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PREPARATORY STAGE

BRILLIANT BOOKS

MATHS CHALLENGER

4

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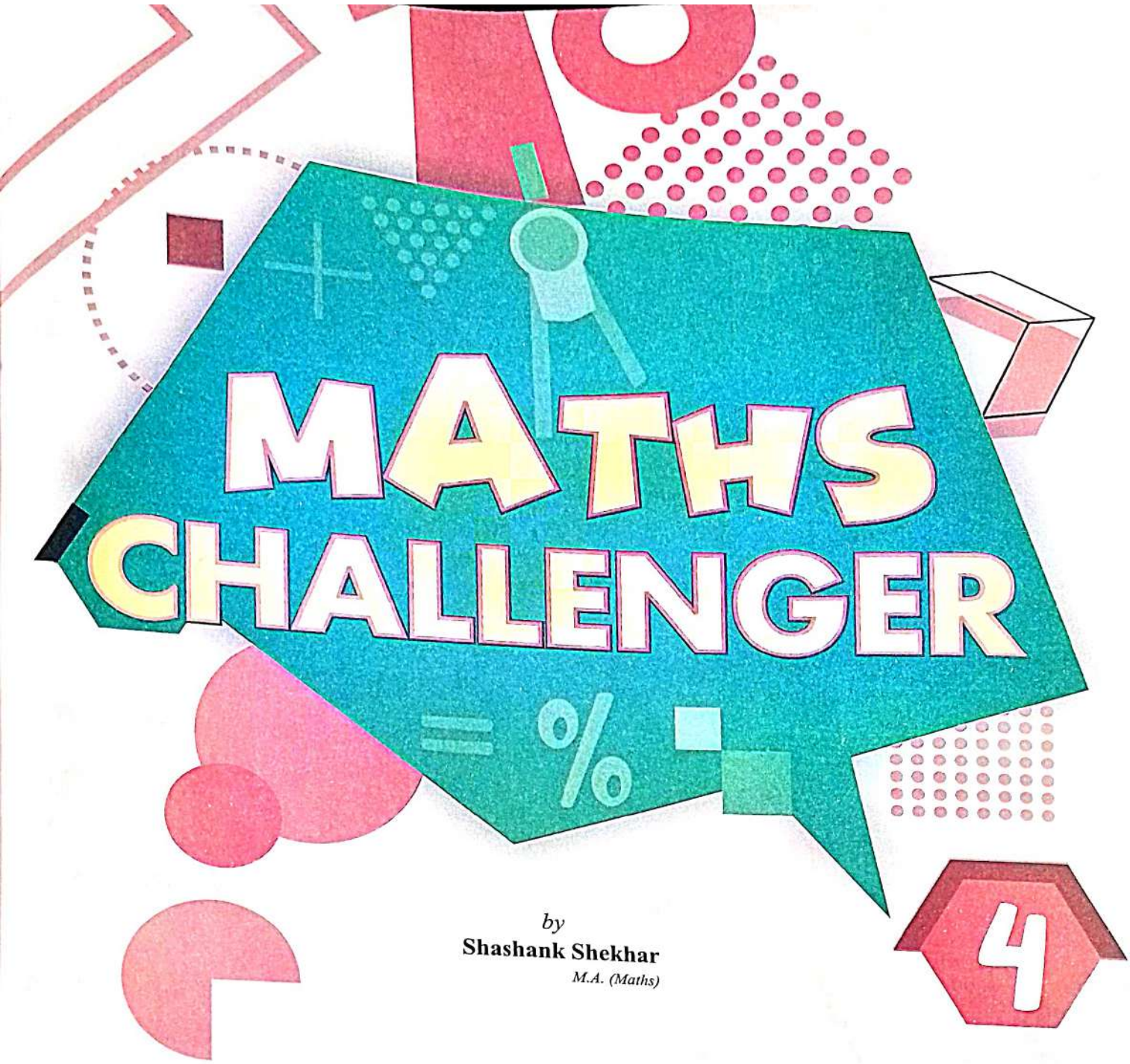

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BRILLIANT BOOKS

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Preface

Mathematics has always been central to a child's education and is a vital tool in dealing with real-life problems. The National Curriculum Framework states that the main goal of mathematics education is mathematisation of students' thinking and ways of solving problems. Therefore at school level the aim should not be just strengthening their numeracy skills but making them recognise mathematics as an important part of the development of their thought process, so that they learn to resolve everyday problems by reasoning mathematically.

Maths Challenger is a complete mathematics course for primary and junior schools which provides a clearly structured progression from classes 1 to 8. The course has been designed and written according to the latest mathematics syllabus. Child-friendly and infused with interest and enjoyment, the series uses a progressive approach to introduce new concepts and reinforce them through all the levels.

Key features of the series are :

- **Travel Through** to revise the concepts learnt earlier and to be ready to discover the key elements of the topic. ***(Readiness Section)***
- **Learning Outcomes** to clearly define the objectives of the chapter.
- Carefully graded in-text exercises for practice to engage the students to explore how the concept is used in everyday life. ***(Engagement Section)***
- **Keep in Mind** to provide aid for avoiding mistakes while solving problems.
- **Do and Learn** to further strengthen concept-related knowledge through activities.
- **Pleasure Time** exercises, **Periodic Tests** and **Test Papers** that allow both students and teachers to check learner's progress. ***(Mastery Section)***

We hope that this series will have a positive influence on children and encourage them to further explore the world of mathematics. We look forward to your response to the series.

Any suggestions for the improvement of the books are most welcome.

—Publisher

Contents

1 Numbers beyond 999

Travel Through

Readiness

1. **Fill in the blanks.**
   a. The smallest 3-digit number is ..... .
   b. The greatest 3-digit number is ..... .
   c. A number which has '2' in the ones place is an ..... number. (odd/even)

2. **Write the numeral forms of the following number names.**
   a. Thirty-seven b. Six hundred thirty c. Five hundred six

3. **Write the number names for the following figures.**
   a. 950 b. 107 c. 735 d. 286 e. 666 f. 505

4. **Write the following numbers in expanded form.**
   a. 237 b. 407 c. 942 d. 681 e. 111 f. 448

5. **Write the correct number.**
   a. 700 + 60 + 4 b. 200 + 3 c. 3 hundreds + 4 tens + 5 ones

6. **Write the place value of the underlined digits.**
   a. $\underline{7}86$ b. $9\underline{2}0$ c. $42\underline{3}$ d. $36\underline{0}$ e. $8\underline{2}9$ f. $\underline{3}75$

7. **Use >, <, = sign in the box.**
   a. 28 ☐ 47 b. 739 ☐ 793 c. 830 ☐ 830

8. **Arrange in ascending and descending order.**
   a. 927, 488, 843, 214, 704 b. 609, 586, 932, 923, 690

9. **Circle the even numbers and cross the odd numbers.**
   41, 96, 437, 620, 707, 808, 934

10. **Count in tens and fill in the boxes.**
    725 ☐, ☐, ☐, ☐

Learning Outcomes

- Numbers Beyond 999
- Comparing Numbers
- Building Numbers
- Forming and Reading 4-Digit Numbers
- Ordering Numbers

Engagement

NUMBERS BEYOND 999

4-digit number

If we add 1 to the greatest 3-digit number, we get 1000, which is the smallest 4-digit number.

$$999 + 1 = 1000$$

Smallest Number

Th	H	T	O
1	0	0	0

We read 1,000 as 'one thousand'.

9,999 is the greatest 4-digit number.

Greatest Number

Th	H	T	O
9	9	9	9

We read 9,999 as 'nine thousand nine hundred ninety-nine'.

5-digit number

If we add 1 to the greatest 4-digit number, we get 10,000 which is the smallest 5-digit number.

$$9,999 + 1 = 10,000$$

Smallest Number

TTh	Th	H	T	O
1	0	0	0	0

We read 10,000 as 'ten thousand'.

99,999 is the greatest 5-digit number.

Greatest Number

TTh	Th	H	T	O
9	9	9	9	9

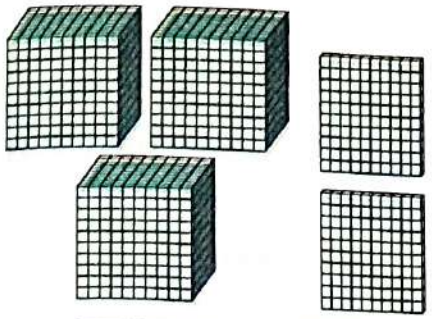
We read 99, 999 as 'ninety-nine thousand nine hundred ninety-nine'.

Keep in Mind

- We write Th for thousand.
- We write TTh for ten thousand.

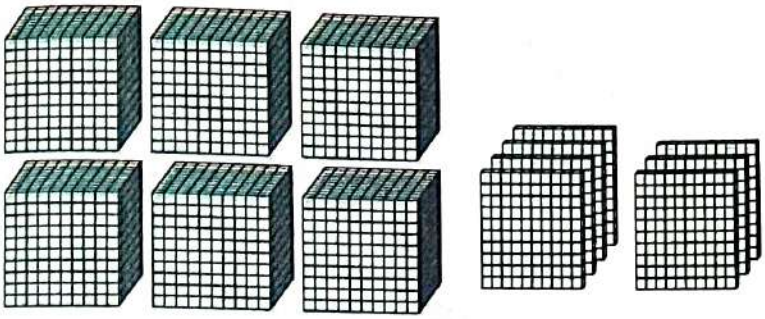
FORMING AND READING 4-DIGIT NUMBERS

Forming 4-Digit Numbers



3000 + 200 + 10 + 5 → 3000 200 10 5 = Th H T O: 3 2 1 5

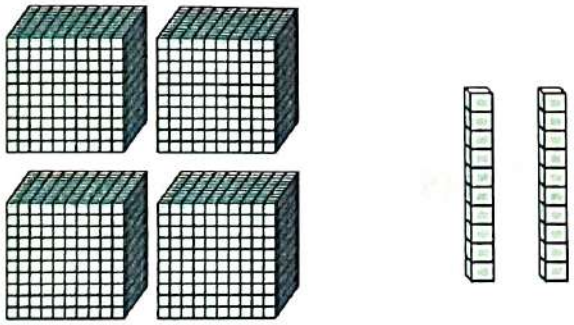
Three thousand two hundred fifteen



There are no tens here

6000 + 700 + 2 → 6000 700 2 = Th H T O: 6 7 0 2

Six thousand seven hundred two

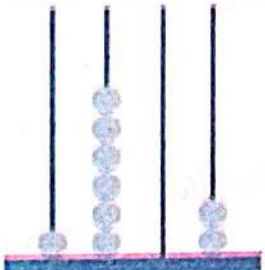


Here there are no hundreds and no ones

4000 + 20 → 4000 20 = Th H T O: 4 0 2 0

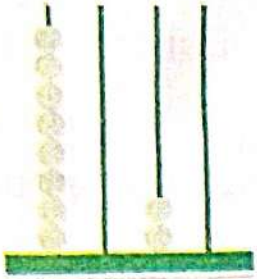
Four thousand twenty

Numbers on Abacus



1 6 0 2

8 0 0 2



8 0 2 0

Reading 4-Digit Numbers

7, 8 24

twenty-four
eight hundred
seven thousand

Seven thousand eight hundred twenty-four

4, 0 17

seventeen
four thousand

Four thousand seventeen

9, 0 01

one
nine thousand

Nine thousand one

6, 4 80

eighty
four hundred
six thousand

Six thousand four hundred eighty

Progress CHECK-UP-1

Pleasure TIME

Mastery

1. Complete the number series.
   a. 1,597, ..., ..., ..., ..., 1,602
   b. 2,845, ..., ..., ..., 2,849, ...
   c. 7,335, ..., 7,337, ..., ..., ...
   d. 8,997, ..., 8,999, ..., ..., ...
2. Give the standard numeral.
   a. Three thousand three hundred thirty-nine .....
   b. Five thousand four hundred forty-two .....
   c. Eight thousand six hundred ninety-one .....
   d. Nine thousand eight .....
3. Write the number names and group the digits into periods.
   a. 3,339 b. 4,296 c. 5,005
   d. 5,442 e. 8,300 f. 8,691

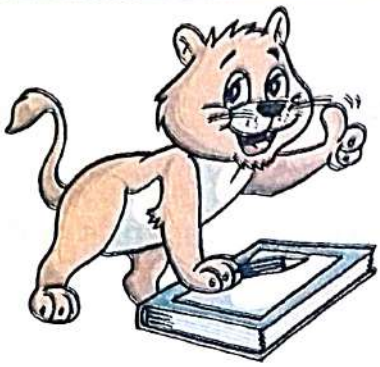
COMPARING NUMBERS

Engagement

Remember the signs!

> greater than	< less than	= equal to

Greater side
Greater number

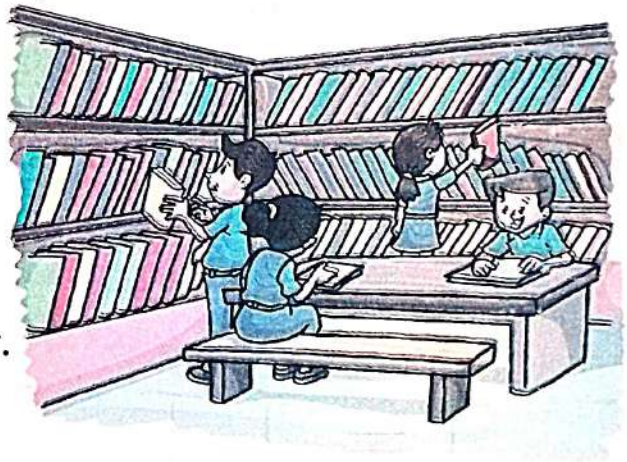


Smaller side
Smaller number

Different number of digits

❖ The primary school library has 1234 storybooks and 876 books on school subjects. Are there more storybooks or subject books in the library?

Th	H	T	O	
1	2	3	4	→ 4-digits
	8	7	6	→ 3-digits



The number with more digits is always greater.

1234 > 876

Answer: There are more storybooks than subject books in the school library.

