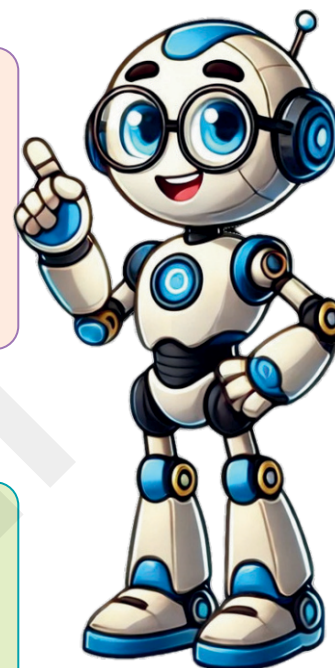


We'll cover the following key points:

- Division
- Properties of Division
- Division by 1-digit Number
- Word Problems
- Simplification
- Mixed Operations



Hi, I'm EeeBee

Do you Remember fundamental concept in previous class:**In class 3rd we learnt**

- Division and Division Fact
- Long Division (Without Regrouping)
- Long Division (With Regrouping)
- Regrouping)
- Division with Remainder (With Regrouping)
- Problems on Division



Still curious?
Talk to me by
scanning
the QR code.

Learning Outcomes**By the end of this chapter, students will be able to:**

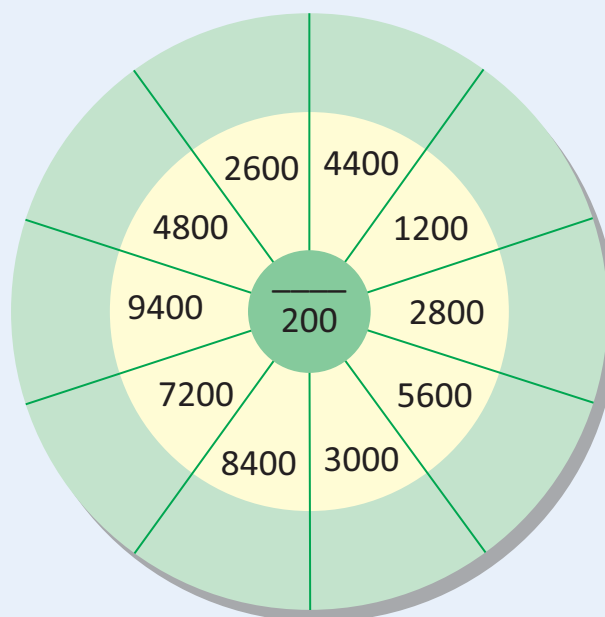
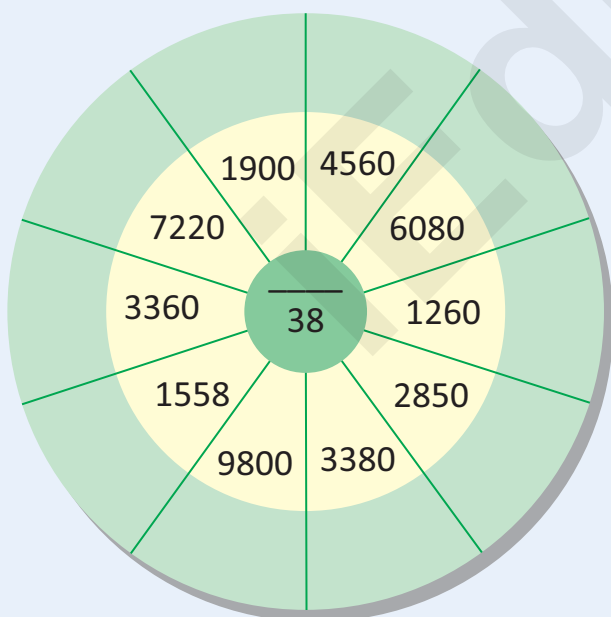
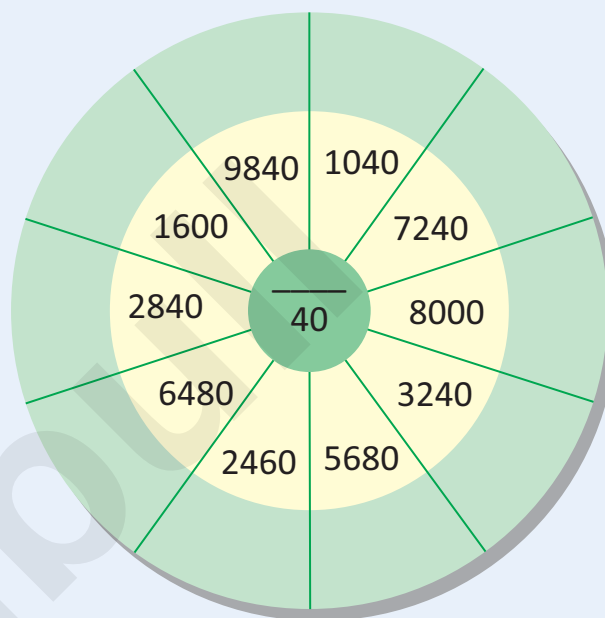
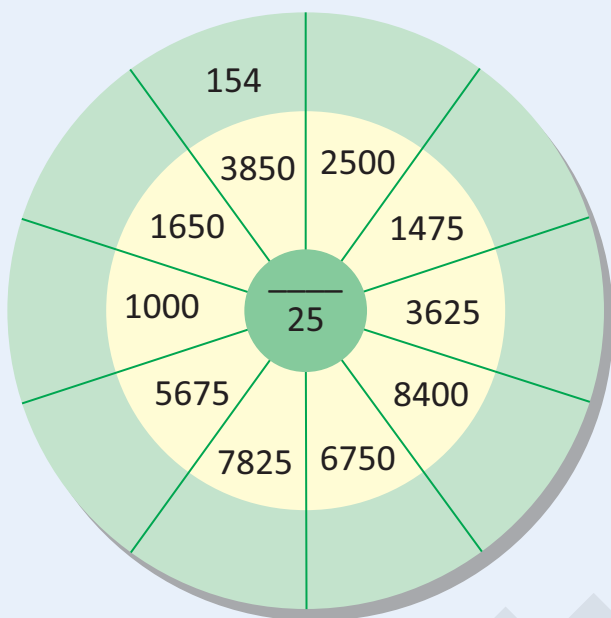
- Divide numbers up to 4 digits by 1-digit numbers (e.g., $456 \div 3$).
- Understand division as repeated subtraction (e.g., $12 \div 3$ means subtracting 3 repeatedly).
- Solve division problems with and without remainders (e.g., $17 \div 4 = 4$ remainder 1).
