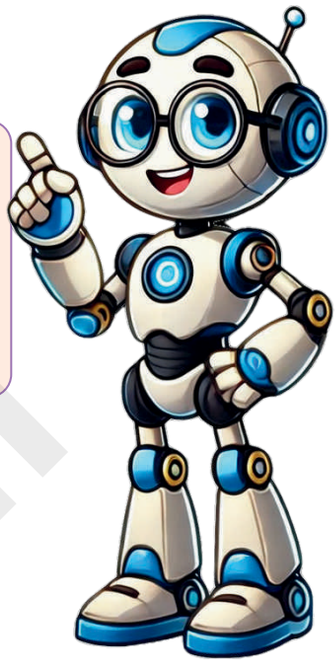
6

Division

We'll cover the following key points:

- → Grouping
- → Division as Sharing
- → Division Using the Number Line
- → Properties of Division
- → Division (Without Remainder)
- → Division (With Remainder)



Hi, I'm EeeBee

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

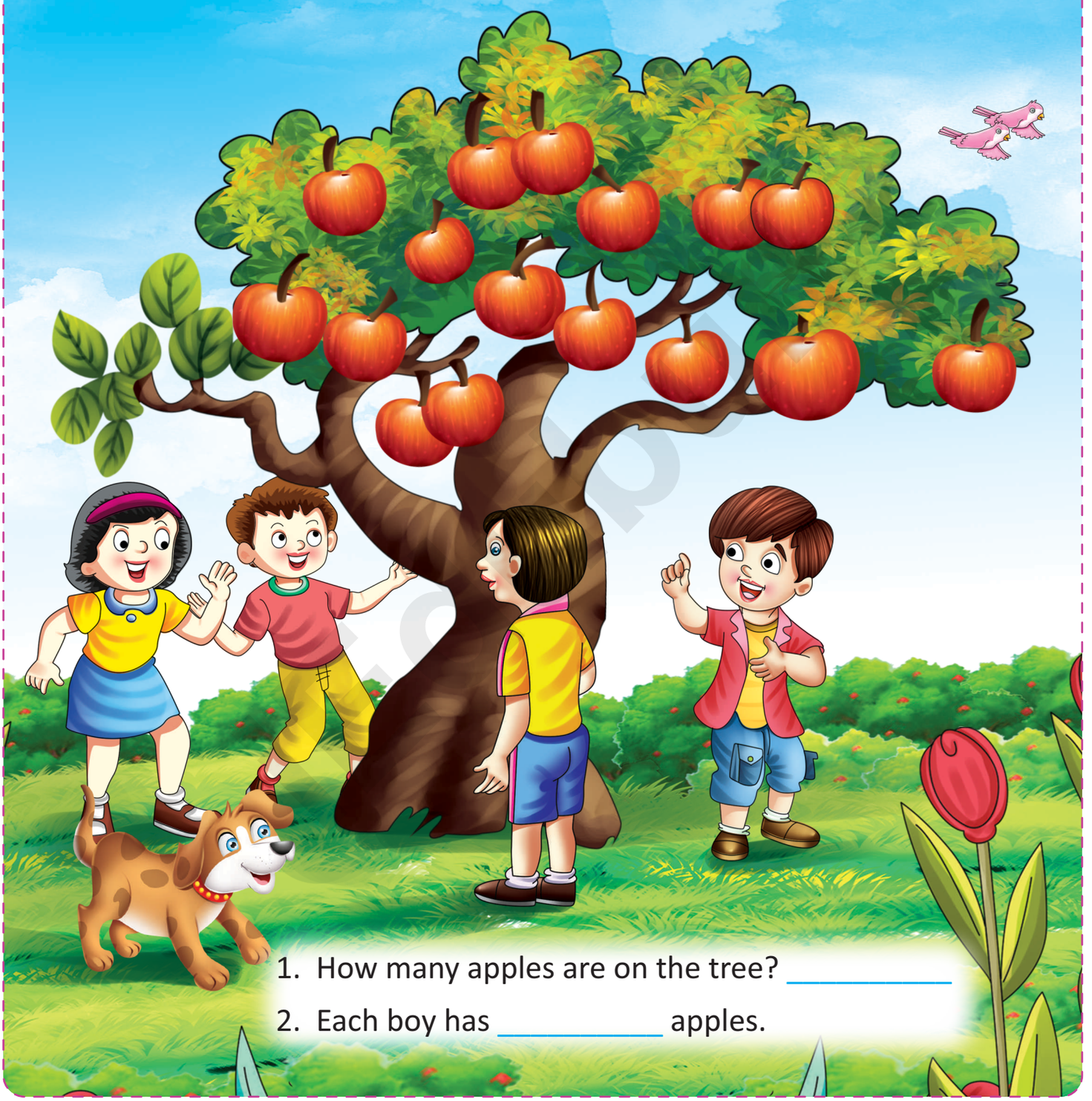
Learning Outcomes

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

- Understand division as grouping (e.g., dividing 12 apples into 4 groups of 3 apples).
- Understand division as sharing equally (e.g., sharing 10 candies between 5 friends).
- Use a number line to divide numbers (e.g., jump in equal steps to divide).
- Learn the properties of division (e.g., dividing a number by 1 gives the same number).
- Divide numbers without a remainder (e.g., $12 \div 3 = 4$).
- Divide numbers with a remainder (e.g., $13 \div 4 = 3$ with 1 left over).
- Solve simple word problems that involve division with and without remainders.
- Check division answers by multiplying the quotient by the divisor.

Warm Up

Pluck all the fruits and divide equally among all the children.



1. How many apples are on the tree? _____
2. Each boy has _____ apples.

Grouping

Take a Task