Same number of digits

A. Compare the thousands place first.

(i)

Th	H	T	O
5	0	0	0
3	0	0	0

Since 5 > 3
So, 5,000 > 3,000

(ii)

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

Since 2 < 6
So, 2,156 < 6,384

B. If the thousands are the same, compare the hundreds.

(I)

Th	H	T	O
1	8	0	0
1	2	0	0

Same ← ; → Since 8 > 2

So, 1,800 > 1,200

(ii)

Th	H	T	O
7	1	2	4
7	6	3	9

Same ← ; → Since 1 < 6

So, 7,124 < 7,639

C. Compare the tens when the thousands and hundreds are the same.

(I)

Th	H	T	O
3	7	8	4
3	7	6	2

Same ; → Since 8 > 6

So, 3,784 > 3,762

(ii)

Th	H	T	O
2	0	4	0
2	0	5	0

Same ; → Since 4 < 5

So, 2,040 < 2,050

D. Compare the ones when all the other digits are the same.

Th	H	T	O
5	2	8	3
5	2	8	7

Same ; → Since 3 < 7

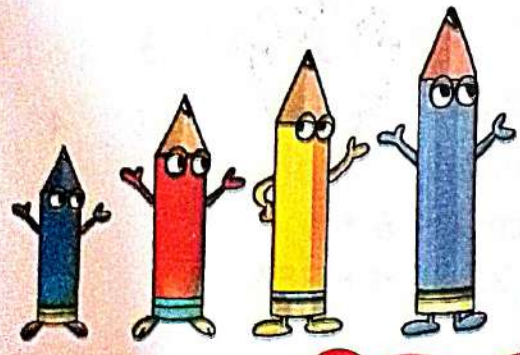
So, 5,283 < 5,287

Try This

Compare and fill in the boxes using < or >.

a.	8324	☐	8319
b.	6436	☐	5824
c.	395	☐	3095
d.	2346	☐	2349
e.	1964	☐	1940
f.	9384	☐	697

ORDERING NUMBERS



These pencils have been arranged in increasing order of their heights. We can also arrange numbers in increasing order by arranging them from the smallest to the greatest. This is called ascending order of numbers.

✤ Arrange 3295, 7659, 3265 and 8654 in ascending order.

3,295, 7,659, ~~3,265~~, 8,654 → 3,265

~~3,295~~, 7,659, 8,654 → 3,265, 3,295

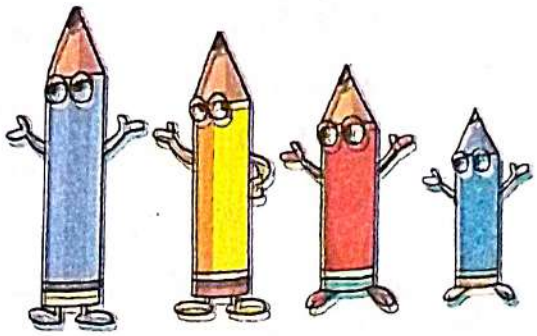
~~7,659~~, 8,654 → 3,265, 3,295, 7,659

~~8,654~~ → 3,265, 3,295, 7,659, 8,654

Keep crossing out numbers as you rewrite them from smallest to greatest.

Required Order = 3,265 < 3,295 < 7,659 < 8,654

These pencils have been arranged in decreasing order of their heights. We can also arrange numbers in decreasing order by arranging them from the greatest to the smallest. This is called descending order of numbers.



✤ Arrange 3,295, 7,659, 8,654 and 3,265 in descending order.

3,295, 7,659, ~~8,654~~, 3,265 → 8,654

3,295, ~~7,659~~, 3,265 → 8,654, 7,659

~~3,295~~, 3,265 → 8,654, 7,659, 3,295

~~3,265~~ → 8,654, 7,659, 3,295, 3,265

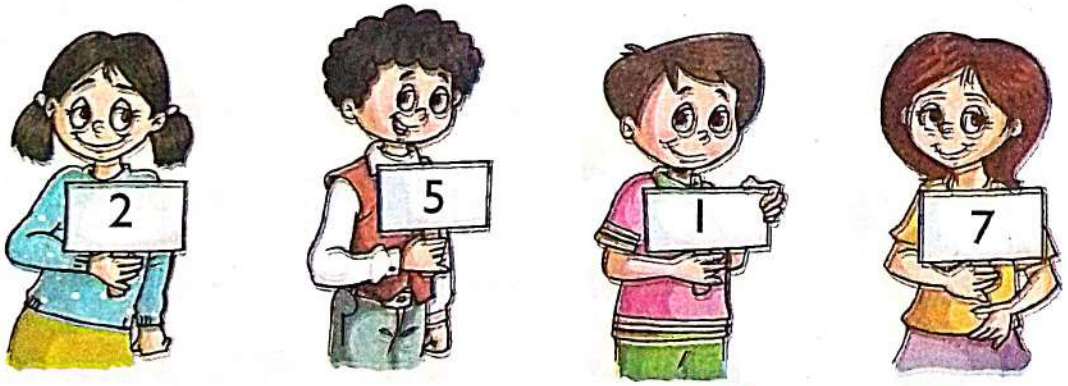
Keep crossing out numbers as you rewrite them from greatest to smallest.

Required Order = 8,654 < 7,659 < 3,295 < 3,265

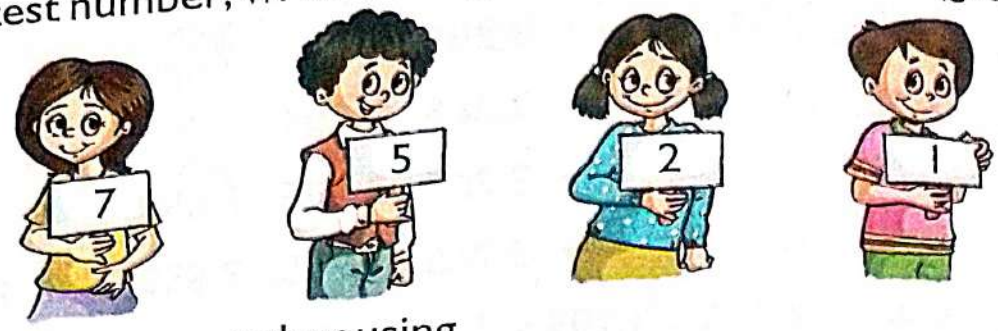
BUILDING NUMBERS

Greatest Number

How should these children stand in order to build the greatest number possible?



To build the greatest number, write the digits in descending order (greatest to smallest).



For example, form greatest number using

a. 2, 8, 5, 1 and b. 3, 9, 6, 3

a. The descending order of these digits is 8, 5, 2, 1.
So, 8521 is the greatest number possible using these digits.

b. The descending order of these digits is 9, 6, 3, 3.
So, 9633 is the greatest number possible using these digits.

Try This

Form the greatest number.

a. 4, 8, 7, 5
.....

b. 5, 2, 2, 7
.....

Smallest Number

How should they stand in order to build the smallest number possible?

To build the smallest number, write the digits in ascending order (smallest to greatest).

For example, form greatest number using

a. 4, 8, 2, 6 and b. 5, 4, 7, 5

a. The ascending order of these digits is 2, 4, 6, 8. So, 2468 is the smallest 4-digit number possible using these digits.

b. The ascending order of these digits is 4, 5, 5, 7. So, 4557 is the smallest 4-digit number possible using these digits.

Try This

Form the smallest number.

a. 6, 2, 1, 8 .....

b. 3, 3, 9, 4 .....

c. 7, 0, 6, 9 .....

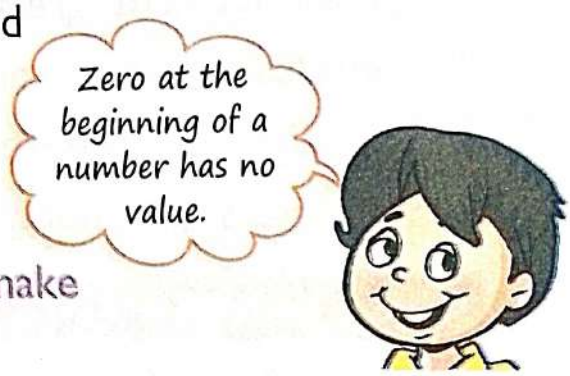
Watch out for the 'zeroes'

Use the digits 5, 0 and 2 to build the greatest and the smallest 3-digit numbers possible.

Greatest number is 520.

Smallest number is 205.

Since we want to use all these digits we do not make 025, which is really 25 (a 2-digit number).



Progress CHECK-UP-2

Pleasure TIME

Mastery

1. Fill in the blanks with >, < or =.

a. 3143 ☐ 3147 b. 5193 ☐ 4689 c. 8292 ☐ 8229

d. 1187 ☐ 1187 e. 7250 ☐ 7520 f. 9160 ☐ 9169

2. Arrange the sets of numbers in ascending order.

a. 3329, 3239, 5041, 5401, 674, 764

b. 6254, 5264, 645, 2645, 5642, 546

c. 1592, 5192, 1952, 5912, 9521, 5921

d. 1919, 9119, 1199, 9090, 1191, 9009

3. Arrange the sets of numbers in descending order.

a. 2239, 3229, 3922, 2329, 923, 3292

b. 5046, 5287, 728, 5659, 5829, 982

c. 4671, 716, 4528, 5284, 4761, 671

d. 7219, 749, 5953, 7129, 9721, 947

4. Fill in the blanks.

a. Smallest and the greatest 2-digit number ....., ...

b. Smallest and the greatest 5-digit number ....., ...

c. Smallest and the greatest 3-digit number ....., ...

d. Smallest and the greatest 4-digit number ....., ...

5. Use the digits to make greatest and the smallest number.

(Note: digits should not be repeated)

S. No.	DIGITS	GREATEST NUMBER	SMALLEST NUMBER
a.	5, 9, 0, 6, 7		
b.	8, 3, 7, 2		
c.	0, 9, 1		
d.	7, 5, 1, 2, 3		

6. Make any six, five-digit numerals using the digits 6, 8, 5 and 4.

(Note: digits can be repeated only once.)

a. ..... b. .....

c. ..... d. .....

e. ..... f. .....

2 Roman Numerals

Learning Outcomes

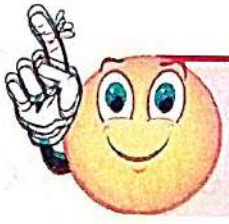
- Roman Numerals
- Roman Numerals upto Hundred
- Rules for writing the Roman Numerals
- Addition and Subtraction of Roman Numerals

ROMAN NUMERALS

Engagement

- The numbers that we use today like 1, 2, 3, 4, ..., are called Hindu-Arabic numerals as these numbers were invented by Indians and were carried to Europe by the Arabs through trade.
- Many years ago, in Europe, another number system existed.
- This number system was invented by the Romans and was completely different from the Asian numerals.
- These are called **Roman numerals**.
- Unlike Hindu-Arabic numeration system, the Roman numeration system uses only seven symbols.
- These symbols with their respective values are :

Roman symbols	I	V	X	L	C	D	M
Their values	1	5	10	50	100	500	1,000



Keep in Mind

- There is no symbol for zero in Roman system.
- The Roman system does not use place value.

ROMAN NUMERALS UPTO HUNDRED

I	2	3	4	5	6	7	8	9	10
	II	III	IV	V	VI	VII	VIII	IX	X
11	12	13	14	15	16	17	18	19	20
XI	XII	XIII	XIV	XV	XVI	XVII	XVIII	XIX	XX
21	22	23	24	25	26	27	28	29	30
XXI	XXII	XXIII	XXIV	XXV	XXVI	XXVII	XXVIII	XXIX	XXX
31	32	33	34	35	36	37	38	39	40
XXXI	XXXII	XXXIII	XXXIV	XXXV	XXXVI	XXXVII	XXXVIII	XXXIX	XL
41	42	43	44	45	46	47	48	49	50
XLI	XLII	XLIII	XLIV	XLV	XLVI	XLVII	XLVIII	XLIX	L
51	52	53	54	55	56	57	58	59	60
LI	LII	LIII	LIV	LV	LVI	LVII	LVIII	LIX	LX
61	62	63	64	65	66	67	68	69	70
LXI	LXII	LXIII	LXIV	LXV	LXVI	LXVII	LXVIII	LXIX	LXX
71	72	73	74	75	76	77	78	79	80
LXXI	LXXII	LXXIII	LXXIV	LXXV	LXXVI	LXXVII	LXXVIII	LXXIX	LXXX
81	82	83	84	85	86	87	88	89	90
LXXXI	LXXXII	LXXXIII	LXXXIV	LXXXV	LXXXVI	LXXXVII	LXXXVIII	LXXXIX	XC
91	92	93	94	95	96	97	98	99	100
XCI	XCII	XCIII	XCIV	XCV	XCVI	XCVII	XCVIII	XCIX	C

RULES FOR WRITING THE ROMAN NUMERALS

Rule I. Numerals I, X, C and M can be repeated to represent a number, her repetition means addition.

A numeral cannot be repeated more than 3 times.

Symbols V, L and D are not repeated.

For example : (i) II means 2, (I+I)

CCC means 300, (100+100+100)

XXX means 30, (10+10+10)

MM means 2,000. (1,000+1,000)

(ii) 40 cannot be represented by XXXX.

(iii) 10 cannot be represented by VV.

Rule 2. A smaller symbol written to the right of a symbol of greater value is always **added to the greater** symbol.

For example : (i) VI means $5 + 1 = 6$.
(ii) XI means $10 + 1 = 11$.
(iii) XV means $10 + 5 = 15$.
(iv) LX means $50 + 10 = 60$.
(v) CX means $100 + 10 = 110$.

Rule 3. A smaller symbol written to the left of a symbol of greater value is always **subtracted from the greater** symbol.

For example : (i) IV means $5 - 1 = 4$.
(ii) IX means $10 - 1 = 9$.
(iii) XL means $50 - 10 = 40$.
(iv) XC means $100 - 10 = 90$.

Rule 4. When a smaller symbol is placed between two symbols of greater value, it is always subtracted from the greater symbol immediately following it.

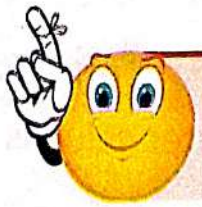
For example : (i) XIV means $10 + (5-1) = 14$.
(ii) XXIX means $10 + 10 + (10-1) = 29$.
(iii) CXXIX means $100 + 10 + 10 + (10-1) = 129$.

Rule 5. The symbol I can be subtracted from V and X.
The symbol X can be subtracted from L and C.
The symbol C can be subtracted from D and M.

For example : (i) IV and IX means 4 and 9, respectively.
(ii) XL and XC means 40 and 90, respectively.
(iii) CD and CM means 400 and 900, respectively.

Rule 6. Symbols V, L and D are never subtracted.

For example : (i) VL cannot be written for 45.
(ii) LC cannot be written for 50.
(iii) DM cannot be written for 500.



Keep in Mind

All numerals upto 399 can be written with the help of the symbols I, V, X, L and C.