- Divide numbers using long division (e.g., $168 \div 12$).
- Understand how to check division answers by multiplying the quotient and divisor (inverse operation).
- Solve word problems involving division (e.g., dividing objects into equal groups).
- Understand the relationship between multiplication and division (e.g., $6 \times 4 = 24$ means $24 \div 4 = 6$).
- Divide numbers with 2-digit divisors (e.g., $924 \div 24$).



Warm Up

Experiential Learning

Study the four circles carefully. Divide the numbers in the inner ring (dividend) by the number marked in bold (divisor) at the centre of each circle. The answer (quotient) should appear immediately above the dividend in the blank space in the outer ring.



Division

In class 3, division you have learnt that repeated subtraction or equal distribution of a given quantity is called **division**. The symbol for division is ' \div '.

Let us now discuss more about division. Division means equal sharing or equal grouping.

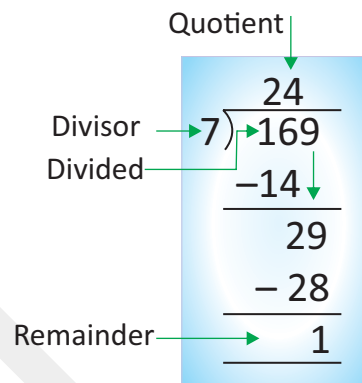
For Example: 63 oranges were shared equally among 9 children.