Watch Remedial

Birds in Groups

How many birds are flying in the sky?

There are 12 birds in the sky.

How many birds are there in each group?

They are in 2 groups.

There are 6 birds in each group.

Try it

Count and fill in the blanks.

1. Cats in Groups

There are ..... cats.

They are in ..... groups.

There are ..... cats in each group.

2. Balloons in Groups

There are ..... balloons.

They are in ..... groups.

There are ..... balloons in each group.

Division as Sharing

When something is grouped or divided equally, it is called as **equal sharing**.

Let us share ice-creams

Take a Task

Watch Remedial

3 children buy 6 ice-creams.

They want to share them equally.

Each child gets 2 ice-creams.

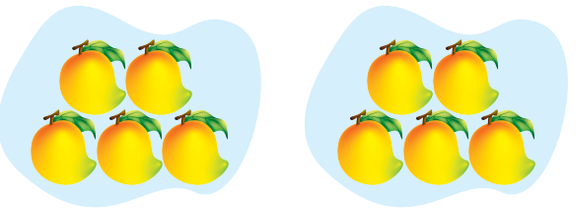
We say 6 divided by 3 is equal to 2.

We write $6 \div 3 = 2$.

÷ is the symbol of division.

Let us share mangoes

Here are 10 mangoes.
We divided them in 2 groups.
Each group has 5 mangoes.
We say 10 divided by 2 is equal to 5.
We write $10 \div 2 = 5$.



Division Using the Number Line

We can use a number strip for repeated subtraction or division.

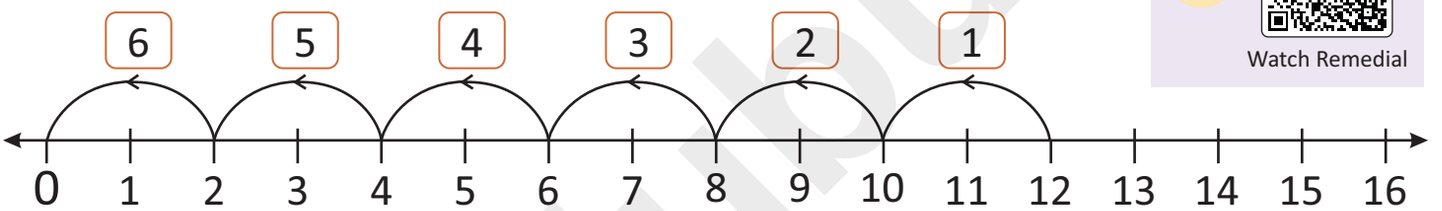
Take a Task

Watch Remedial

Divide 12 by 2

Divide 12 in groups of 2 on number line.