Example 1 : Write the following in Roman numerals :

(a) 43 (b) 88 (c) 149 (d) 225

Solution :

(a) 43 = 40 + 3
= XL + III
= XLIII

(b) 88 = 80 + 8
= 50 + 30 + 5 + 3
= L + XXX + V + III
= LXXXVIII

(c) 149 = 100 + 40 + 9
= C + XL + IX
= CXLIX

(d) 225 = 200 + 20 + 5
= CC + XX + V
= CCXXV

Example 2 : Write the following in Hindi-Arabic numerals :

(a) XLV (b) LXXV (c) XCVIII (d) CCXLII

Solution :

(a) XLV = (50 – 10) + 5 = 45

(b) LXXV = 50 + 10 + 10 + 5 = 75

(c) XCVIII = (100 – 10) + 5 + 3
= 90 + 5 + 3 = 98

(d) CCXLII = 100 + 100 + (50 – 10) + 2
= 200 + 40 + 2 = 242

ADDITION AND SUBTRACTION OF ROMAN NUMERALS

To add or subtract Roman numerals, follow these steps :

- Change the numeral into Hindu-Arabic numbers.
- Add or subtract accordingly.
- Convert the answer into Roman numeral.

Example 3 : Add XLV and LIII.

Solution : XLV + LIII = 45 + 53 = 98 = XCVIII

∴ XLV + LIII = XCVIII

Example 4 : Subtract XVIII from L.

Solution : L – XVIII = 50 – 18 = 32 = XXXII

$\therefore$ L – XVIII = XXXII

Progress CHECK-UP

Mastery

Pleasure TIME

1. Write the following in Roman numerals :

(a) 74 (b) 99 (c) 178

(d) 101 (e) 110 (f) 145

(g) 96 (h) 132 (I) 112

(j) 206 (k) 229 (l) 385

(m) 154 (n) 295 (o) 370

2. Write the following in Hindi-Arabic numerals :

(a) XXIV (b) XLIII (c) LXI

(d) LVII (e) LXXVI (f) XCVI

(g) LXXVII (h) LXXX (I) XCV

(j) XCIX (k) CXXVI (l) CLXIV

(m) CCXX (n) CCCLIV (o) CCCLXXX

3. Solve the following.

(a) XL + LI = ...

(b) C – LXX = ...

(c) LIX + VIII = ...

(d) L – XX = ...

(e) LIV – X = ...

(f) XXXVII + XII = ...

4. Write the numeral before and after.

(a) ..... XXX .....

(b) ..... XIX .....

(c) ..... L .....

(d) ..... XC .....

5. Compare the following by using >, < or =.

(a) 98 ☐ XCVII (b) 34 ☐ XXXIV

(c) LXII ☐ 73 (d) LXXX ☐ 82

(e) XCVIII ☐ XCIX (f) LX ☐ XL

6. Fill in the blanks with Roman numerals.

(a) January has ..... days.

(b) February has ..... or ..... days.

(c) A day has ..... hours.

(d) An hour has ..... minutes.

3 Addition and Subtraction

Readiness

Travel Through

Solve the following :

a. $\square\square$
$485 + 230$

b. $\square\square$
$677 + 94$

c. $\square\square$
$350 + 128$

d. $\square\square$
$938 + 15$

e. $\square\square$
$222 + 139$

f. $\square\square$
$723 - 260$

g. $\square\square$
$438 - 260$

h. $\square\square$
$677 - 294$

i. $\square\square$
$950 - 428$

j. $\square\square$
$849 - 225$

k. $\square\square\square$
$256 - 178$

l. $\square\square$
$427 - 189$

Learning Outcomes

- Addition without carrying
- Addition with carrying
- Finding the missing digits in addition operation
- Addition in real life situations
- Subtraction without Borrowing
- Subtraction with Borrowing
- Finding the missing digits in addition operation
- Subtraction in real life situations

ADDITION WITHOUT CARRYING

Engagement

Addition of 5- or 6-digit numbers is same as that of 4-digit numbers. To add the large numbers, arrange the numbers in columns and then add starting from ones place by moving towards left.

Example 1 : Add 25,031 and 43,645. Write the sum obtained in words.

Solution :

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

Step 1 Place the numbers in their respective columns.

Step 2 **Add ones :** 1 + 5 = 6 ones. Write 6 under the ones column.

Step 3 **Add tens :** 3 + 4 = 7 tens. Write 7 under the tens column.

Step 4 **Add hundreds :** 0 + 6 = 6 hundreds. Write 6 under the hundreds column.

Step 5 **Add thousands :** 5 + 3 = 8 thousands. Write 8 under the thousands column.

Step 6 **Add ten thousands :** 2 + 4 = 6 ten thousands. write 6 under the ten thousands column.

So, 25,031 + 43,645 = 68,676

Number name : Sixty-eight thousand six hundred seventy-six

Keep in Mind

When the number of digits in the addends are different, start writing the digits from the ones place and add.

ADDITION WITH CARRYING (REGROUPING)

Add the digits in each column, starting with the ones column. If the sum in any column is more than nine, regroup with the next column on the left.

For example, 4 tens + 8 tens = 12 tens

= 10 tens + 2 tens

= 1 hundred + 2 tens

Write 2 under the tens column and carry 1 hundred to the hundreds column. This is called **regrouping**.

Example 2 : Add 35,691 and 31,395

Solution : Write the numbers in column and add.

Step 1 **Add ones :** 1 + 5 = 6 ones

Write 6 under the ones column.

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

Step 2 **Add tens :** 9 + 9 = 18 tens

= 1 hundred + 8 tens

Write 8 under the tens column and carry over 1 to the hundreds column.

Step 3 **Add hundreds :** 6 + 3 + 1 (carry) = 10 hundreds

= 1 thousand + 0 hundreds.

Write 0 under the hundreds column and carry over 1 to the thousands column.

Step 4 Add thousands : 5 + 1 + 1 (carry) = 7 thousands. Write 7 under the thousands column.

Step 5 Add ten thousands : 3 + 3 = 6 ten thousands. Write 6 under the ten thousands column.

So, 35,691 + 31,395 = 67,086

FINDING THE MISSING DIGITS IN ADDITION OPERATION

We can find the missing digits by using the given formula.

Sum – one addend = the other addend

Example 3 : Fill the missing digits in the boxes :

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

Solution :

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

Step 1 :
In ones column,
2 + 6 + ☐ = 9
or ☐ = 9 – 8
so, we put 1 in the blank in the one place.

Step 2 :
In tens column,
☐ + 7 + 5 = 4
or ☐ + 12 = 4
Since 4 < 12, sum should be 14
or ☐ = 14 – 12
so, we put 2 in the blank in the tens place.

Step 3 :
In hundreds column,
carry over 1 + ☐ + 5 + 6 = 5
or ☐ = 15 – 12
(Since 12 > 5, the sum should be 15.) so, we put 3 in the blank in the hundreds place.

Step 4 :
In thousands column,
carry over 1 + 7 + ☐ + 6 = 9
or ☐ = 19 – 14
(Since 14 > 9, the sum should be 19.)
so, we put 5 in the blank in the thousands place.

Step 5 :
In ten thousands column,
carry over 1 + 3 = 4

ADDITION IN REAL LIFE SITUATIONS

In our daily life, we come across the problems where we use the concept of addition. In this section, we will discuss about such types of problems.

Example 4 : A factory produced 76,325 garments in January and 92,000 in February. How many garments were produced in these two months?

Solution :

Number of garments produced in January	=	76325
Number of garments produced in February	=	+ 92000
Total garments produced	=	168325

Hence, the total garments produced are 1,68,325.

Example 5 : Three cities, which are 125 km away from each other have a population of 2,23,146; 45,369 and 97,137 respectively. What is the combined population of all the three cities?

Solution :

Population of 1st city	=	223146
Population of 2nd city	=	45369
Population of 3rd city	= +	97137
Total population	=	365652

Hence, population of all the three cities is 3,65,652.

Keep in Mind

Sometimes, a word problem may contain some extra information which is not really needed to solve it. In the above problem, distance given between the three cities is not needed to find the total population, so, exclude this type of information.

Progress CHECK-UP-1

Pleasure TIME — Mastery

1. Add each of the following.

(a)

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

(b)

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

(c)

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

(d)

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

2. Solve the following. Write the total in words.

(a) 4,00,723 + 3,68,912

(b) 75,648 + 28,503

(c) 6,33,054 + 1,38,214

(d) 1,83,470 + 28,169

3. Add the following numbers.

(a) One lakh four thousand two and fifty-eight thousand two hundred one.

(b) Seventy-one thousand four; one lakh seven hundred and two lakh sixty-one thousand four hundred nine.

(**Hint :** Write the numbers for the given number names and then add.)

4. Find the missing digits.

(a)

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

(b)

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

5. A businessman buys two cars for his office. Car A costs ₹ 3,75,496 and car B costs ₹ 4,50,675. How much does the businessman pay for both the cars?

6. 3,43,439 boys and 2,84,680 girls appeared for class X board examination. How many students in all appeared for the examination?

7. A factory produced 2,73,940 toys in the 1st year, 26,187 toys in the 2nd year and 4,10,382 toys in the 3rd year. What is the total production of the factory in three years?

8. In the current year's census, it has been recorded that there are 7,63,436 men, 6,34,459 women and 5,32,557 children in a city. Find the total population of the city.

SUBTRACTION WITHOUT BORROWING

Engagement

The rule to subtract large numbers is same as that for 4-digit numbers. To subtract the large numbers arrange the numbers in columns and then subtract starting from the one place by moving towards the left.

Example 6 : Subtract 12,345 from 55,555.

Solution : Arrange the numbers in column and subtract.

	TTh	Th	H	T	O
	5	5	5	5	5
–	1	2	3	4	5
	4	3	2	1	0

Step 1 : Subtract ones : 5 – 5 = 0 ones
Write 0 under the ones column.

Step 2 : Subtract tens : 5 – 4 = 1 tens
Write 1 under the tens column.

Step 3 : Subtract hundreds : 5 – 3 = 2 hundreds
Write 2 under the hundreds column.

Step 4 : Subtract thousands : 5 – 2 = 3 thousands
Write 3 under the thousands column.

Step 5 : Subtract ten thousands : 5 – 1 = 4 ten thousands
Write 4 under the ten thousands column.

So, 55,555 – 12,345 = 43,210

Keep in Mind

Always remember to write bigger number above the smaller number.

SUBTRACTION WITH BORROWING (REGROUPING)

Arrange the given numbers in columns. Beginning with the ones, we go on subtracting columnwise, borrowing if necessary, from the next column to the left.

Example 7 : Subtract 47,236 from 88,081.

Solution : Arrange the numbers in their respective column and subtract.

Step 1 : Subtract ones : since we cannot subtract 6 from 1, we regroup the tens and ones.

8 tens 1 ones = 8 tens + 1 ones
= 7 tens + 10 ones + 1 ones
= 7 tens + 11 ones

Now, 11 ones – 6 ones = 5 ones
Write 5 under the ones column.

TTh	Th	H	T	O
	7	10	7	11
8	~~8~~	~~0~~	~~8~~	~~1~~
– 4	7	2	3	6
4	0	8	4	5

Step 2 : Subtract tens : 7 – 3 = 4 tens
Write 4 under the tens column.

Step 3 : Subtract hundreds : since we cannot subtract 2 from 0, we regroup the thousands and hundreds.

8 thousands 0 hundreds = 7 thousands + 10 hundreds + 0 hundreds
= 7 thousands + 10 hundreds

Now, 10 hundreds – 2 hundreds = 8 hundreds
Write 8 under the hundreds column.

Step 4 : Subtract thousands : 7 thousands – 7 thousands = 0 thousands
Write 0 under the thousands column.

Step 5 : Subtract ten thousands : 8 – 4 = 4 ten thousands.
Write 4 under the ten thousands column.

FINDING THE MISSING DIGITS IN SUBTRACTION OPERATION

To find the missing digits, follow these rules :

(i) Difference = Minuend – Subtrahend

(ii) Minuend = Difference + Subtrahend

(iii) Subtrahend = Minuend – Difference

Example 8 : Fill in the missing digits :

	TTh	Th	H	T	O
	3	0	□	7	2
–	1	□	4	□	□
	□	3	6	4	6

Solution :

	TTh	Th	H	T	O
	3	0	0	7	2
–	1	6	4	2	6
	1	3	6	4	6

Step 1 : Since 2 < 6 (minuend < difference), s minuend must be 12 with 10 ones (ten) borrowed from 7 tens.
Thus, 12 – □ = 6 or □ = 12 – 6 = 6

Step 2 : We have 6 tens left in the ten column.
6 – □ = 4 or □ = 6 – 4 = 2

Step 3 : 4 + 6 = □ or □ = 10 (10 hundreds o 1 thousand)
□ = 0, as 1 thousand is borrowe from thousands column.

Step 4 : Here, minuend must be 9 thousand as 1 thousand is borrowed t hundreds column. Also we hav borrowed 1 ten thousand from 3 te thousands.
So, 9 – □ = 3 or □ = 9 – 3 = 6

Step 5 : We have 2 left in ten thousands colum
2 – 1 = □ or □ = 1

Checking Subtraction

We know that,

Difference = Minuend – Subtrahend

So, once we have done the subtraction, in order to check if the subtraction is correct, we could add the difference and the subtrahend, and check if it equals the minuend.

If Difference + Subtrahend = Minuend, then the subtraction is correct.

Example 9 : Subtract 4,25,178 from 7,60,085 and check your answer.

Solution :

	L	TTh	Th	H	T	O	
			(9)				
		(5)	~~(10)~~	(10)	(7)	(15)	
	7	~~6~~	~~0~~	~~0~~	~~8~~	~~5~~	← Minuend
−	4	2	5	1	7	8	← Subtrahend
	3	3	4	9	0	7	← Difference

Checking :

	L	TTh	Th	H	T	O	
		(1)	(1)		(1)		
	3	3	4	9	0	7	← Difference
+	4	2	5	1	7	8	← Subtrahend
	7	6	0	0	8	5	← Minuend

Since, 3,34,907 + 4,25,178 = 7,60,085, the subtraction is correct.

SUBTRACTION IN REAL LIFE SITUATIONS

When we have to solve our daily life problems, we need to read the problem carefully, note down the given values properly, decide what operation has to be used and then perform the operation on the values.

Example 10 : Sheela is looking for a house for herself. The house she wants to buy costs ₹ 8,50,500. She is short of the required money by ₹ 1,05,550. How much money does she have?

Solution :

Cost of the house = ₹ 850500

Money short with Sheela = − ₹ 105550

Money Sheela has = ₹ 744950

Hence, Sheela has ₹ 7,44,950 with her.

Example 11 : A builder had 6,42,700 kg of cement. After a month 3,15,000 kg of cement was used up. How much quantity of cement is left now?

Solution :

Quantity of cement he had initially	=	642700 kg
Quantity of cement used	=	− 315000 kg
Quantity of cement left	=	327700 kg

Hence, 3,27,700 kg of cement is left now.