Each child gets $63 \div 9 = 7$ oranges

In a division sum,

- The number to be divided is called the **dividend**.
- The number by which we divide is called **divisor**.
- The answer we get is called the **quotient**.

Dividend $\rightarrow 63 \div 9 = 7 \rightarrow$ Quotient
Divisor



Let us now divide 169 toffees among 7 children.

The number left over after dividing is called the **remainder**. In the problem, the remainder is 1, i.e. 1 toffee is left over.

Small numbers can be divided mentally. Large numbers are divided by the long division.

Properties of Division

1. The number which is left over in the last by the process of division is known as remainder.

$$\text{Dividend} = \text{Quotient} \times \text{Divisor} + \text{Remainder}$$

2. If number is divided by itself then the quotient is 1.

For Example : $29 \div 29 = 1$, $819 \div 819 = 1$, $67593 \div 67593 = 1$

3. If a number is divided by 1, then the quotient is the number itself.

For Example : $68 \div 1 = 68$, $315 \div 1 = 315$, $6759 \div 1 = 6759$

4. If zero (0) is divided by any number then the quotient is zero (0). But no number can be divided by zero.

For Example : $0 \div 73 = 0$, $0 \div 288 = 0$, $0 \div 67593 = 0$

Division by 1, 10, 100 and 1000

If we divide a number by 1, the quotient is the dividend.

For Example :

62	$\div 1$	\Rightarrow	Quotient	=	62,	Remainder = 0
675	$\div 1$	\Rightarrow	Quotient	=	675,	Remainder = 0
73183	$\div 1$	\Rightarrow	Quotient	=	73183,	Remainder = 0

If a number is divided by 10, then the digit at ones place of the number is remainder and the remaining digits of the number is quotient.

For Example :

$68 \div 10$	\Rightarrow	Quotient = 6,	Remainder = 8
$935 \div 10$	\Rightarrow	Quotient = 93,	Remainder = 5
$67593 \div 10$	\Rightarrow	Quotient = 6759,	Remainder = 3

If a number is divided by 100 then the digits at ones place and tens place of the number are remainder and the remaining digits of the number are quotient.

For Example :

$728 \div 100$	\Rightarrow	Quotient = 7,	Remainder = 28
$935 \div 100$	\Rightarrow	Quotient = 9,	Remainder = 35
$67593 \div 100$	\Rightarrow	Quotient = 675,	Remainder = 93

If a number is divided by 1000, then the digits at ones, tens and hundreds place are remainder and the remaining digits of the number are quotient.

For Example :

$5929 \div 1000$	\Rightarrow	Quotient = 5,	Remainder = 929
$67583 \div 1000$	\Rightarrow	Quotient = 67,	Remainder = 583
$652948 \div 1000$	\Rightarrow	Quotient = 652,	Remainder = 948



Exercise 5.1

Knowledge Application

1. Fill in the blanks.

- | | |
|--------------------------------|------------------------------|
| (a) $295 \div 1 =$ _____ | (b) $0 \div 6583 =$ _____ |
| (c) $12893 \div 1 =$ _____ | (d) $333 \div 333 =$ _____ |
| (e) _____ $\div 368 = 1$ | (f) _____ $\div 6208 = 1$ |
| (g) $2348 \div$ _____ $= 2348$ | (h) $1232 \div 1232 =$ _____ |
| (l) _____ $\div 1008 = 0$ | (j) $123 \div 123 =$ _____ |

2. Without actual division, find the quotient (Q) and the remainder ® :

- | | | |
|-----------------------|----------------------|-----------------------|
| (a) $653 \div 10$ | (b) $1785 \div 10$ | (c) $2759 \div 100$ |
| (d) $4451 \div 10$ | (e) $5984 \div 100$ | (f) $3634 \div 1000$ |
| (g) $28834 \div 10$ | (h) $54042 \div 100$ | (i) $78462 \div 1000$ |
| (j) $67528 \div 1000$ | (k) $21738 \div 100$ | (l) $52139 \div 100$ |

Project Work

Experiential Learning

Rearrange the letters to make a word related to the chapter.