We count backward for division on the number line. Let us divide 12 divided by 2 on a number line.



There are 6 jumps of 2.

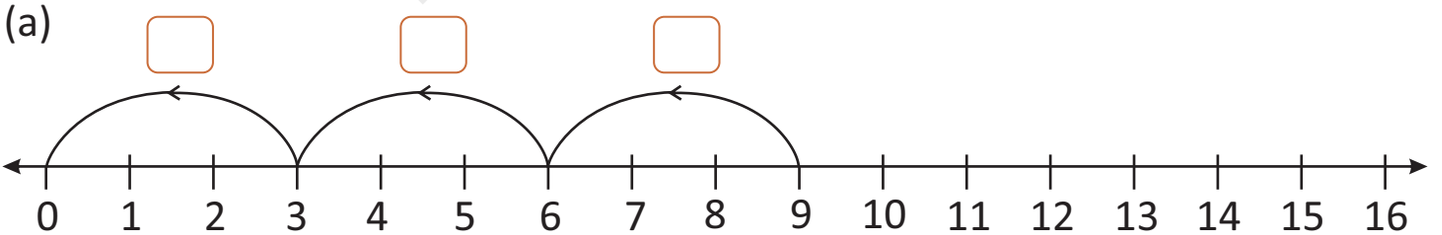
We say 12 divided by 2 is equal to 6.

We write 12 ÷ 2 = 6

Try it

Use number lines given below and fill in the boxes.

(a)

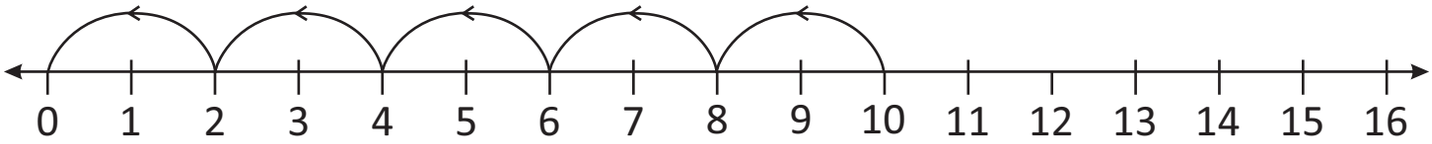


There are 3 jumps of 3.

We say 9 divided by 3 is equal to 3.

We write ☐ ÷ ☐ = ☐

(b) ☐ ☐ ☐ ☐ ☐



There are 5 jumps of 2.

We say 10 divided by 5 is equal to 2.

We write ☐ ÷ ☐ = ☐

Take a Task

Watch Remedial

Properties of Division

1. Any number divided by 1 gives the same number.

For example:

$25 \div 1 = 25$; $97 \div 1 = 97$

$108 \div 1 = 108$; $199 \div 1 = 199$

$927 \div 1 = 927$; $999 \div 1 = 999$

2. A number divided by itself is equal to 1.

For example:

$19 \div 19 = 1$; $155 \div 155 = 1$

$225 \div 225 = 1$; $495 \div 495 = 1$

$875 \div 875 = 1$; $999 \div 999 = 1$

3. 0 divided by any number is zero.