Progress CHECK-UP

Pleasure TIME

Mastery

1. Subtract each of the following.

(a)

	TTh	Th	H	T	O
	9	8	7	4	5
−	6	5	4	3	1

(b)

	TTh	Th	H	T	O
	5	4	5	8	9
−	5	2	2	8	0

(c)

	TTh	Th	H	T	O
	6	5	4	8	6
−	2	3	9	7	8

(d)

	L	TTh	Th	H	T	O
	2	7	5	8	9	3
−		3	4	3	2	1

(e)

	L	TTh	Th	H	T	O
	4	7	0	5	9	7
−	1	2	6	7	9	6

(f)

	L	TTh	Th	H	T	O
	5	0	5	2	4	2
−	4	2	7	9	9	7

2. Arrange in columns and find the difference.

(a) 26,754 – 23,842

(b) 43,791 – 23,448

(c) 9,32,447 – 8,76,125

(d) 8,74,506 – 4,01,228

(e) 78,654 – 70,430

(f) 7,56,320 – 3,47,980

3. Subtract the following and write the answer in words.

Forty-three thousand two hundred fifteen from nine lakh fifty-eight thousand two hundred fifteen.

4. **Find the missing digits.**

(a)

TTh	Th	H	T	O
5	□	1	3	□
− □	0	1	□	4
3	2	□	2	2

(b)

L	TTh	Th	H	T	O
□	7	□	8	□	1
− 4	□	2	5	6	□
2	4	3	□	3	0

(c)

TTh	Th	H	T	O
7	6	4	0	3
− □	8	□	1	6
3	□	8	□	□

(d)

L	TTh	Th	H	T	O
7	6	3	2	□	□
− 4	5	□	4	□	0
4	□	8	□	6	4

5. **Subtract each of the following and check the answer by suitable addition.**

(a)

TTh	Th	H	T	O
8	6	8	4	1
− 5	3	0	7	4

Check

+ 5	3	0	7	4

(b)

TTh	Th	H	T	O
6	7	2	0	6
− 5	4	8	9	2

Check

+ 5	4	8	9	2

6. The wholesale dealer had 7,25,370 pens. He supplied 5,77,850 pens to shopkeepers. How many pens is he left with?
7. Out of 5,26,438 people who visited Goa this year, 12,560 were Indian visitors. How many were foreign tourists?
8. Find the number which added to 87,325 gives the sum as 1,25,734.

4 Multiplication and Division

Travel Through

I. Multiply the following :

a. 347×24

b. 212×24

c. 362×49

d. 400×22

e. 438×93

f. 641×46

II. Find the quotient with remainder :

a. $9\overline{)207}$

b. $8\overline{)575}$

c. $4\overline{)313}$

d. $4\overline{)647}$

e. $6\overline{)791}$

f. $7\overline{)780}$

Learning Outcomes

- Multiplication by a 1, 2 and 3-digit number
- Multiplication using expanded form
- Multiplication using lattice method
- Multiplication in real life situations
- Division by 1 and 2-digit divisor
- Short Division method
- Division in Real life Situations

MULTIPLICATION

Engagement

Multiplication by a 1-digit Number

Example 1 : Multiply 1,232 by 8.

Solution :

Step 1 : Multiply the digit in the ones place by 8.

$2 \times 8 = 16$

Write 6 in the ones place and carry over 1 to the tens place.

Step 2 : Multiply the digit in the tens place by 8 and add the carried over digit to the product.

$3 \times 8 = 24 \quad \Rightarrow \quad 24 + 1 = 25$

Write 5 in the tens place and carry over 2 to the hundreds place.

Step 3 : Multiply the digit in the hundreds place by 8 and add the carried over digit to the product.

$2 \times 8 = 16 \quad \Rightarrow \quad 16 + 2 = 18$

Write 8 in the hundreds place and carry over 1 to the thousands place.

Step 4 : Multiply the digits at the thousands place by 8 and add the carried over digit to the product.

$1 \times 8 = 8 \quad \Rightarrow \quad 8 + 1 = 9$

Write 9 in the thousands place. So, $1,232 \times 8 = 9,856$

(1)	(2)	(1)	
1	2	3	2
		×	8
9	8	5	6

Multiplication by a 2-digit Number

Example 2 : Find the product of 856 and 74.

Solution :

		8	5	6	
		×	7	4	⇒ 70 + 4 (expand the multiplier)
	3	4	2	4	⇐ (856 × 4)
+	5	9	9	2	0 ⇐ (856 × 70)
	6	3	3	4	4

So, $856 \times 74 = 63,344$

Multiplication by a 3-digit Number

Example 3 : Multiply : 869×247.

Keep in Mind

This method is known as column method or standard form.

Solution :

$$\begin{array}{r} 8\ 6\ 9 \\ \times\ 2\ 4\ 7 \\ \hline 6\ 0\ 8\ 3 \\ 3\ 4\ 7\ 6\ 0 \\ +1\ 7\ 3\ 8\ 0\ 0 \\ \hline 2\ 1\ 4\ 6\ 4\ 3 \end{array} \begin{array}{l} \Rightarrow 200 + 40 + 7 \text{ (expand the multiplier)} \\ \Leftarrow (869 \times 7) \\ \Leftarrow (869 \times 40) \\ \Leftarrow (869 \times 200) \end{array}$$

So, $869 \times 247 = 2,14,643$

MULTIPLICATION USING EXPANDED FORM

Example 4 : Multiply 3,658 by 3.

Solution :
$$\begin{aligned} 3658 \times 3 &= (3000 + 600 + 50 + 8) \times 3 \\ &= (3000 \times 3) + (600 \times 3) + (50 \times 3) + (8 \times 3) \\ &= 9000 + 1800 + 150 + 24 \\ &= 10,974 \end{aligned}$$

So, $3,658 \times 3 = 10,974$

Keep in Mind

This method is know as row method.

MULTIPLICATION USING LATTICE METHOD

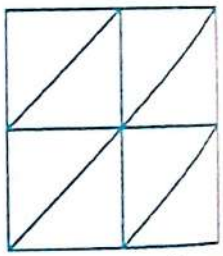
The Lattice method of multiplication is used to multiply numbers with the hel of a grid.

First, we need to draw a grid that has as many rows as the number of digits in the multiplicand and as many columns as the number of digits in the multiplier. For multiplying a 2-digit number with another 2-digit number, we need a grid of size 2×2 (as shown).

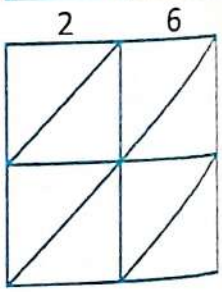
Let us understand with the help of an example.

Example 5 : Multiply 26 by 15.

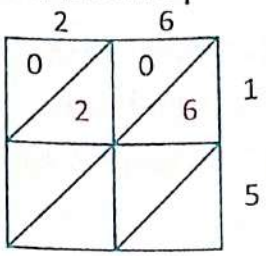
Solution : Step 1 : 26 is a 2-digit number and 15 is also a 2-digit number. Make a grid of 2 columns and 2 rows, and draw diagonals across each box in the grid.



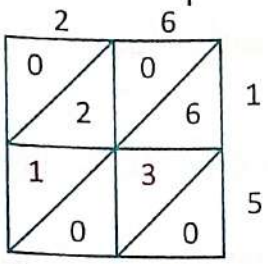
Step 2 : Write the numbers to be multiplied as shown :



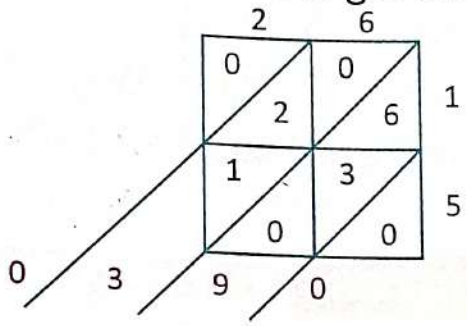
Step 3 : Multiply 2 and 6 by 1 and write the products as shown :



Step 4 : Multiply 2 and 6 by 5 and write the products as shown :



Step 5 : Add up the diagonal numbers to get the result as shown.



So, 26 × 15 = 390

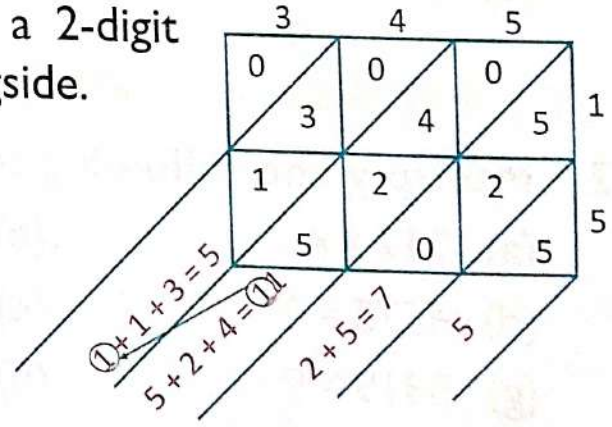
Let us compare the result with column method of multiplication. We got the some product both ways.

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

Example 6 : Multiply 345 and 15 using lattice multiplication.

Solution : To multiply a 3-digit number by a 2-digit number, a grid of 3 × 2 is drawn as shown alongside.

So, 345 × 15 = 5,175



MULTIPLICATION IN REAL LIFE SITUATIONS

Example 7 : A pet store has 15 tanks of tadpoles. If each tank has 46 tadpole how many tadpoles does the pet store have?

Solution : Number of tadpoles in 1 tank = 46

Number of tanks = 15

Number of tadpoles in 15 tanks = 46 × 15 = 690

Thus, there are 690 tadpoles in the tanks.

```
  46
× 15
 230
+460
 690
```

Example 8 : During a charity show, 1050 students contributed ₹ 450 each How much money was collected?

Solution : Number of students = 1050

Amount contributed by each = ₹ 450

Total amount collected = ₹ (1050 × 450) = ₹ 4,72,500

Hence, total money collected was ₹ 4,72,500.

```
 1050
×  450
 0000
 52500
+420000
 472500
```

Progress CHECK-UP-1

Mastery

Pleasure TIME

1. Find the product.

(a) 2734 × 4 (b) 4375 × 7 (c) 6890 × 6 (d) 3851 × 5

(e) 5192 × 8 (f) 7063 × 9 (g) 8574 × 2 (h) 6604 × 3

2. Multiply the following using the expanded form.

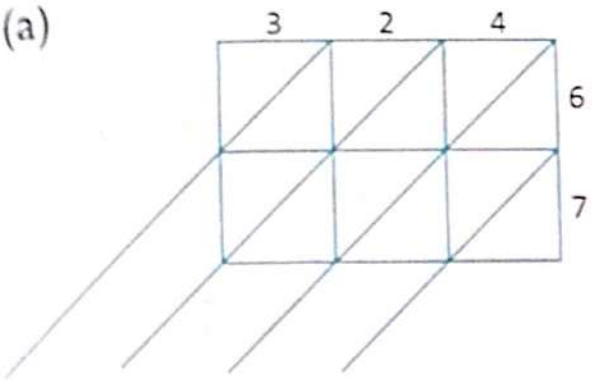
(a) 217 × 4 (b) 436 × 6 (c) 3175 × 4

(d) 4575 × 2 (e) 9532 × 7 (f) 8045 × 6

(g) 5319 × 9 (h) 6159 × 5 (i) 1058 × 8

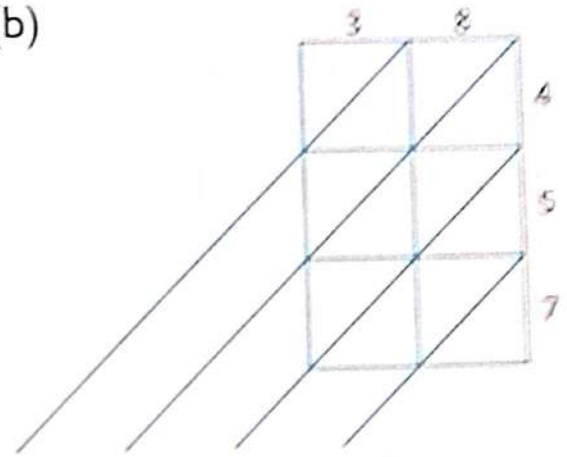
3. **Find the product.**

(a)



$324 \times 67 =$ .....

(b)



$38 \times 457 =$ .....

4. **Multiply using both lattice and column methods.**

(a) 211×16 (b) 123×45 (c) 561×23 (d) 824×32

(e) 456×117 (f) 132×144 (g) 745×821 (h) 639×705

5. A car can travel 115 km in one hour. How far will it travel in 24 hours?

6. Asha runs 1750 meters every morning. How many meters will she run in 180 days?

7. 9780 passengers travel from Mumbai to Chennai by train every day. How many people travel in a year? (**Hint:** 1 year = 365 days)

8. A cookie factory produced 674 packets of cookies. There were a score cookies each packet. How many cookies did the factory produce in all ? (**Hint:** 1 score = 20)

DIVISION BY A 1-DIGIT DIVISOR

The division operation starts from the highest place, i.e., extreme left.

Example 9 : Divide 5,536 by 8.

Solution :

$$
\begin{array}{r}
0692 \\
8\overline{)5536} \\
-48 \\
\hline
73 \\
-72 \\
\hline
16 \\
-16 \\
\hline
0
\end{array}
$$

Step 1 Start from the left. 5 < 8. There are not enough thousands. So, put 0 at the thousands place in the quotient.
Club the digits at the thousands and hundreds places.
5 thousands + 5 hundreds = 50 hundreds + 5 hundreds = 55 hundreds
Now, divide 55 by 8. 55 ÷ 8 gives Quotient = 6, Remainder = 7
Write 6 at the hundreds place in the quotient.

Step 2 Bring down the next digit 3 in the dividend. Divide 73 by 8.
73 ÷ 8 gives Quotient = 9, Remainder = 1
Write 9 at the tens place in the quotient.

Step 3 Bring down the next digit 6. Divide 16 by 8.
16 ÷ 8 gives Quotient = 2, Remainder = 0
Write 2 at the ones place in the quotient.

Step 4 Quotient = 692, Remainder = 0

Keep in Mind

The quotient, divisor and remainder are always less than the dividend.

DIVISION BY A 2-DIGIT DIVISOR

Example 10 : Divide 962 by 15.

Solution :

$$\begin{array}{r} 64 \\ 15\overline{)962} \\ -\,90\downarrow \\ \hline 62 \\ -\,60 \\ \hline 2 \end{array}$$

Step 1 Since 9 cannot be divided by 15. Divide 96 by 15.
15 × 6 = 90. Write 6 in the quotient and 90 below 96 and subtract.

