last three digits of the dividend is the remainder and the number formed by remaining digits of the dividend is the quotient.

Exercise 2.11

Write the quotient and remainder in the given divisions.

1. $3200 \div 10 =$ ____ $\quad$ 2. $1904 \div 10 =$ ____ $\quad$ 3. $2006 \div 10 =$ ____

4. $8683 \div 10 =$ ____ $\quad$ 5. $3871 \div 100 =$ ____ $\quad$ 6. $1557 \div 100 =$ ____

7. $7521 \div 100 =$ ____ $\quad$ 8. $4413 \div 100 =$ ____ $\quad$ 9. $9649 \div 1000 =$ ____

10. $6732 \div 1000 =$ ____ $\quad$ 11. $5349 \div 1000 =$ ____ $\quad$ 12. $2280 \div 1000 =$ ____

Division by a two Digit Number

Example 1: Divide 185 by 15.

Step 1 : From the multiplication table of 15, we have $15 \times 1 = 15$

Step 2 : Write 1 as the quotient and subtract 15 from 18.

Step 3 : The remainder is 3. Bring down 5 to the right of 3.
Thus the new dividend is 35.
From the multiplication of 15, $15 \times 2 = 30$
Write 2 as quotient. The remainder is 5.
So, $185 \div 15 = 12$
Here quotient = 12
Remainder = 5.

```
      12
   ------
15 ) 185
     -15
     ---
      35
     -30
     ---
       5
```

Example 2 : Divide 7396 by 16.

Step 1 : As the divisor is 2 digit number, consider first two digits of the dividend i.e. 73
Now, $16 \times 1 = 16 < 73$
Let us try $16 \times 2 = 32 < 73$
$16 \times 3 = 48 < 73$, $16 \times 4 = 64 < 73$ and
$16 \times 5 = 80 > 73$
73 can be divided by 16, 4 times i.e.
in 73 there are 4 sixteens. Write 4 as first quotient in hundreds place. Write 64 under 73 and subtract.

```
      462
   ------
16 ) 7396
     -64
     ---
      99
     -96
     ---
      36
     -32
     ---
       4
```

Step 2 : Bring down the next digit 9. Now, the number to be divided is 99.
Again $16 \times 1 = 16 < 99$
$16 \times 2 = 32 < 99$
$16 \times 3 = 48 < 99$
$16 \times 4 = 64 < 99$
$16 \times 5 = 80 < 99$
$16 \times 6 = 96 < 99$
$16 \times 7 = 112 > 99$
$\therefore$ 99 can be divided by 16, 6 times i.e. In 99 there are six 16s. Write 6 as quotient in tens place. Write 96 under 99 and subtract.

Step 3 : Bring down the next digit 6. Now, the number to be divided by 16 is 36. We already multiplied $16 \times 2 = 32 < 36$ and $16 \times 3 = 48 > 36$.
$\therefore$ 36 can be divided by 16, 2 times or in 36 there are two 16s. Write 2 as quotient and subtract.

Check :

Dividend = Q × Div + R
= 462 × 16 + 4
= 7392 + 4
= 7396

Remainder is 4. Since remainder is smaller than divisor, division is completed. Quotient is 462.

Step 4 : Check the division by using the property.

Dividend = Divisor × Quotient + Remainder.

Exercise 2.12

A. Divide the following.

1. 495 ÷ 45	2. 845 ÷ 26	3. 752 ÷ 25	4. 845 ÷ 26
5. 798 ÷ 67	6. 654 ÷ 43	7. 674 ÷ 55	8. 524 ÷ 32
9. 6784 ÷ 32	10. 8237 ÷ 71	11. 7247 ÷ 47	l2. 7248 ÷ 24
13. 7395 ÷ 75	14. 8976 ÷ 62	15. 8408 ÷ 42	16. 6678 ÷ 22
17. 3564 ÷ 66	18. 2050 ÷ 36	19. 4231 ÷ 49	20. 4794 ÷ 63
21. 3980 ÷ 56	22. 8690 ÷ 43	23. 2589 ÷ 53	24. 2153 ÷ 23

B. Solve the following word problems.

1. 648 tourists have to be transported from the airport to the railway station in buses. If 24 people can sit in each bus, how many buses will be required ?
2. In a chocolate factory 5678 chocolates are produced in a day. They are packed in boxes of 100 chocolates each. How many boxes are packed ? How many chocolates are left over ?
3. 3825 cm of ribbon is cut into pieces each 45 cm long. How many pieces can be cut ? How much ribbon will be left over ?
4. If 17 shirts cost ₹ 4250, what is the cost of 1 shirt ?
5. A toy manufacturing company has to pack 6925 toys in boxes to send to its dealers. Each box can hold only 25 toys. How many boxes are required to pack all the toys ?
6. A train carried 9888 passengers in 12 coaches. How many passengers were there in each coach ?