For example:

$0 \div 83 = 0$; $0 \div 256 = 0$

$0 \div 199 = 0$; $0 \div 853 = 0$

$0 \div 572 = 0$; $0 \div 997 = 0$

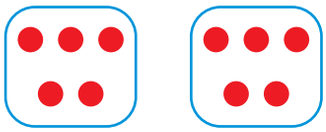
REMEMBER

Division by zero is not possible i.e, $25 \div 0$ is not defined.

Exercise 6.1

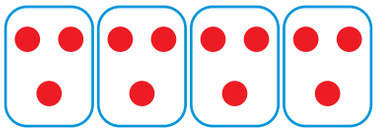
1. Fill in the boxes. One has been done for you.

(a) 2 equal groups



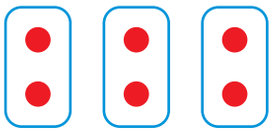
10 ÷ 2 = 5

(b) 4 equal groups



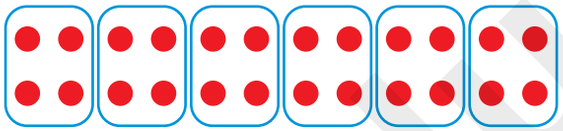
☐ ÷ ☐ = ☐

(c) 3 equal groups



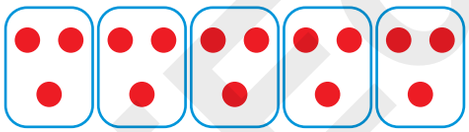
☐ ÷ ☐ = ☐

(d) 6 equal groups



☐ ÷ ☐ = ☐

(e) 5 equal groups



☐ ÷ ☐ = ☐

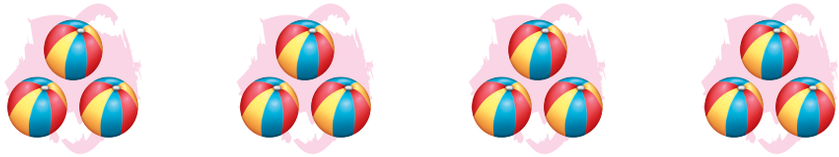
2. Fill in the blanks.

(a) 10 chocolates are divided into 5 equal groups. Each group has 2 chocolates.

We say 10 divided by 5 is equal to 2.

We write ..... ÷ ..... = ...

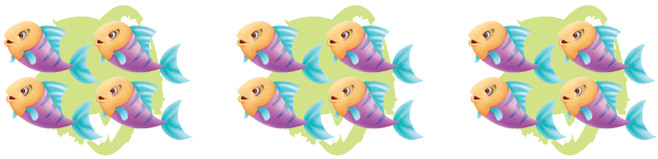
(b) 12 balls are divided in equal groups. Each group has 3 balls. There are 4 groups.



We say 12 divided by 4 is equal to 3.

We write ..... ÷ ..... = ...

(c)



We say 12 divided by 3 is equal to 4.

we write ..... ÷ ..... = ...

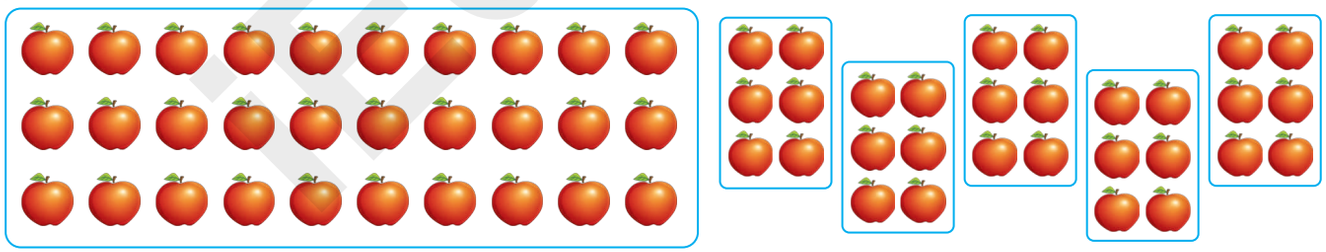
(d)

We say 20 divided by 4 is equal to 5.