Step 2 Bring down 2. Divide 62 by 15. 15 × 4 = 60
Write 4 in the quotient and 60 below 62 and subtract.
Thus, Quotient = 64 and Remainder = 2.
To check the division, apply the following formula.
Dividend = Divisor × Quotient + Remainder
Here, Dividend = 962, Divisor = 15, Quotient = 64 and Remainder = 2
So, Dividend = 15 × 64 + 2 = 962
Thus, the answer is correct.

Example 11 : Divide 7435 by 12.

Solution :

$$\begin{array}{r} 619 \\ 12\overline{)7435} \\ -72 \\ \hline 23 \\ -12 \\ \hline 115 \\ -108 \\ \hline 7 \end{array}$$

Step 1 Since 7 cannot be divided by 12, divide 74 by 12.
$6 \times 12 = 72$. Write 6 in the quotient column and 2 as the remainder.
Bring down 3. The new dividend is 23.

Step 2 Divide 23 by 12.
$1 \times 2 = 12$. Write 1 in the quotient column and 11 as the remainder.
Bring down 5. The new dividend is 115.

Step 3 Divide 115 by 12.
$9 \times 12 = 108$.
Write 9 in the quotient column and 7 as the remainder.
Thus, Quotient = 619 and Remainder = 7

Here, Dividend = 7435, Divisor = 12, Quotient = 619 and Remainder = 7.

Check the division,

Dividend = Divisor × Quotient + Remainder

So, Dividend = $619 \times 12 + 7 = 7428 + 7 = 7435$

Thus, the answer is correct.

SHORT DIVISION METHOD

Short division is used to divide a number quickly without any lengthy calculation. We can use this method for sums in which the divisor is small and whose table we know.

Example 12 : Find $96 \div 3$.

Solution : Divisor → $3\overline{)96}$ ← Dividend
32 ← Quotient

Step 1 Divide 9 tens by 3. $9 \div 3 = 3$

Write 3 in the tens place of the quotient

Step 2 Divide 6 ones by 3. $6 \div 3 = 2$

Write 2 in the ones place of the quotient.

Example 13 : Divide 765 by 8 using both long division and short division methods.

Solution :

Long Division

$$\begin{array}{r} 95 \\ 8\overline{)765} \\ -\,72 \\ \hline 45 \\ -\,40 \\ \hline 5 \end{array}$$

Short Division

$$\begin{array}{r} (4) \\ 8\overline{)765} \\ 95 \rightarrow 5 \end{array}$$

7 hundreds ÷ 8, cannot divide.

76 tens ÷ 8 = 9 tens, 4 = remainder

45 ones ÷ 8 = 5 ones, 5 = remainder

So, quotient = 95, remainder = 5

DIVISION IN REAL LIFE SITUATION

Example 14 : A gardener wants to plant 976 saplings in rows. If each row consists of 16 saplings, how many rows are formed?

Solution : Total Number of saplings = 976

Number of saplings in 1 row = 16

∴ Number of rows = 976 ÷ 16

= 61

$$\begin{array}{r} 61 \\ 16\overline{)976} \\ -\,96 \\ \hline 16 \\ -\,16 \\ \hline 0 \end{array}$$

Hence, 61 rows are formed.

Example 15 : 24 eggs can be packed in one egg tray. How many trays will Ameena need to pack 1365 eggs? How many eggs will be left?

Solution : Number of eggs to be packed = 1365

Number of eggs that can be packed in a tray = 24

Number of trays required = 1365 ÷ 24

= 56

$$\begin{array}{r} 56 \\ 24\overline{)1365} \\ -\,120 \\ \hline 165 \\ -\,144 \\ \hline 21 \end{array}$$

Hence, 56 trays are required and 21 eggs will be left.

Progress CHECK-UP-2

Pleasure TIME

Mastery

1. **Divide to find the quotients and the remainders, if any.**
   (a) 775 ÷ 5 (b) 5872 ÷ 4 (c) 6781 ÷ 5 (d) 8705 ÷ 7
   (e) 308 ÷ 3 (f) 790 ÷ 8 (g) 6008 ÷ 2 (h) 9023 ÷ 4
2. **Divide and verify your answer.**
   (a) 596 ÷ 14 (b) 404 ÷ 19 (c) 909 ÷ 29 (d) 597 ÷ 12
   (e) 3970 ÷ 28 (f) 5643 ÷ 24 (g) 8174 ÷ 31 (h) 7482 ÷ 37
3. (a) Find the quotient and remainder when dividend = 6840 and divisor = 47.
   (b) Find the divisor when dividend = 7560, quotient = 63 and remainder = 0.
4. **Solve the following by short division method.**
   (a) $4\overline{)59}$ (b) $7\overline{)87}$ (c) $9\overline{)58}$ (d) $5\overline{)82}$
   (e) $6\overline{)84}$ (f) $8\overline{)88}$ (g) $3\overline{)61}$ (h) $2\overline{)26}$
5. **Find the quotient and remainder using short division method.**
   (a) 235 ÷ 3 (b) 729 ÷ 5 (c) 390 ÷ 4 (d) 455 ÷ 6
   (e) 1267 ÷ 9 (f) 6289 ÷ 5 (g) 3457 ÷ 8 (h) 5659 ÷ 7
6. **Divide using both long and short division methods.**
   (a) 7894 ÷ 9 (b) 9684 ÷ 12 (c) 2075 ÷ 8 (d) 3120 ÷ 10
   (e) 7642 ÷ 8 (f) 6873 ÷ 9 (g) 5486 ÷ 13 (h) 7048 ÷ 11
7. 5400 scooters are manufactured every 50 days. If the same quantity is manufactured each day. How many scooters are manufactured in a day?
8. There are 4830 students at a school. If each classroom has 35 students, how many classrooms are there in the school?
9. How many sweets Shivam can buy for ₹ 3122, if each sweet costs ₹ 26? How much money will be left with him?
10. A book has 1648 pages. If Ria reads 46 pages daily, in how many days will she finish reading the book? How many pages will she read on the last day?

5 Factors and Multiples

Learning Outcomes

- Factors
- Multiples
- Even and Odd Numbers
- Prime and Composite Numbers
- Common Factors
- Common Multiples

FACTORS

Engagement

Vinita has 16 marbles. She wants to arrange them in rows such that each row has same number of marbles. Let us see how she can do that :

1 row of 16 marbles : $1 \times 16 = 16$

2 rows of 8 marbles each

$2 \times 8 = 16$

4 rows of 4 marbles each

$4 \times 4 = 16$

8 rows of 2 marbles each

$8 \times 2 = 16$

16 rows of 1 marbles each

$16 \times 1 = 16$

Here, we observe that the numbers 1, 2, 4, 8 and 16 are all exactly dividing the number 16. We say that 1, 2, 4, 8 and 16 are all factors of 16.

Thus, a **factor** is a number which divides a given number without leaving a remainder.

Finding Factors

We can find factors of a number by two methods *i.e.* Multiplication and Division.

By Multiplication Method

Example 1 : Find the factors of 24.

Solution : In this method we try to find numbers whose product is the given number. Start from the table of 1 keep continuing till the repetition starts.

$1 \times 24 = 24$ → So, 1 and 24 are factors of 24.

$2 \times 12 = 24$ → So, 2 and 12 are factors of 24.

$3 \times 8 = 24$ → So, 3 and 8 are factors of 24.

$4 \times 6 = 24$ → So, 4 and 6 are factors of 24.

$6 \times 4 = 24$ → we will stop here since factors are repeating.

So, the factors of 24 are 1, 2, 3, 4, 6, 8, 12 and 24.

By Division Method

Example 2 : Find the factors of 12.

Solution : In this method we try to find a number which divides the given number without a remainder.

$12 \div 1 = 12$ → So, 1 and 12 are factors of 12.

$12 \div 2 = 6$ → So, 2 and 6 are factors of 12.

$12 \div 3 = 4$ → So, 3 and 4 are factors of 12.

$12 \div 4 = 3$ → We will stop here since factors are repeating.

So, the factors of 12 are 1,2,3,4,6 and 12.

Properties of Factors

1. 1 is the smallest factor of every number.
   For example, $16 = 16 \times (1)$, $7 = 7 \times (1)$
2. Every number is a factor of itself. It is also the greatest factor of that number.
   For example, $1 \times (9) = 9$, $1 \times 27 = (27)$.
3. Factors of a number are always smaller than or equal to the number.
   For example, factors of 12 cannot be greater than 12.

4. A number has finite number of factors.
   For example, 1, 2, 3 and 6 are the only factors of 6.
5. Every number (except 1) has at least two factors, *i.e.*, 1 and itself.
6. Every number is a factor of 0.
   For example, $0 \div 13 = 0 \rightarrow$ So, 13 is a factor of 0.

Progress CHECK-UP-1

Mastery

Pleasure TIME

1. **Fill in the blanks.**
   (a) $3 \times 7 = 21$, so 3 and 7 are ..... of 21.
   (b) ..... is the smallest factor of every number.
   (c) Every number is a factor of ..... .
   (d) A number has ..... number of factor.
2. **Check if the first number is a factor of the second number.**
   (a) 5, 65 (b) 8, 34 (c) 7, 91 (d) 12, 110
   (e) 11, 120 (f) 13, 126 (g) 16, 256 (h) 3, 225
3. **Use multiplication to find the factors of the following.**
   (a) 55 (b) 63 (c) 74 (d) 15
4. **Use division to find the factors of the following.**
   (a) 41 (b) 63 (c) 54 (d) 15

MULTIPLES

Engagement

Look at the following multiplication facts from the table of 2.

$2 \times 1 = 2$ $2 \times 2 = 4$ $2 \times 3 = 6$ $2 \times 4 = 8$ and so on.

Numbers 2, 4, 6 and 8 are obtained on multiplying 2 by 1, 2, 3 and 4 respectively.

So, the numbers 2, 4, 6 and 8 are the multiples of 2.

The multiple of a number is the product of that number with a counting number.

Keep in Mind

Multiples and factors of a number are related to each other. For example, in the multiplication fact $6 \times 5 = 30$, 6 and 5 are factors of 30 and 30 is the multiple of both 6 and 5.

Finding Multiples

We can find the multiples of a number by multiplying it with 1, 2, 3 and so on.

Multiple of a number = The Number × Any Counting Number

To find whether a given larger number is a multiple of the smaller number, we divide the larger number with the smaller number. If the remainder is zero, the larger number is a multiple of the smaller number.

Example 3 : Find first five multiples of 9.

Solution : To find first five multiples of 9, we multiply it by 1, 2, 3, 4 and 5.

$9 \times 1 = 9$, $9 \times 2 = 18$, $9 \times 3 = 27$, $9 \times 4 = 36$, $9 \times 5 = 45$

So, the first five multiples of 9 are 9, 18, 27, 36 and 45.

Example 4 : Write the fifth multiple of 8.

Solution : Fifth multiple means multiply by 5.

So, fifth multiple of $8 = 8 \times 5 = 40$.

Example 5 : Is 84 a multiple of 6 ?

Solution : $84 \div 6 = 14$, remainder = 0

Since the remainder is 0.

So, 84 is a multiple of 6.

```
  14
6)84
 -6
  24
 -24
   0
```

Example 6 : Is 85 a multiple of 7 ?

Solution : $85 \div 7 = 12$, remainder = 1

Since the remainder is 1 not zero.

So, 85 is a not a multiple of 7.

```
  12
7)85
 -7
  15
 -14
   1
```

Properties of Multiples

1. Every number is a multiple of 1.
   For example, $1 \times 2 = 2$, $1 \times 4 = 4$

2. Every number is a multiple of itself.
   For example, $7 \times 1 = 7$, $27 \times 1 = 27$.
3. A number can have unlimited number of multiples.
   For example, 6, 12, 18, 24, 30, 36, ..., 120, ..., 600, ... ar
   multiples of 6.
4. The multiples of a number are either greater than or equal to the number
   For example, the multiple of 7 cannot be less than 7.
5. Every multiple of a number is exactly divisible by that number.
   For example, multiple of 6 *i.e.*, 6, 12, 18, 24, ... are completely divisib
   by 6.
6. The first and the smallest multiple of a number is the number itself.
   For example, 3 is the first and smallest multiple of 3.
7. Zero is a multiple of every non-zero number.
   For example, $0 \times 1 = 0$, $0 \times 3 = 0$.

Progress CHECK-UP-2

Master

Pleasure TIME

1. Write first five multiples of each.

(a) 6 (b) 13 (c) 18 (d) 7 (e) 14
(f) 21 (g) 16 (h) 12 (i) 11 (j) 45

2. Find the pairs in which the larger number is a multiple of th smaller one.

(a) 7,119 (b) 142,4 (c) 28,3 (d) 14,112

3. Write the following.

(a) 5th multiple of 19.
(b) Multiples of 7 that are less than 30.
(c) Multiples of 4 between 30 and 60.
(d) Multiples of 7 between 40 and 60.
(e) Multiples of 14 which are less than 100.

4. Fill in the blanks.

(a) $8 \times 3 = 24$, so 24 is a multiple of ..... and ..... .

(b) ..... is a multiple of every number.

(c) A number is the ..... multiple of itself.

(d) Every multiple of a number is ..... than or equal to the number.

(e) Any number has ..... multiples.

EVEN AND ODD NUMBERS

Engagement

- A number which is a multiple of 2 is called an even number. In the group of 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9, the numbers 0, 2, 4, 6 and 8 are even 1-digit numbers. All the numbers with 0, 2, 4, 6 and 8 at ones place are even numbers.
- A number which is not a multiple of 2 is called an odd number. In the group of 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9, the number 1, 3, 5, 7 and 9 are odd 1-digit numbers. All the numbers with 1, 3, 5, 7 and 9 at ones place are odd numbers.

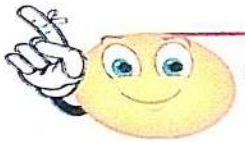
PRIME AND COMPOSITE NUMBERS

Observe, read and understand the following numbers and their factors.

Number	Factors	Number	Factors
1	1	7	1, 7
2	1, 2	8	1, 2, 4, 8
3	1, 3	9	1, 3, 9
4	1, 2, 4	10	1, 2, 5, 10
5	1, 5	11	1, 11
6	1, 2, 3, 6	12	1, 2, 3, 4, 6, 12

The above table reveals that some numbers have only two factors and others have more than two factors.

- A number that has exactly two factors, 1 and itself, is called a **prime number**.
- A number that has more than two factors is called a **composite number**.



Keep in Mind

- *1 is neither prime nor a composite number as it has only one factor.*
- *It is a unique number.*
- *2 is the only even prime number. It is also the smallest prime number.*
- *The smallest odd prime number is 3.*
- *The smallest composite number is 4.*
- *2 and 3 are only consecutive prime numbers.*

COMMON FACTORS

Factors which are common to two or more given number are called their **common factors.**

To find the common factors of given numbers, we write all the factors and take out the factors that are same in both the numbers.