- | | |
|--------------|----------------------|
| 1. VIDISOR | <input type="text"/> |
| 2. DEDDIVI | <input type="text"/> |
| 3. ENDDIVID | <input type="text"/> |
| 4. DERREMAIN | <input type="text"/> |

Division by 1–digit Number

Example 1 : Divide 2697 by 7.

Solution : Divide as given alongside.

Step 1 : The leftmost digit of the dividend is 2 which is smaller than 7 (divisor), i.e. $2 < 7$. Therefore, 2 cannot be divided by 7. So, take the next digit 6 of then dividend to make it 26.

Step 2 : Using the multiplication table of 7 for 26, $3 \times 7 = 21$ and $4 \times 7 = 28$.

Since, $21 < 26$ and $28 > 26$, take 3 as quotient at hundreds place and 21 is written below 26.

Subtract $26 - 21 = 5$.

Step 3 : Now, bring down the next digit 9.

Using the multiplication table of 7 for 59, $8 \times 7 = 56$, $9 \times 7 = 63$.

Since, $56 < 59$ and $63 > 59$, take 8 as quotient at tens place and 56 is written below 59.

Subtract $59 - 56 = 3$.

Step 4 : Now, bring down the next last digit 7.

Using the multiplication table of 7 for 37, $5 \times 7 = 35$ and $6 \times 7 = 42$.

Since, $35 < 37$ and $42 > 37$, take 5 as quotient at ones place and 35 is written below 37. Subtract $37 - 35 = 2$.

Step 5 : 2 is smaller than the divisor 7, it is the remainder.

Therefore, Quotient = 385 and Remainder = 2.

Example 2 : Divide 42578 by 8.

Solution :

Step 1: Take 42 and divide it by 8. 8 goes 5 times in 42, i.e. $8 \times 5 = 40$. Subtract to get $42 - 40 = 2$, which is the remainder.

Step 2: Bring down 5 making number 25. 8 goes 3 times in 25, i.e. $8 \times 3 = 24$. Subtract to get $25 - 24 = 1$ as the remainder.

Step 3: Bring down 7 making 17. 8 goes 2 times in 17 i.e. $8 \times 2 = 16$. Subtract to get $17 - 16 = 1$ as the remainder.

$$\begin{array}{r}
 \text{Th H T O} \\
 \text{Divisor } \rightarrow 7 \overline{) 2697} \begin{array}{l} \rightarrow \text{Quotient} \\ \rightarrow \text{Dividend} \end{array} \\
 \underline{-21} \\
 59 \\
 \underline{-56} \\
 37 \\
 \underline{-35} \\
 2 \rightarrow \text{Remainder}
 \end{array}$$



$$\begin{array}{r}
 8 \overline{) 42578} \\
 \underline{-40} \leftarrow 8 \times 5 \\
 25 \\
 \underline{-24} \leftarrow 8 \times 3 \\
 17 \\
 \underline{-16} \leftarrow 8 \times 2 \\
 18 \\
 \underline{-16} \leftarrow 8 \times 2 \\
 2 \leftarrow \text{Remainder}
 \end{array}$$

Step 4 : Bring down 8 making 18. 8 goes 2 times in 18, i.e. $8 \times 2 = 16$. Subtract to get $18 - 16 = 2$ as the remainder
Hence, $42578 \div 8$ gives, Quotient = 5322 and Remainder = 2.

Example 3 : Divide 7354 by 12.