We write ..... ÷ ..... = ...

3. Divide the following:

(a) Share 30 apples among 5 children.

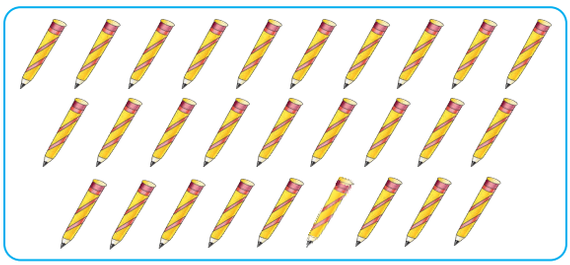


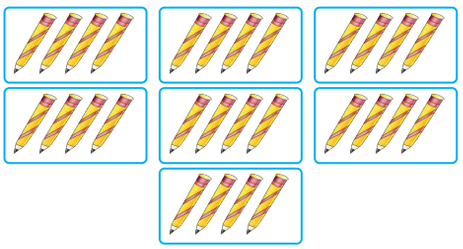
Each child will get ☐ apples. 30 ÷ 5 = ☐

(b) Distribute 12 ice-creams among 6 students.

Each student will get ☐ ice-creams. 12 ÷ 6 = ☐

(c) A teacher distributed 28 pencils equally among 7 children.



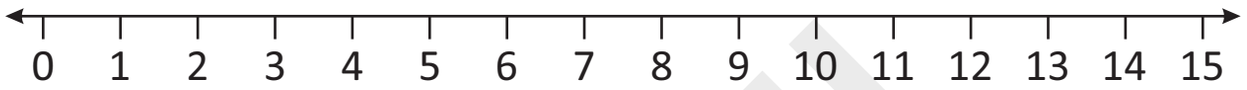


Each child will get ☐ pencils.

28 ÷ 7 = ☐

4. Divide on the number line.

(a)

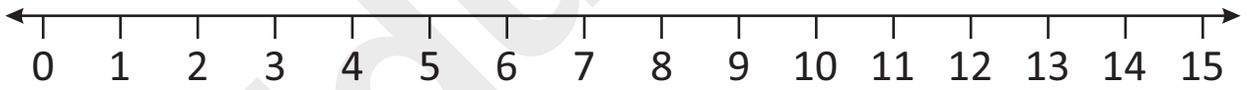


12 ÷ 4 = ☐

(b)

9 ÷ 3 = ☐

(c)



15 ÷ 5 = ☐

Division (Without Remainder)

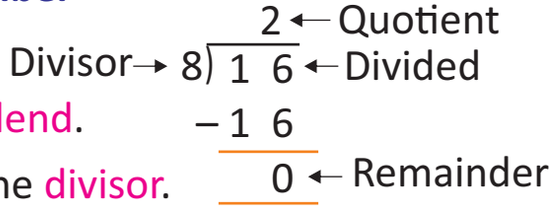
Division of a 2 – digit number by a 1 – digit number

Let us read about some terms used in division.

The number which is to be divided is called dividend.

The number that divides the dividend is called the divisor.

The result is called the quotient. If any leftover is a called the remainder.



Example 1 : Divide 12 by 2.

Solution :

$$2\overline{)12}\ \ 6,\quad -12,\quad 0$$

Step 1 : Write 12 ÷ 2 as given.

Step 2 : Recall the multiplication table of 2.

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

$2 \times 4 = 8$; $2 \times 5 = 10$; $2 \times 6 = 12$;

Step 3 : Stop when you reach 12.

Step 4 : Write 6 below 12, and subtract. Then find quotient = 6.

Example 2 : Divide 14 by 7.

Solution :

$$7\overline{)14}\ \ 2,\quad -14,\quad 0$$

$7 \times 2 = 14$

We read the multiplication table of 7, and get $7 \times 2 = 14$.

Thus, $14 \div 7 = 2$.