For example, Factors of 24 are ①, ②, 3, ④, 6, ⑧, 12, 24.

Factors of 32 are ①, ②, ④, ⑧, 16, 32.

Hence, common factors of 24 and 32 are 1, 2, 4 and 8.

Highest Common Factor

The biggest factor that is common to all given numbers is called the **highest common factor** or HCF of the given numbers.

Let us learn to find HCF of numbers through examples.

Example 7 : Find the HCF of 50 and 75.

Solution : Factor of 50 = ①, 2, ⑤, 10, ㉕, 50

Factor of 75 = ①, 3, ⑤, 15, ㉕, 75

Common factors of 50 and 75 are 1, 5, 25. Out of these common factors, the highest number is 25. Thus, HCF of 50 and 75 = 25.

Example 8 : Find the HCF of 4 and 9.

Solution : Factors of 4 = ①, 2, 4

Factors of 9 = ①, 3, 9

Common factor of 4 and 9 is 1.

Thus, HCF of 4 and 9 = 1.

Keep in Mind

When the HCF of given numbers is 1, then the numbers are called co-prime numbers.

COMMON MULTIPLES

Multiples that are common to two or more numbers are called their **common multiples.**

To find common multiples of two or more numbers, we make lists of multiples of each number and identify the common multiples.

For example, multiples of 2 are 2, 4, (6), 8, 10, (12), 14, 16, (18), 20, ...

multiples of 3 are 3, (6), 9, (12), 15, (18), 21, 24, 27, 30, ...

Hence, common multiples of 2 and 3 are 6, 12, and 18.

If we continue to find more multiples of these numbers, more common multiples will be found.

Least Common Multiple

The smallest multiple that is common to all given numbers is called the **least common multiple** or **LCM** of the given numbers.

Let us learn to find LCM through examples.

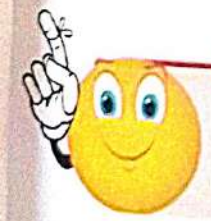
Example 9 : Find the LCM of 4 and 6.

Solution : Multiples of 4 = 4, 8, (12), 16, 20, (24), ...

Multiples of 6 = 6, (12), 18, (24), 30, ...

Common multiples of 4 and 6 are 12, 24, ... smallest multiple is 12.

Thus, LCM of 4 and 6 = 12.



Keep in Mind

Once you have found LCM of two or more numbers then their common numbers can be obtained by multiplying the LCM by 1, 2, 3, 4 ... etc.

Progress CHECK-UP-3

Pleasure TIME

Mastery

1. Find the common factors of the following set of numbers.

(a) 14 and 26 (b) 4 and 6 (c) 9 and 12 (d) 12 and 27

(e) 8, 36 and 45 (f) 25, 35 and 75 (g) 16 and 38 (h) 12 and 20

2. Find the HCF of the following set of numbers :

(a) 9 and 12 (b) 15 and 35 (c) 16 and 20

(d) 30 and 40 (e) 65 and 39 (f) 60, 105 and 135

(g) 8, 16 and 40 (h) 44 and 77 (i) 12, 32 and 60

3. Which of the following pairs are co-primes?

(a) 9 and 12 (b) 3 and 8 (c) 15 and 3

4. A shopkeeper has to keep 36 boxes of books in equal piles. Write down least 4 ways in which he can place the boxes, such that each pile has t same number of boxes.

5. Write the first three common multiples of these numbers.

(a) 5 and 15 (b) 6 and 8 (c) 4 and 12 (d) 3 and 8

(e) 4 and 7 (f) 2, 3 and 5 (g) 5, 7 and 9 (h) 2, 5 and 6

6. Find the LCM of these numbers.

(a) 10 and 20 (b) 8 and 12 (c) 3 and 5 (d) 16 and 24

(e) 18 and 30 (f) 21 and 35 (g) 5, 6 and 10 (h) 3, 4 and 8

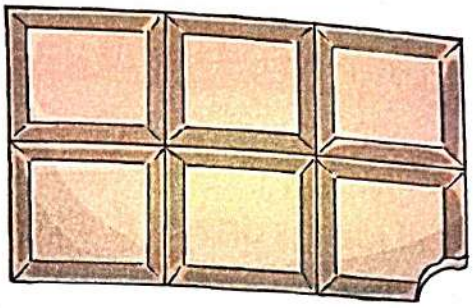
6 Fractions and Decimals

Travel Through

Readiness

1. Half of Many Pieces

Rani got a chocolate. She divided it equally and gave half to her friend Reena.



- Circle the portion that Reena got.

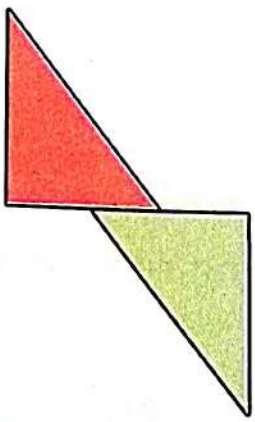
How many pieces of chocolate are there? .....

How many pieces were left with Rani? .....

2. Many Shapes from a Half Sheet

Take a piece of paper. Cut the sheet into two equal triangles so that each triangle is equal to half of the sheet. Shade the two triangles with different colours.

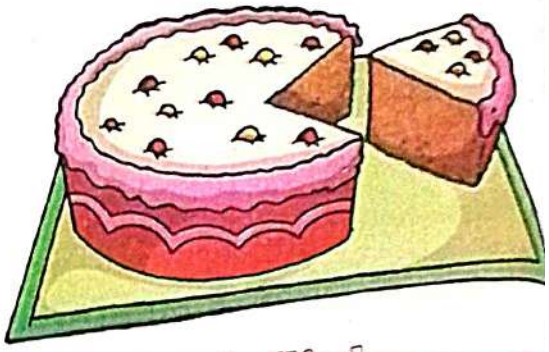
- Draw different shapes using these triangles. One such shape is shown here.



Learning Outcomes

• Fraction • Fraction of a region • Numerator and Denominator • Fraction of a collection • Representation of a decimal • Place value system of decimals • Converting decimals into fractions • Converting fractions into decimals • Like and unlike decimals • Comparing and ordering decimals

FRACTION



A fraction is a part of a whole. The whole can be a region or a collection.

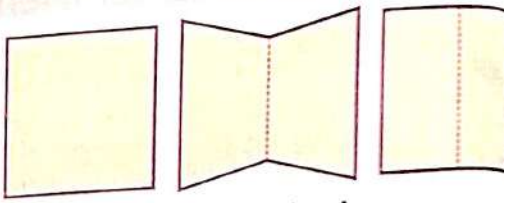
A region is a whole when there is only one object. For example, a cake represents a whole and a slice of it represents a fraction.

Keep in Mind

A fraction of a region or collection is formed if the whole is divided into equal parts.

FRACTION OF A REGION

Half



Half means one of the two equal parts of a whole.

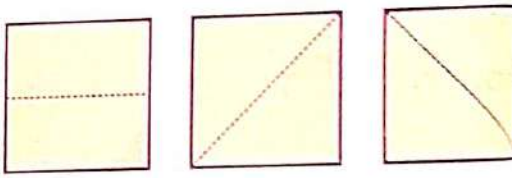
Take a square sheet of paper. Fold it exactly into two equal parts as shown in the figure.

Crease the folding well and unfold the paper. Both are parts of a whole.

The two parts are of the same size, and each is called a half. It is represented as $\frac{1}{2}$ and is read as 'one by two'.

Half is the simplest fraction of a whole we come across in mathematics.

Two halves make a whole.

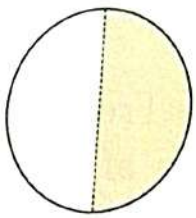


We can also fold the sheet of paper in three more different ways into two equal parts.

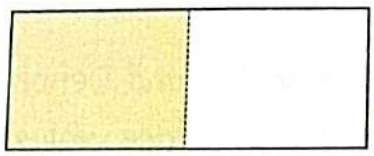
The dotted line shows the folding of the sheet.

Observe that in all the different ways of folding, we have divided the sheet into two equal parts. Therefore, each part of folding represents one half of the sheet.

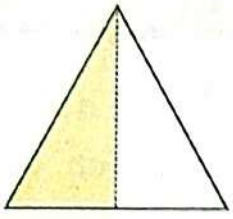
Example : Indicate a half of each of the following figures.



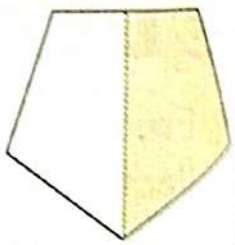
$\frac{1}{2}$



$\frac{1}{2}$



$\frac{1}{2}$



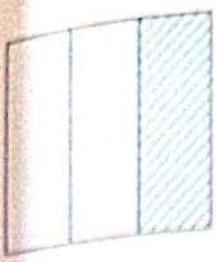
$\frac{1}{2}$

Keep in Mind

If a shape can be divided into two identical and equal parts, then the fraction of each part is ½.

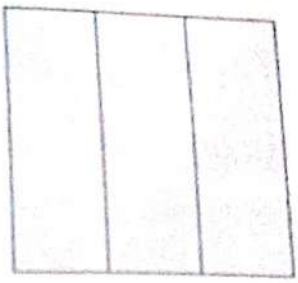
Thirds

Third means three equal parts of a whole.

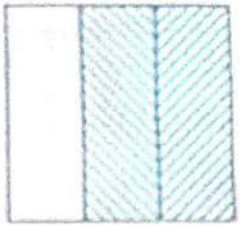


$\frac{1}{3}$

When a whole is divided into three equal parts, then each part represents one-third of the whole. It is represented as $\frac{1}{3}$.

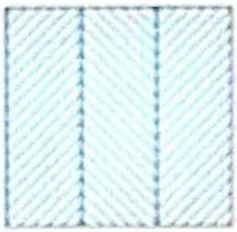


If two parts out of the three are covered, then it is called as two-thirds. It is represented as $\frac{2}{3}$.



$\frac{2}{3}$

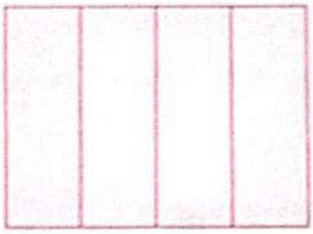
Three-thirds make a whole.



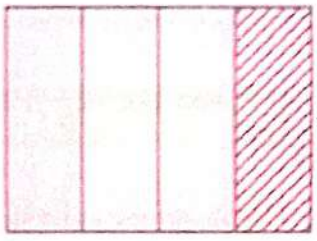
$\frac{3}{3}$

Fourths

Fourth means four equal parts of a whole.

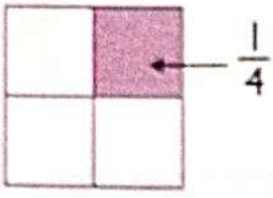


When a whole is divided into four equal parts, then each part represents one-fourth or quarter of the whole. It is represented as $\frac{1}{4}$.

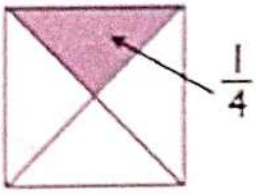


$\frac{1}{4}$

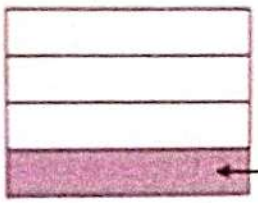
Thus, a whole can be divided into four quarters.



$\frac{1}{4}$

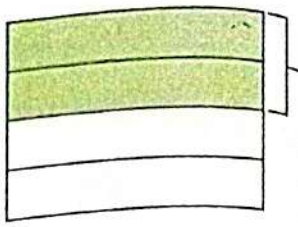


$\frac{1}{4}$

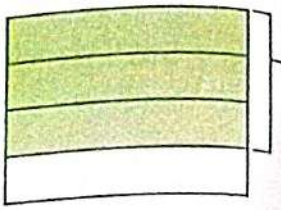


$\frac{1}{4}$

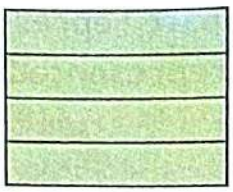
If two out of the four parts are covered, then it represents two-fourths or two quarters of the whole. It is represented as $\frac{2}{4}$.



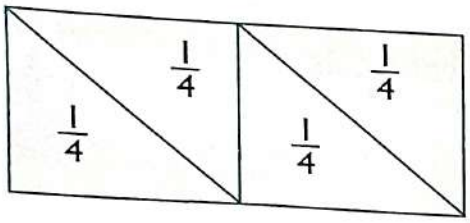
If three out of the four parts are covered, then it represents three-fourths or three quarters of the whole. It is represented as $\frac{3}{4}$.



Four-fourths make a whole.



$\frac{4}{4}$

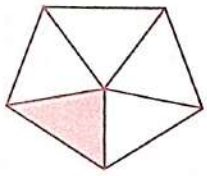


Keep in Mind

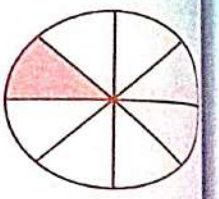
I make four parts like this. Each part is a quarter. And I can write it as ¼. It means 1 part out of 4.

Other simple fractions

$\frac{1}{5}$ = One part of five equal parts



$\frac{1}{8}$ = One part of eight equal parts



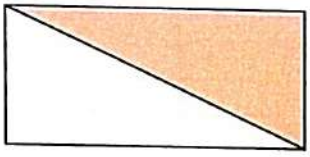
Progress CHECK-UP-1

Pleasure TIME

Mastery

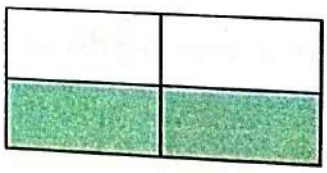
1. What part of the whole is coloured? Write below each shape.

a.



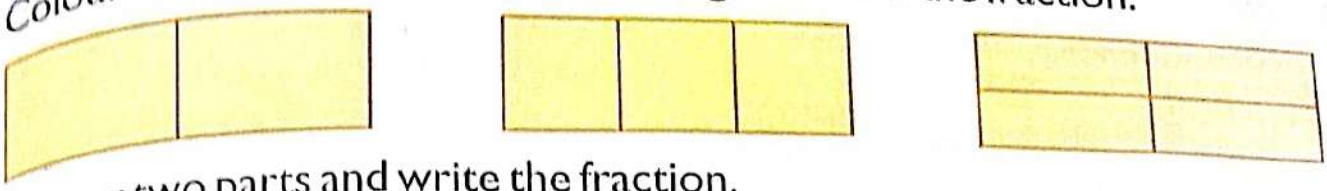
_____

b.