ESTIMATION

Sometimes, it is very much necessary to work out an approximate answer when we add, subtract, divide or multiply.

For example, when we go shopping, we want to know quickly how much a bill will amount to.

₹ 136 + ₹ 40 + ₹ 73 = ₹ 249

We round off each figure then add them quickly in our mind.

₹ 140 + ₹ 40 + ₹ 70 = ₹ 250

SIMPLIFICATION

When we have to do all the operations, i.e., +, –, × and ÷ we first divide then multiply, then add and finally subtract.

D → Division M → Multiplication A → Addition S → Subtraction

Example : Simplify : $6 + 4 - 4 \times 10 \div 5$

Step 1 : Since division is done first, we divide 10 by 5.

$6 + 4 - 4 \times \underline{10 \div 5}$

$6 + 4 - 4 \times 2$

Step 2 : Multiplication is done next. So, we multiply 4 by 2.

$6 + 4 - \underline{4 \times 2}$

$6 + 4 - 8$

Step 3 : Addition is done next. So we add 6 and 4.

$\underline{6 + 4} - 8$

$10 - 8$

Step 4 : Subtraction is done at the end.

$10 - 8 = 2$

So, $6 + 4 - 4 \times 10 \div 5 = 2$

Exercise 2.13

Simplify the following :

1. $1331 \div 11 - 118 + 2$
2. $36 - 5 \times 3 + 20$
3. $810 \div 30 + 3 - 20$
4. $15 + 49 \div 7 - 15 + 3$
5. $117 \div 9 - 5 \times 2$
6. $8 + 4 - 2 \times 3 \div 1$
7. $70 - 7 \times 5 + 8$
8. $7 \times 21 - 35 \div 7 + 7$
9. $105 \div 7 \times 2 - 14$
10. $918 + 12 \div 3 + 6 \div 6$

WORKSHEET

A. Tick (✓) the correct answer.

1. When a 4-digit number is divided by a 2-digit number, the quotient is a :
   (a) 4-digit number ☐ (b) 3-digit number ☐
   (c) 2-digit number ☐ (d) either 3-digit or 2-digit number ☐
2. Given that : $12 \times 14 = 168$. Which of the following is true ?
   (a) $168 \div 12 = 14$ ☐ (b) $168 \div 14 = 12$ ☐
   (c) $14 \times 12 = 168$ ☐ (d) All of these ☐
3. $0 \div 345$ is equal to :
   (a) 0 ☐ (b) 1 ☐ (c) 345 ☐ (d) None of these ☐
4. The price of 12 pens is ₹ 144. What is the price of 1 pen ?
   (a) ₹ 144×12 ☐ (b) ₹ $144 \div 12$ ☐
   (c) ₹ $144 + 12$ ☐ (d) ₹ $144 - 12$ ☐

B. Divide the following.

1. $7626 \div 8$	2. $2856 \div 7$	3. $7356 \div 6$	4. $1819 \div 7$
5. $5050 \div 7$	6. $8448 \div 7$	7. $9218 \div 9$	8. $2252 \div 5$
9. $6385 \div 100$	10. $848 \div 25$	11. $422 \div 31$	12. $488 \div 30$
13. $648 \div 47$	14. $1396 \div 10$	15. $181 \div 19$	16. $8775 \div 65$
17. $5432 \div 10$	18. $1000 \div 42$	19. $7803 \div 88$	20. $7548 \div 24$

C. Solve the following word problems.

1. The product of two numbers is 4544. If one of the numbers is 32, what is the other number ?
2. Amala wants to paste 480 stamps in her new stamp album. The stamp album has 24 pages, and she wants to paste an equal number of stamps on each page. How many stamps should she paste on each page ?
3. A metro train in Delhi carried 8466 passengers in 6 trips. Each trip had an equal number of passengers. How many passengers travelled on each trip ?
4. In an apple orchard, 3192 apples were plucked in a day. They have to be packed in boxes. If 12 apples can be packed in 1 box, how many boxes are required ?
5. In a tree planting campaign, school children planted 480 trees in 32 equal rows. How many trees were there in each row ?