Exercise 6.2

1. Do the following divisions:

(a) $7\overline{)35}$ (b) $9\overline{)36}$ (c) $7\overline{)28}$ (d) $9\overline{)45}$

(e) $5\overline{)40}$ (f) $8\overline{)64}$ (g) $7\overline{)56}$ (h) $8\overline{)24}$

(i) $10\overline{)60}$ (j) $8\overline{)40}$ (k) $6\overline{)36}$ (l) $7\overline{)63}$

2. Fill in the boxes.

(a) 35 ÷ 7 = ☐

(b) 54 ÷ 9 = ☐

(c) 20 ÷ 5 = ☐

(d) 32 ÷ 1 = ☐

(e) 30 ÷ 10 = ☐

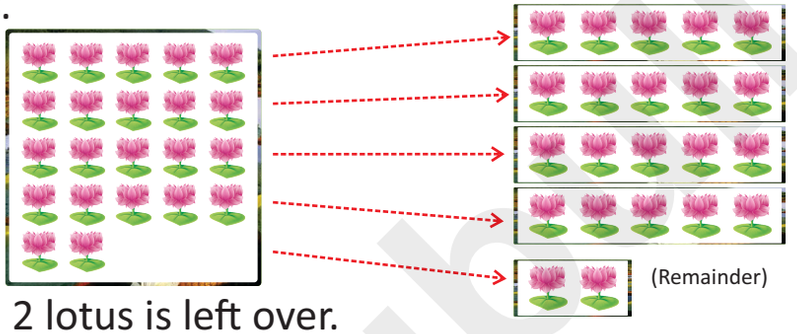
(f) 36 ÷ 4 = ☐

(g) 45 ÷ 5 = ☐

(h) 70 ÷ 7 = ☐

Division (With Remainder)

We have 22 lotus. Let us try to put them in 4 boxes equally.



2 lotus is left over.

Take a Task

Watch Remedial

22 ÷ 4 = 5 and 2 left over.

$$\begin{array}{r} 5 \\ 4\overline{)\,22} \\ -\,20 \\ \hline 2 \end{array}$$

We know that

$4 \times 5 = 20$ and $4 \times 6 = 24$

$20 < 22$ and $24 > 22$

∴ 4 goes 5 times into 22.

Subtract 20 from 22. 2 is remainder.

4 is called divisor

22 is called dividend

$$\begin{array}{r} 5 \\ 4\overline{)\,22} \\ -\,20 \\ \hline 2 \end{array}$$

5 is called quotient

2 is called remainder

$$\begin{array}{r} \text{quotient} \\ \text{divisor}\overline{)\,\text{dividend}} \\ \cdots\cdots\cdots\cdots \\ \hline \text{remainder} \end{array}$$

Exercise 6.3

1. Divide and find the quotient and remainder. One has been done for you.

(a) $9\overline{)37}$ = 4, -36, 1

Quotient = 4

Remainder = 1

(b) $7\overline{)56}$

Quotient = ☐

Remainder = ☐

(c) $6\overline{)35}$

Quotient = ☐

Remainder = ☐

(d) $8\overline{)76}$

Quotient = ☐

Remainder = ☐

(e) $7\overline{)45}$

Quotient = ☐

Remainder = ☐

(f) $8\overline{)67}$

Quotient = ☐

Remainder = ☐

(g) $7\overline{)46}$

Quotient = ☐

Remainder = ☐

(h) $9\overline{)39}$

Quotient = ☐

Remainder = ☐

(i) $7\overline{)36}$

Quotient = ☐

Remainder = ☐

(j) $5\overline{)37}$

_____

_____

Quotient = ☐

Remainder = ☐

(k) $8\overline{)67}$

_____

_____

Quotient = ☐

Remainder = ☐

(l) $7\overline{)51}$

_____

_____

Quotient = ☐

Remainder = ☐

2. Tick (✓) the correct option.

Critical Thinking

(a) 76 ÷ 9 gives :