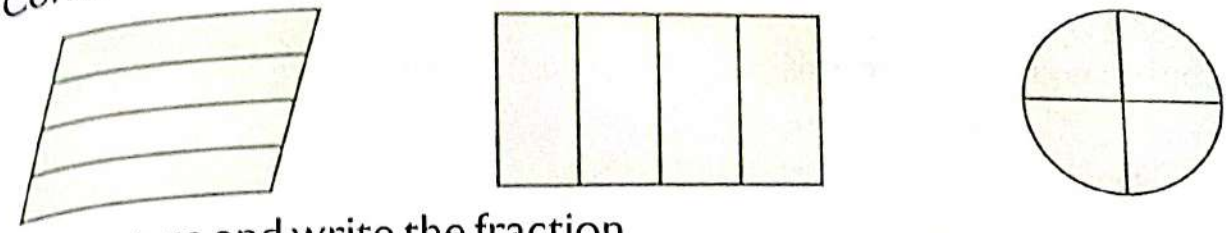


_____

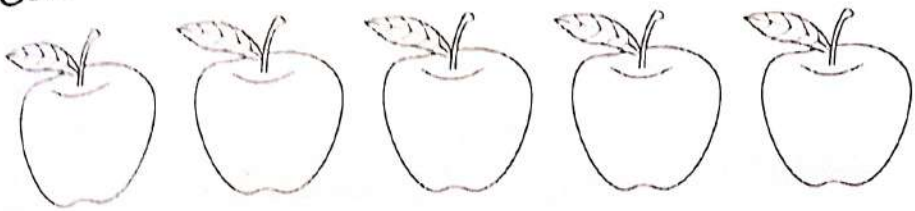
2. Colour one part of each of the following and write the fraction.



3. Colour two parts and write the fraction.

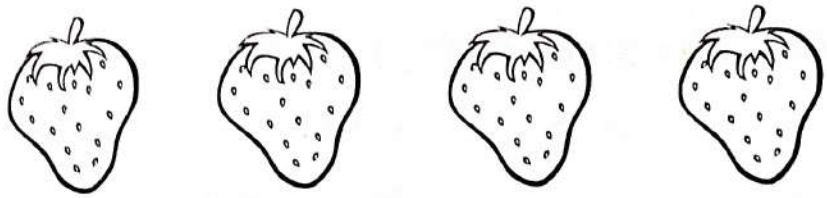


4. Colour two and write the fraction.

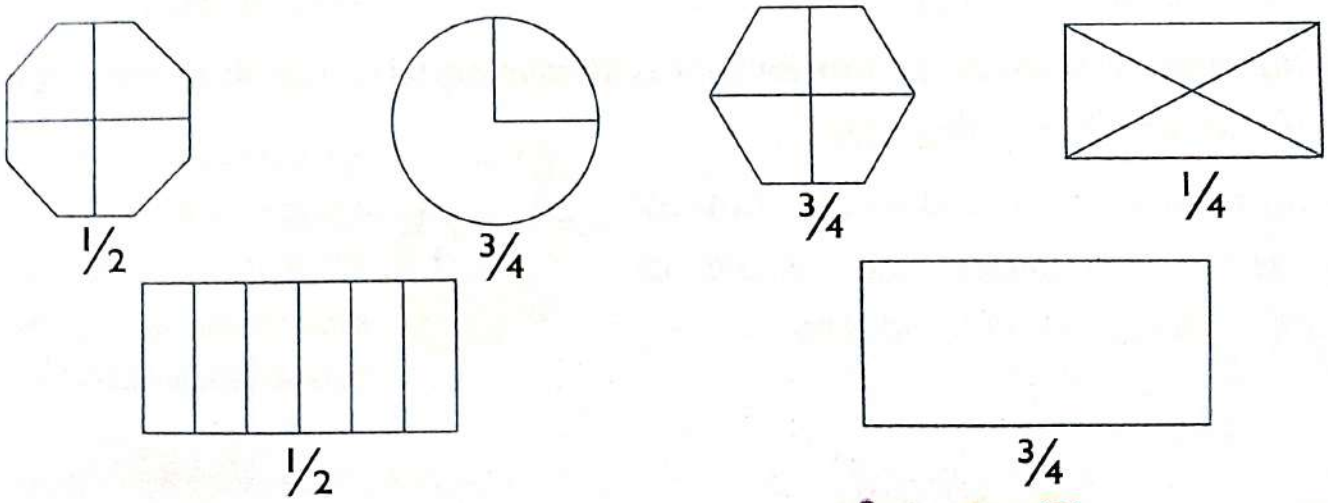


5. Colour three and write the fraction.

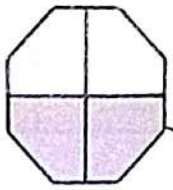
6. Colour three and write the fraction.



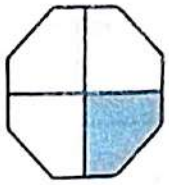
7. Colour that part of the shape which is written below.



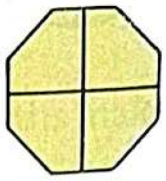
8. Match the coloured part as shown.



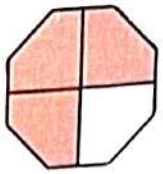
a. Quarter



b. Half



c. Three Quarters



d. Whole

(i) $\frac{3}{4}$

(ii) $\frac{4}{4}$

(iii) $\frac{1}{2}$

(iv) $\frac{1}{4}$

NUMERATOR AND DENOMINATOR

Engagement

As you have observed, a fraction has two numbers written one below the other, separated by a horizontal line.

The number written above the horizontal line is called the numerator.

The number written below the horizontal line is called the denominator.

$\frac{1}{2}$ ← Numerator
$\frac{1}{2}$ ← Denominator

$\frac{3}{4}$ ← Numerator
$\frac{3}{4}$ ← Denominator

The number written in the numerator is always equal to number of parts taken out of the whole or collection.

The number written in the denominator represents the parts the whole or collection has been divided into.

Keep in Mind

When the numerator and the denominator are the same, it makes a whole, that is 1.

$\frac{6}{6} = 1, \quad \frac{9}{9} = 1$

Example 1 : Explain the components of the fraction $\frac{1}{6}$.

Solution: In the fraction $\frac{1}{6}$, 6 represents the denominator. It means that a whole has been divided into six equal parts. 1 represents the numerator, that is, 1 part out of the six has been taken out.

Fraction of a Collection

A collection can also be taken as a whole and its parts can be represented as fractions.

Example 2 : Look at the given bouquet of flowers.
What fraction of the bouquet is represented by

(a) yellow roses (b) pink tulips

Solution: Total number of flowers in the bouquet = 8

$$\text{Fraction of yellow roses in the bouquet} = \frac{\text{Number of yellow roses}}{\text{Total number of flowers}} = \frac{3}{8}$$

$$\text{Fraction of pink tulips in the bouquet} = \frac{\text{Number of pink tulips}}{\text{Total number of flowers}} = \frac{5}{8}$$

Half of a Collection

Half is represented as ½. It tells us that the whole has to be divided into two equal parts. Thus, we divide the whole by 2.

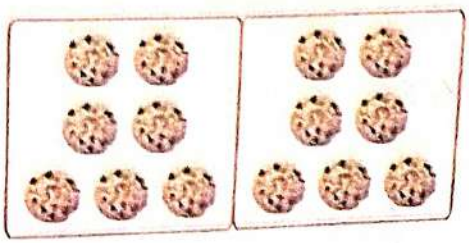
Example 3 : Find half of the given collection of cookies.

Solution : Number of cookies = 14

Half of the given cookies $= \frac{1}{2}$ of 14

$= \frac{1}{2} \times 14$

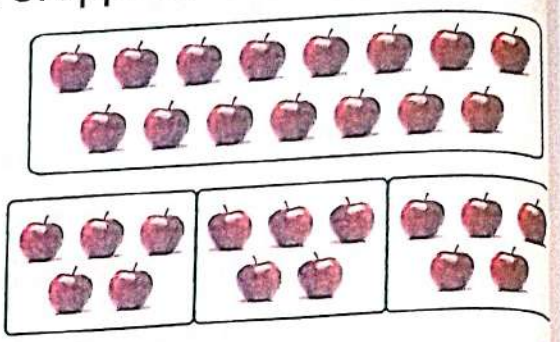
$= 14 \div 2 = 7$



One-third of a collection

One-third is represented as $\frac{1}{3}$. It tells that the whole has to be divided into three equal parts.

Example 4 : Find one-third of the given collection of apples.



Solution: Number of apples given $= 15$

One-third of the given apples $= \frac{1}{3}$ of 15

$= \frac{1}{3} \times 15$

$= 15 \div 3 = 5$

One-fourth of a collection

One-fourth is represented as $\frac{1}{4}$. It tells that the whole has to be divided into four equal parts. Thus, we divide the whole by 4.

Example 5 : Calculate values for

a. two-fifths of 30

b. one-seventh of 63

c. three-eighths of 56.

Keep in Mind

- *To find a fraction of a given number, multiply the number by the numerator of the fraction and then divide the result by the denominator.*
- *In case the numerator is 1, then just divide the number by the denominator of the fraction.*

Solution: Calculate as follows.

a. $\frac{2}{5}$ of $30 = \frac{2}{5} \times 30 = 60 \div 5 = 12$

b. $\frac{1}{7}$ of $63 = \frac{1}{7} \times 63 = 63 \div 7 = 9$

c. $\frac{3}{8}$ of $56 = \frac{3}{8} \times 56 = 168 \div 8 = 21$

Try This

Calculate the following.

a. One-eighth of 24 ☐

b. One-tenth of 70 ☐

c. Three-sevenths of 77 ☐

Progress CHECK-UP-2

Pleasure TIME

Mastery

1. Fill in the numerals in the boxes:

a. In 3/8 ☐ is the numerator and ☐ is the denominator

b. In 6/9 ☐ is the numerator and ☐ is the denominator

c. In 7/8 ☐ is the numerator and ☐ is the denominator

d. In 8/9 ☐ is the numerator and ☐ is the denominator

e. In 3/5 ☐ is the numerator and ☐ is the denominator

f. In 2/6 ☐ is the numerator and ☐ is the denominator

2. Write the fractional numbers, whose Numerator and Denominators are:

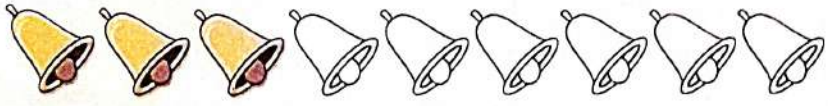
a. N = 4; D = 6 ☐

b. N = 7; D = 5 ☐

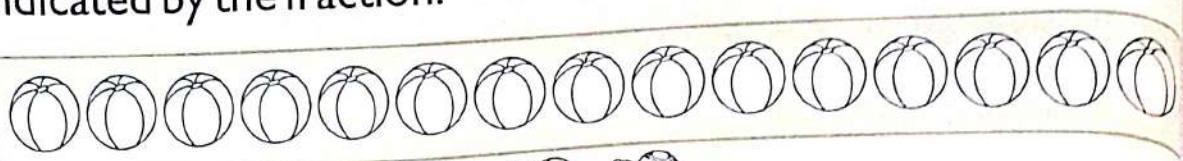
c. N = 6, D = 8 ☐

d. N = 8; D = 9 ☐

3. Write the fractions for the whole as indicated.

	Shaded	Unshaded
a. 	☐	☐
b. 	☐	☐
c. 	☐	☐

4. Colour as indicated by the fraction.

a. $\frac{2}{5}$	
b. $\frac{3}{7}$	
c. $\frac{1}{6}$	

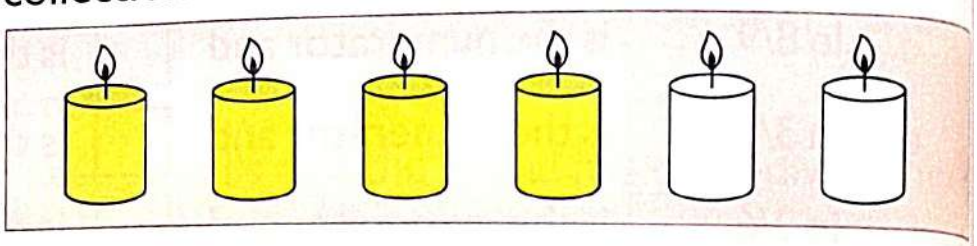
5. Calculate the value and colour the objects.

a. Two-thirds of the collection

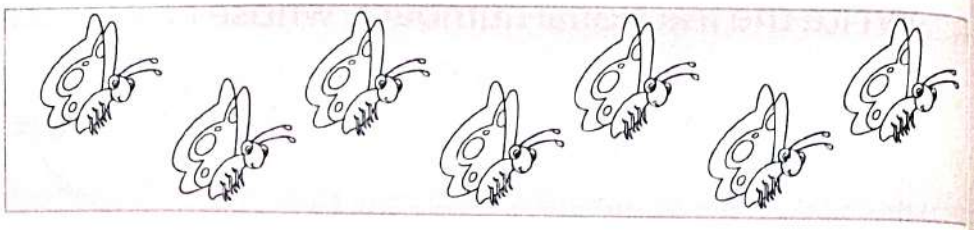
$\frac{2}{3}$ of $6 = \frac{2}{3} \times 6$

$= 12 \div 3$

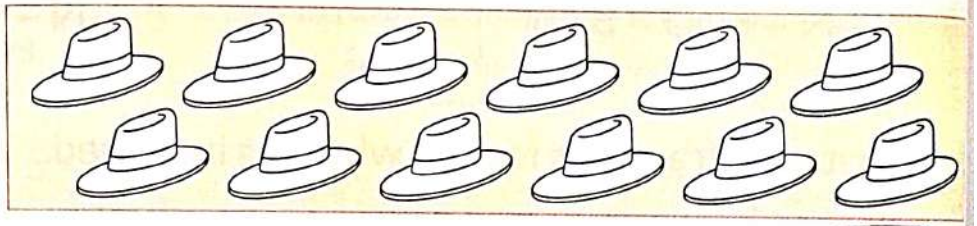
$= 4$



b. Two-sevenths of the collection



c. Three-fourths of the collection



6. Using the price list, calculate

a. How much does $\frac{1}{2}$ kg of tomatoes cost?

b. Which costs more – $\frac{1}{2}$ kg of onions or $\frac{1}{4}$ kg of carrots?

c. What is the price of $\frac{3}{4}$ kg of potatoes?

d. Keerthi is going for shopping. She has only ₹ 20 with her. Can she buy all the things in her shopping list?