Solution :

Step 1 : Divisor is of two digits. Start the division by taking two digits from the extreme left of the dividend, i.e. 73. Divide 73 by 12. 12 goes 6 times in 73 i.e. $12 \times 6 = 72$.

Step 2 : Subtract to get $73 - 72 = 1$. Bring down 5 making 15. Divide 15 by 12. 12 goes 1 time in 15, i.e. $12 \times 1 = 12$. Subtract to get $15 - 12 = 3$ as the remainder.

Step 3 : Bring down 4 making 34. Divide 34 by 12; 12 goes 2 times in 34 i.e. $12 \times 2 = 24$. Subtract to get $34 - 24 = 10$ as the remainder.

$$\begin{array}{r}
 612 \\
 12 \overline{) 7354} \\
 \underline{-72} \quad \leftarrow 12 \times 6 \\
 15 \\
 \underline{-12} \quad \leftarrow 12 \times 1 \\
 34 \\
 \underline{-24} \quad \leftarrow 12 \times 2 \\
 10 \quad \leftarrow \text{Remainder}
 \end{array}$$

Example 4 : Divide 4689 by 35.

Solution : Divide as given following steps :

Step 1 : The leftmost digit of the dividend is 4 which is less than the divisor 35, i.e. $4 < 35$. Therefore, 4 cannot be divided by 35, take next digit of the dividend to make it 46.

Step 2 : 4 is the first digit of the dividend and 3 is the first digit of divisor.

4 can be divided by 3 one time, then
 1×35 and $2 \times 35 = 70$ but $35 < 46$ and $70 > 46$.

So, take 1 as quotient at hundreds place and 35 is written below 46.

Step 3 : Now, bring down the next digit 8. In 118, we see that 35 goes 3 times, then $3 \times 35 = 105$ and $4 \times 35 = 140$.

But $105 < 118$ and $140 > 118$, take 3 as quotient at tens place and 105 is written below 118.

Subtract $118 - 105 = 13$.

Step 4 : Now, bring down the next and last digit 9 and see if 35 goes 3 times or 4 times.

$3 \times 35 = 105$ and $4 \times 35 = 140$
Since, $105 < 139$ and $140 > 139$,
take 3 as quotient at ones place
and 105 is written below 139.

Subtract $139 - 105 = 34$.

Step 5 : 34 is smaller than the divisor 35, it is the remainder.
Therefore, Quotient = 133 and Remainder = 34.

$$\begin{array}{r}
 133 \quad \leftarrow \text{Quotient} \\
 \text{Divisor} \rightarrow 35 \overline{) 4689} \quad \leftarrow \text{Dividend} \\
 \underline{-35} \\
 118 \\
 \underline{-105} \\
 139 \\
 \underline{-105} \\
 34 \quad \leftarrow \text{Remainder}
 \end{array}$$

Checking Answer

In above example :

$$\text{Dividend} = 4689 ; \text{Quotient} = 133 ; \text{Divisor} = 35 ; \text{Remainder} = 34$$

To check : $\text{Divisor} \times \text{Quotient} + \text{Remainder}$

$$= 35 \times 133 + 34 = 4689, \text{ which is dividend.}$$

So, the answer is correct.



Exercise 5.2

Knowledge Application

1. Divide and find the quotient and remainder.

- | | | |
|---------------|---------------|---------------|
| (a) 695 by 9 | (b) 929 by 18 | (c) 825 by 13 |
| (d) 468 by 8 | (e) 842 by 11 | (f) 681 by 21 |
| (g) 619 by 15 | (h) 646 by 18 | (i) 779 by 7 |
| (j) 736 by 11 | (k) 534 by 17 | (l) 968 by 64 |

2. Divide the following and find the quotient, remainder and verify the answers :

- | | | |
|--------------------|--------------------|--------------------|
| (a) $9629 \div 32$ | (b) $8954 \div 22$ | (c) $4568 \div 18$ |
| (d) $7738 \div 16$ | (e) $2465 \div 23$ | (f) $4105 \div 25$ |
| (g) $9704 \div 44$ | (h) $7763 \div 26$ | (i) $6952 \div 26$ |
| (j) $8328 \div 28$ | (k) $9632 \div 17$ | (l) $8791 \div 17$ |