(i) Q = 8, R = 2 ☐

(ii) Q = 8, R = 4 ☐

(iii) Q = 4, R = 8 ☐

(b) 17 ÷ 2 gives :

(i) Q = 8, R = 5 ☐

(ii) Q = 8, R = 1 ☐

(iii) Q = 8, R = 0 ☐

(c) 42 ÷ 8 gives :

(i) Q = 5, R = 1 ☐

(ii) Q = 5, R = 2 ☐

(iii) Q = 5, R = 0 ☐

(d) 28 ÷ 3 gives :

(i) Q = 9, R = 2 ☐

(ii) Q = 8, R = 1 ☐

(iii) Q = 9, R = 1 ☐

(e) 27 ÷ 5 gives :

(i) Q = 5, R = 1 ☐

(ii) Q = 5, R = 2 ☐

(iii) Q = 4, R = 3 ☐

(f) 32 ÷ 9 gives :

(i) Q = 3, R = 5 ☐

(ii) Q = 3, R = 4 ☐

(iii) Q = 3, R = 3 ☐

Think Tank

Gap Analyzer™

1. Tick (✓) the correct answer.

(a) $25 \div 1 =$ _____ .

(i) 25 ☐ (ii) 1 ☐ (iii) 0 ☐

(b) $0 \div 83 =$ _____ .

(i) 83 ☐ (ii) 0 ☐ (iii) 1 ☐

(c) ☐ $\div 5 = 2$

(i) 15 ☐ (ii) 25 ☐ (iii) 10 ☐

(d) $14 \div$ ☐ $= 7$

(i) 7 ☐ (ii) 2 ☐ (iii) 14 ☐

2. Fill in the blanks.

(a) $30 \div$ ☐ $= 3$

(b) ☐ $\div 7 = 10$

(c) $45 \div$ ☐ $= 15$

(d) $36 \div 4 =$ ☐

(e) $45 \div$ ☐ $= 45$

(f) $123 \div 123 =$ ☐

(g) ☐ $\div 345 = 0$

(h) $631 \div 631 =$ ☐

3. Match the following:

(a) $40 \div 8$

(b) $24 \div 6$

(c) $40 \div 5$

(d) $9 \div 1$

(i) 9

(ii) 8

(iii) 5

(iv) 4

Custom Learning Path

Scan to Create Your Own Learning Path

Math Puzzle

As Per NEP 2020 Experiential Learning

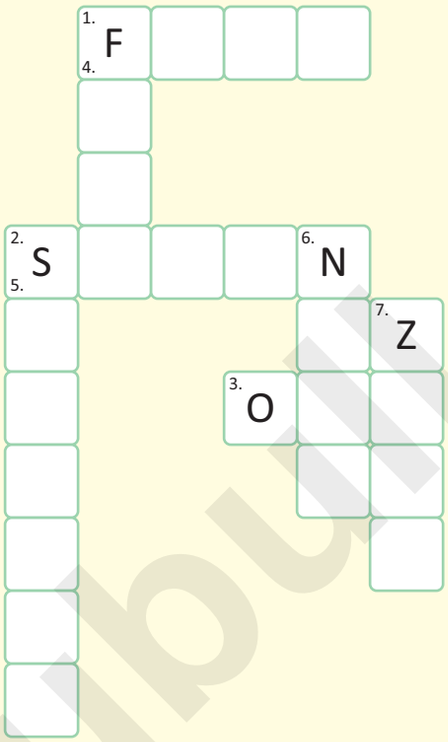
Solve and write number name.

Across. (⟶)

1. $8 \div 2 =$ ☐
2. $21 \div 3 =$ ☐
3. $7 \div 7 =$ ☐

Down. (↓)

4. $25 \div 5 =$ ☐
5. ☐ $\div 2 = 8$
6. $27 \div 3 =$ ☐
7. $56 \div$ ☐ $= 0$



Mental Math

As Per NEP 2020 Problem Solving

Word problems. One has been done for you.

(a) Ramesh bought 45 fishes. He put them into 9 bowls. How many fishes will be there in each bowl? 5 fishes

(b) Umesh brought 72 roses for his 8 friends. If he gave equal number of roses to each friend, how many roses did each one get? ☐

(c) Raju reads 49 pages of a book in 7 days. How many pages does he read in one day? ☐

$$\begin{array}{r} 5 \\ 9\overline{)\,45} \\ -\,45 \\ \hline 0 \end{array}$$

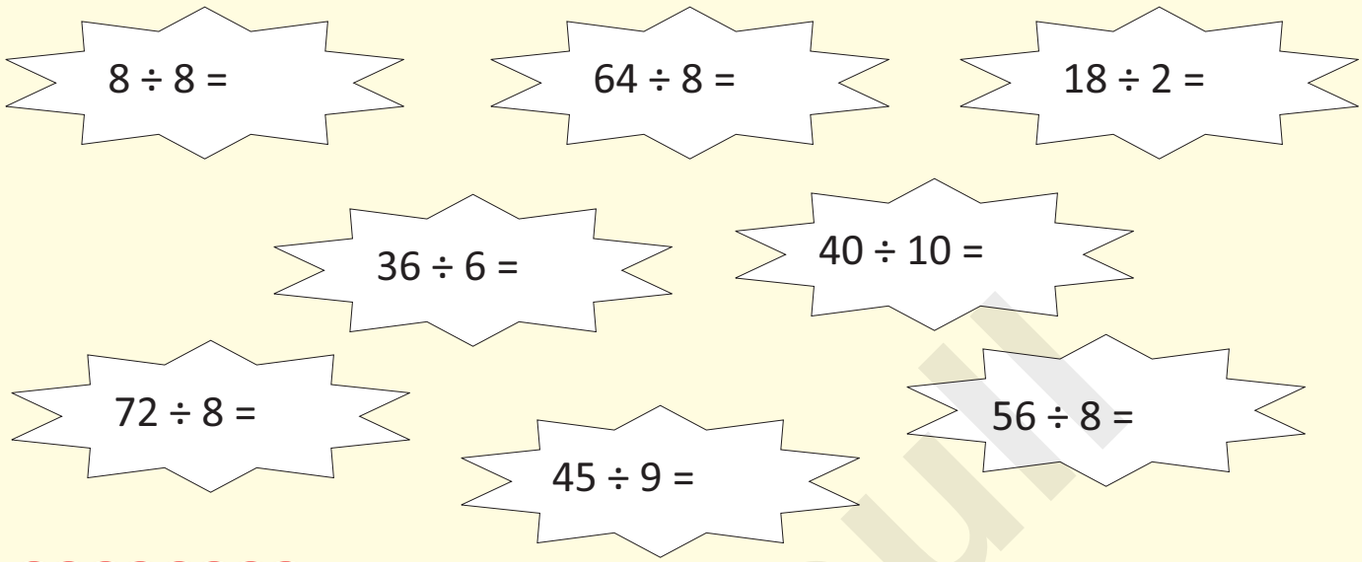
$$\begin{array}{r} \,\square \\ \square\overline{)\,\square\square} \\ -\,\square\square \\ \hline \square\square \\ \square\square \end{array}$$

$$\begin{array}{r} \,\square \\ \square\overline{)\,\square\square} \\ -\,\square\square \\ \hline \square\square \\ \square\square \end{array}$$

Fun Time Activity

As Per NEP 2020 — Art-integrated Learning

Colour the star with number coding.



Answer Colour

1 5 4 9 8 6 7

HOTS

As Per NEP 2020 — Critical Thinking

Solve to find the answer.

1. 64 rupees are equally divided among 8 friends. How much rupees does each friend get?

   Answer = ₹ ☐

2. How many baskets will contain 81 apples, if each basket contains 9 apples?

   Answer = ☐ baskets