3. Match the columns :

Column A

- (a) $8460 \div 36 =$
 (b) $231530 \div 65 =$
 (c) $203535 \div 45 =$
 (d) $308832 \div 32 =$
 (e) $198152 \div 31 =$

Column B

- (i) 6392
 (ii) 4523
 (iii) 9651
 (iv) 3562
 (v) 235

Word Problems

Example 5 : 15050 mangoes are packed in 43 boxes.

How many mangoes are packed in a box?

Solution : Number of mangoes packed in 43 boxes = 15050.

Number of mangoes packed in a box = $15050 \div 43 = 350$

Therefore, 350 mangoes are packed in a box.

$$\begin{array}{r}
 350 \\
 43 \overline{) 15050} \\
 \underline{-129} \\
 215 \\
 \underline{-215} \\
 00 \\
 \underline{-0} \\
 0
 \end{array}$$

Example 6 : 56 people can travel in a bus. How many buses are required for 7000 people to travel?

Solution : Number of people travelling in a bus = 56
Total number of people = 7000
Therefore, required number of buses
= $7000 \div 56 = 125$.

$$\begin{array}{r} 125 \\ 56 \overline{) 7000} \\ \underline{-56} \\ 140 \\ \underline{-112} \\ 280 \\ \underline{-280} \\ 0 \end{array}$$

Example 7 : The cost of 25 pens is ₹531 and 25 p. Find the cost of a pen.

Solution : To find the cost of a pen.
We divide ₹531 and 25 p by 25.
Also, ₹531 and 25 p
= $531 \times 100 \text{ p} + 25 \text{ p}$
= $53100 \text{ p} + 25 \text{ p} = 53125 \text{ p}$
Now, we divide 53125 p by 25.

$$\begin{array}{r} 2125 \\ 25 \overline{) 53125} \\ \underline{-50} \\ 31 \\ \underline{-25} \\ 62 \\ \underline{-50} \\ 125 \\ \underline{-125} \\ 0 \end{array}$$

i.e. $53125 \text{ p} \div 25 = 2125 \text{ p}$

Thus, the cost of a pen = $2125 \text{ p} = ₹21, 25 \text{ p}$
= ₹21. 25

Hence, the cost of a pen is ₹21. 25p

Example 8 : Find the greatest number of 4-digit which is divisible by 45.

Solution : The greatest number of 4-digit = 9999

Divide 9999 by 45.

We get remainder as 9.

So, we subtract 9 from 9999 and get 9990.

Hence, 9990 is 4-digit greatest number which is divisible by 45.

$$\begin{array}{r} 222 \\ 45 \overline{) 9999} \\ \underline{-90} \\ 99 \\ \underline{-90} \\ 90 \\ \underline{-90} \\ 0 \end{array}$$

Example 9 : Find the smallest number of 5-digit which is divisible by 35.

Solution : The smallest number of 5-digit = 10000.

Divide 10000 by 35.

The required number

= $10000 - 25 + 35 = 10010$.

10010 is 5-digit smallest number which is divisible by 35.

$$\begin{array}{r} 285 \\ 35 \overline{) 10000} \\ \underline{-70} \\ 300 \\ \underline{-280} \\ 200 \\ \underline{-175} \\ 25 \end{array}$$

REMEMBER



- ❖ The greatest number of a given number of digits divisible by a number = number of digits - remainder
- ❖ The smallest number of a given number of digits divisible by a number = number of digits - remainder + divisor



Exercise 5.3

Problem Solving

1. If the cost of a toy car is ₹86. How many toy cars can be bought for ₹3698 ?
2. The cost of 36 railway tickets is ₹3312. Find the cost of one railway ticket.
3. A fruit supplier packed 2668 mangoes equally in 46 boxes. How many mangoes were packed in each box?
4. A car covers a distance of 171 km in 9 litres of petrol. How much distance will it cover in 1 litre of petrol ?
5. Find the dividend if the quotient is 36 and the remainder is 17 and the divisor is 42.
6. An official gets ₹96000 as salary per annum. What is his salary per month?
7. 2416 bags of rice were loaded in 16 trucks. How many bags of rice were loaded in each truck ?
8. Shreyas distributed 3151 chocolates equally among 23 children. How many chocolates did each child get?

Simplification

You have already learnt about the operations like addition, subtraction, multiplication and division. We now introduce a new operation : 'of'.

6 of 8 means 6 times of 8, that is 6×8 .

$6 \text{ of } 8 = 6 \times 8 = 48$.

Now, you know five operations. In a problem involving these operations, you have to do the 'P' operation before all the other operations.

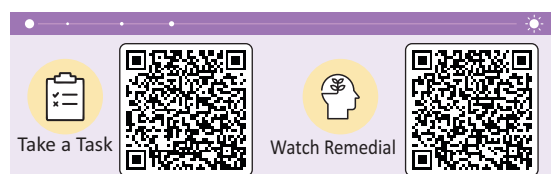
Example 10 : $7 + 9 \div 3 - 3 \times 1 + 6 \text{ of } 3 \div 3$

Solution : In order to solve such problem, take the following steps:

Step 1 : First complete all 'of' operations.

Step 2 : Next do the divisions (\div).

Step 3 : Now do the multiplication (\times).



Step 4 : Add the numbers with '+' signs. The first number with no sign immediately before it, is considered to have the '+' sign, also add the numbers with (–) signs.

Step 5 : Subtract the two sums found in step 4 and now get the simplified number.

Now, applying the steps on above example:

$$7 + 9 \div 3 - 3 \times 1 + 6 \text{ of } 3 \div 3$$

$$= 7 + 9 \div 3 - 3 \times 1 + 18 \div 3 \text{ (after applying step 1, } 6 \text{ of } 3 = 6 \times 3 = 18)$$

$$= 7 + 3 - 3 \times 1 + 6 \text{ (after applying step 2, } 9 \div 3 = 3, 18 \div 3 = 6)$$

$$= 7 + 3 - 3 + 6 \text{ (after applying step 3, } 3 \times 1 = 3)$$

$$= 16 - 3 \text{ (after applying step 4, } 7 + 6 + 3 = 16)$$

$$= 13 \text{ (Finally applying step 5, } 16 - 3 = 13)$$

In short we can say, the order in which operations are done can be remembered as **BODMAS**, where

B = Bracket, O=of, D = Division, M = Multiplication, A= Addition and S= Subtraction.

Mixed Operations

Example 11 : Neeraj gets ₹2500 every month from his parents and ₹500 from his elder sister. If he spends ₹2100 every month, find how much money does he save in a year?

Solution : Money received by Neeraj in a month = ₹2500 + ₹500
 $= ₹3000$
 Money spent by him in a month = ₹2100
 Money saved by him in a month = ₹3000 – ₹2100
 $= ₹900$
 Money saved by him in a year = ₹900 × 12
 $= ₹10800$

So, Neeraj saves ₹10800 in a year.



Example : 52000 people live in a town. There are 500 houses in the town. Each house has 8 rooms. Equal number of people live in each room. How many people live in each house?

How many people live in each room?

Solution : Number of people in a town = 52000
 Number of houses in a town = 500
 Number of rooms in each house = 8
 Total number of people living in each house = $52000 \div 500 = 104$
 Number of people living in each room = $104 \div 8 = 13$
 So, 104 people live in each house and 13 people live in each room.

$$\begin{array}{r} 104 \\ 500 \overline{) 52000} \\ \underline{-500} \\ 200 \\ \underline{-0} \\ 2000 \\ \underline{-2000} \\ 0 \end{array}$$



Exercise 5.4

Knowledge Application

1. Simplify the following :

(a) $30 \div 5$ of 3

(b) $19 \times 15 \div 3$

(c) $40 \div 4 + 20 \times 2 + 3$ of $4 \div 4 - 30$

(d) $36 \div 6$ of 6×5 of $2 + 14 - 5$

(e) 225 of $4 \div 3$ of $3 - 3 \times 2 + 152 \div 4$

(f) $75 \div 5$ of $5 + 10 - 3 \times 3 - 76$

(g) $7000 \div 350 \times 225$

(h) $19 + 8 \div 2 - 2 \times 1 + 5$ of $2 \div 5$

2. To decorate a house on Eid, 1800 candles were bought. The candles came packed equally in 15 boxes, each box containing 12 packets of candles. How many candles were there in each box? How many candles were there in each packet?
3. The product of two numbers is 39480. One number is 235. Find the sum of the two numbers.
4. The difference of two numbers is 679 and the greater number is 925. What is the product of the two number?
5. Radhika bought 5 packets of chocolates on her brother's birthday. Each packet had 40 chocolates. Her brother distributed the chocolates equally among his 50 classmates. How many chocolates did each child get?
6. The sum of two numbers is 450 and the smaller number is 120. What is the product of the two numbers?



Mental Math

Critical Thinking

1. Fill in the blanks:

$$\begin{array}{r} \square\square89 \\ 35 \overline{) 94115} \\ \underline{-70} \\ 2\square\square \\ \underline{-210} \\ \square1\square \\ \underline{-280} \\ \square1\square \\ \underline{-3\square\square} \\ 0 \end{array}$$

2. Find difference between the half of 86362 and the one-third of 135000.



Gap Analyzer™



1. Tick (✓) the correct option.

a. $65008 \div 1$ is equal to _____.

(i) 0 ☐ (ii) 65008 ☐ (iii) 9 ☐ (iv) 65 ☐

b. $23925 \div 23925$ is equal to _____.

(i) 1 ☐ (ii) 0 ☐ (iii) 23925 ☐ (iv) 52932 ☐

c. Divide 35732 by 49, remainder is _____.

(i) 0 ☐ (ii) 101 ☐ (iii) 11 ☐ (iv) 22 ☐

d. Divide 12308 by 34 is equal to _____.

(i) 372 ☐ (ii) 352 ☐ (iii) 322 ☐ (iv) 362 ☐

2. Fill in the blanks.

(a) $89230 \div 10$ = _____ (b) $3923 \div 1$ = _____

(c) $32800 \div 100$ = _____ (d) $8284 \div 8284$ = _____

(e) $56000 \div 1000$ = _____ (f) $0 \div 2899$ = _____

3. Complete the division patterns.

(a) $72 \div 9$ = _____

$720 \div 9$ = _____

$7200 \div 9$ = _____

$72000 \div 9$ = _____

(b) $84 \div 12$ = _____

$840 \div 12$ = _____

_____ $\div 12 = 700$

_____ $\div 12 = 7000$

4. Find the quotient and remainder by the long division method.

(a) $9238 \div 9$

(b) $9624 \div 5$

5. Find the quotient by the short division method.

(a) $756 \div 2$

(b) $875 \div 5$





Mental Math

Critical Thinking

1. How many 50 seater buses are needed for 750 people?
2. How many minutes are there in 2580 seconds?



Fun Time Activity

Experiential Learning

Fill in the boxes below to make the division problem work out.

$$\begin{array}{r} 5 \square \\ 9 \overline{) 4 \square \square} \\ \underline{\square \square} \\ 3 \square \\ \underline{\square \square} \\ 0 \end{array}$$



1. a. Find the greatest number of 5 digit which is divisible by 275.
b. Find the greatest number of 4 digit which is divisible by 120.
2. a. Find the smallest number of 4 digit which is divisible by 29.
b. Find the smallest number of 5 digits which is divisible by 75.