Item	Price in Rs (per kg)
Tomato	8
Potato	12
Onion	10
Carrot	16
Pumpkin	4

1. Using a metre scale, cut a string of one metre.

   a. On this string, mark the length $\frac{1}{2}$ metre, $\frac{1}{4}$ metre and $\frac{3}{4}$ metre.

   b. Using your string, draw a line of length $\frac{1}{2}$ metre on the floor. How many centimetres long is the line? .....

   So, $\frac{1}{2}$ metre = ... cm

   $\frac{1}{4}$ metre = ... cm

   $\frac{3}{4}$ metre = ... cm

Keep in Mind

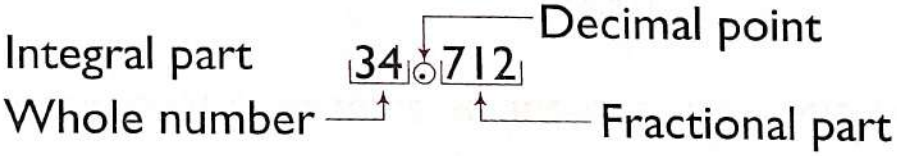
1 metre = 100 cm

REPRESENTATION OF A DECIMAL

Engagement

- A fraction represents a part of a whole. A fraction has a numerator and a denominator.
- A decimal fraction is a fraction whose denominator is in the system of tens. A decimal fraction is also termed as a decimal or a decimal number.
- A decimal number has an integral part (whole number) and a fractional part (decimal part) separated by a decimal separator, denoted by a decimal point or a dot.
- The whole number is always to the left of decimal point and the fractional part is always to the right of the decimal point.

For example, 25.42, 8.97 and 4.5 are all decimal numbers.



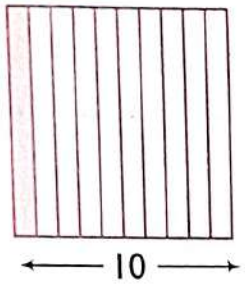
In a decimal number, place value of each digit decreases ten times, as we move from left to right by one place. After the decimal point, the numbers are at the tenths, hundredths and thousandths places as shown in the table.

Keep in Mind

Money is expressed in terms of decimals and not as fractions.

Whole Number					Fractional Part			
Ten Thousands	Thousands	Hundreds	Tens	Ones	Decimal point	Tenths	Hundredths	Thousandths
10000	1000	100	10	1	.	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$

Tenths

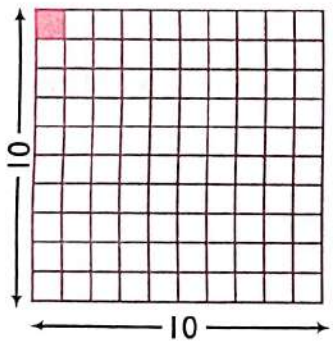


The given square has been divided into 10 equal parts. The shaded part represents one-tenth of the square. So we represent it as,

One-tenth $= \frac{1}{10} = 0.1$

It is read as zero point one or point one.

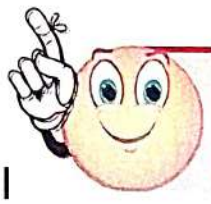
Hundredths



The given square has been divided into 100 equal parts. The shaded part represents one-hundredth of the square. So we represent it as,

One-hundredth $= \frac{1}{100} = 0.01$

It is read as zero point zero one or point zero one.



Keep in Mind

- *1 tenth = 10 hundredths*
- *1 hundredth = 10 thousandths*

Thousandths

Similarly, one-thousandth $= \frac{1}{1000} = 0.001$

It is read as zero point zero zero one or point zero zero one.

Example 6 : Represent these as decimals.

(a) Point zero six (b) Point nine (c) Point zero zero two

(d) 16 hundredths (e) 7 tenths (f) Five and eight tenths

(g) Two and forty-four hundredths

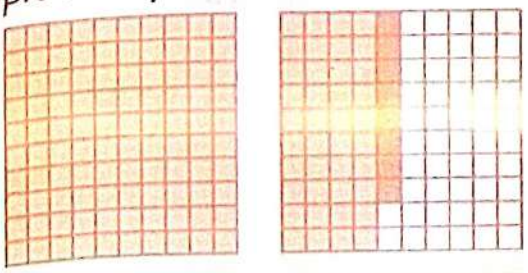
Solution. Represent as follows.

(a) Point zero six – 0.06

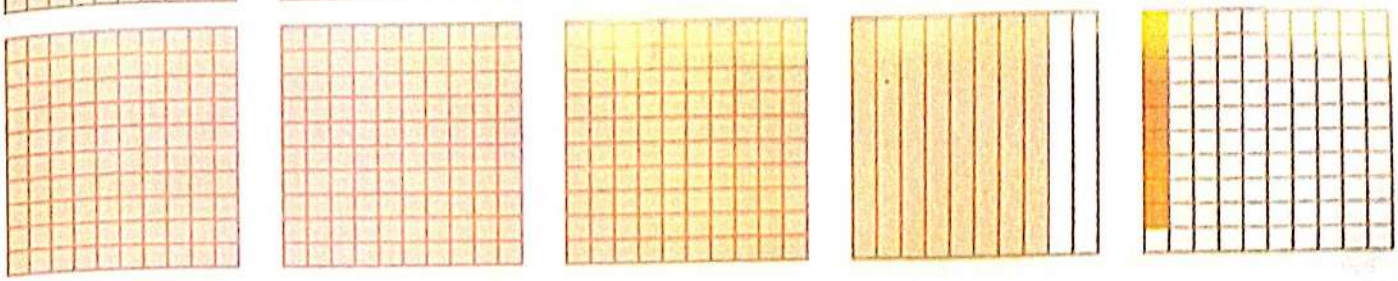
(b) Point nine – 0.9
(c) Point zero zero two – 0.002
(d) 16 hundredths – 0.16
(e) 7 tenths – 0.7
(f) Five and eight tenths – 5.8
(g) Two and forty-four hundredths – 2.44

Example 7. Express as decimal numbers.

(a)



(b)



Solution. On counting the coloured squares and grids,

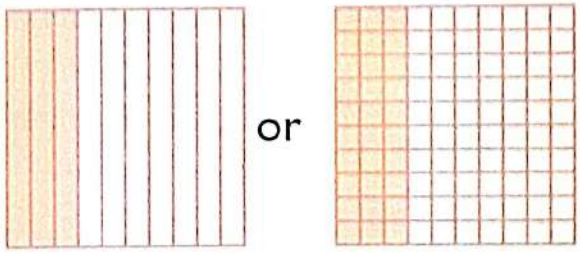
(a) 1.48
(b) 3.89

Example 8. Represent the decimals on the grid.

(a) 0.3
(b) 0.67
(c) 1.24

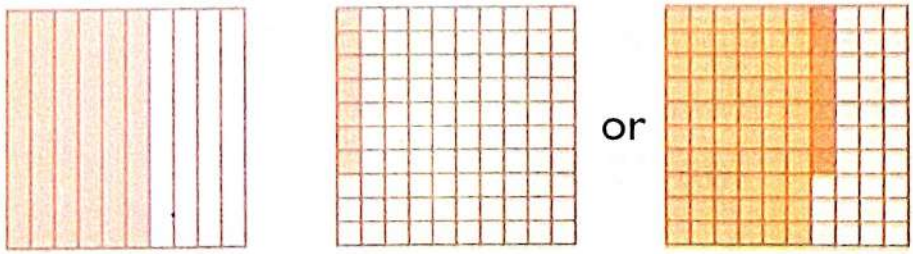
Solution.

(a) 0.3 =



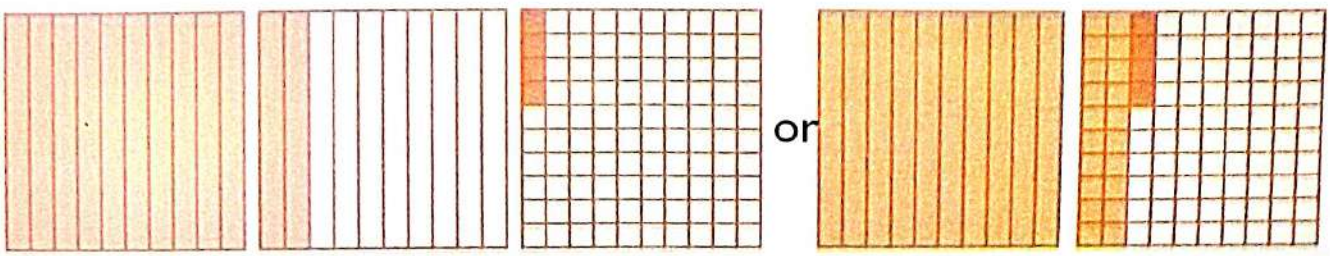
or

(b) 0.67 =



or

(c) 1.24 =



or

Similarly, we can find decimal numbers by reading on the square grid.

PLACE VALUE SYSTEM OF DECIMALS

In case of whole numbers, the place value of numbers decreases on movi from left to right. In case of fractional part of a number also, the place valu decreases 10 times as we move towards the right.

Example 9. Represent 45.13 in the place value chart and write it in th expanded form.

Solution. On the place value chart,

Tens	Ones	Decimal point	Tenths	Hundredths
4	5	.	1	3

The last digit after the decimal is in the hundredths place therefore, $\frac{13}{100}$.

In the expanded form,

$$45.13 = 4 \times 10 + 5 \times 1 + 1 \times \frac{1}{10} + 3 \times \frac{1}{100}$$

$$= 40 + 5 + \frac{1}{10} + \frac{3}{100}$$

45.13 can also be written as,

$$45.13 = 45 + 0.13$$

$$= 40 + 5 + \frac{1}{10} + \frac{3}{100}$$

$$0.13 = 0.1 + 0.03$$

$$= 40 + 5 + \frac{13}{100}$$

Keep in Mind

- The digits after the decimal poi are read separately and not as number.
- Count the position of the digit aft the decimal and put that man zeroes after 1 in the denominator.

The number 45.13 is read as forty-five point one three.

Example 10. Expand the following.

(a) 18.213 (b) 12.02

Solution. Calculate as follows.

(a) $18.213 = 10 + 8 + 0.213$

$$= 10 + 8 + \frac{2}{10} + \frac{1}{100} + \frac{3}{1000}$$

$$= 10 + 8 + \frac{213}{1000}$$

(b) $12.02 = 10 + 2 + 0.02$

$= 10 + 2 + \frac{0}{10} + \frac{2}{100}$

$= 10 + 2 + \frac{2}{100}$

There is no digit in the tenths place after the decimal. Hence, it is filled with zero.

CONVERTING DECIMALS INTO FRACTIONS

To convert a decimal into a fraction, follow these steps.

Step 1. Write the given number without the decimal point in the numerator.

Step 2. Count the number of digits after the decimal point in the number and put that many zeroes after 1 in the denominator.

Step 3. If required, reduce the fraction to the lowest terms.

Example 11 : Convert the decimals into fractions.

(a) 5.25 (b) 14.821 (c) 0.0134

Solution. Calculate as follows :

(a) $5.25 = \frac{525}{100} = \frac{525 \div 25}{100 \div 25} = \frac{21}{4} = 5\frac{1}{4}$

Convert improper fractions into mixed fractions.

(b) $14.821 = \frac{14821}{1000}$

(c) $0.0134 = \frac{134}{10000} = \frac{134 \div 2}{1000 \div 2} = \frac{67}{5000}$

CONVERTING FRACTIONS INTO DECIMALS

To convert a fraction into a decimal, follow these steps.

Step 1. Count the number of zeroes after 1 in the denominator.

Step 2. Count an equal number of digits from the right in the numerator and put the decimal point after that many digits.

Example 12. Convert $\frac{784}{100}$ into a decimal.

Solution. In the given number, there are two zeroes in the denominator. Count two digits from the right in the number given in the numerator and put the decimal point after that.

Keep in Mind

If the number of digits in the numerator is less than the number of zeroes in the denominator, then put as many zeroes as required to the left of the last digit in the number and put the decimal point.

7 : 8 4

Decimal point

First digit from the right

Second digit from the right

Therefore, $\frac{784}{100} = 7.84$

Example 13. Convert $\frac{12}{1000}$ into a decimal.

Solution. In the given number, there are three zeroes in the denominator a only two digits in the numerator.

Therefore, put one zero to the left of the last digit (in this case 1) in t numerator and put the decimal point.

Hence, $\frac{12}{1000} = 0.012$

Since there is no digit in ones place of the whole number part, we write zero in its place.

Progress CHECK-UP-3

Pleasure TIME

Maste

1. Express the decimals in words. One has been done for you.

a. 1.19 — One and nineteen hundredths

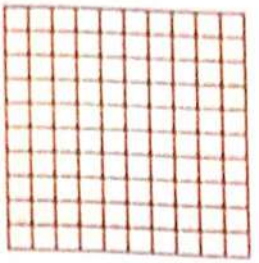
b. 4.6 — _____

c. 151.026 — _____

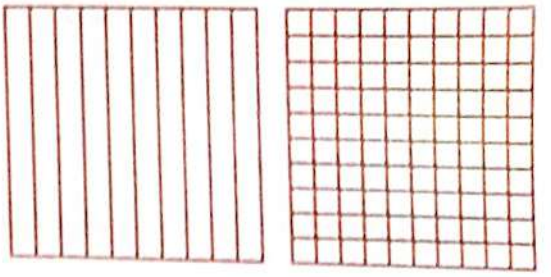
d. 2.935 — _____

2. **Represent the decimals on the grid.**

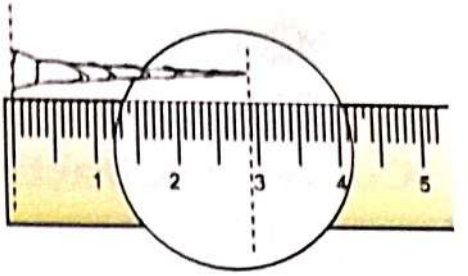
(a) 0.57 =



(b) 0.99 =



3. Length of the nail — 2 cm and ..... mm or 2. ..... cm .



4. **Fill in the blanks.**

a. 0.651 = ... ones, ... tenths, ... hundredths, ... thousandths

b. 23.74 = ... tens, ... ones, ... tenths, ... hundredths

c. 468.903 = ... hundreds, ... tens, ... ones, ... tenths, ... hundredths, ... thousandths

d. 3 metre 45 centimetre = ... metres

e. 99 centimetre = ... metres

f. 1 metre and 5 centimetre = ... metres

5. **Complete the table.**

Number	Number name	Expanded form
a. 26.738		
b.	Four hundred sixty-two point two zero nine	
c.		$60 + 5 + \frac{6}{100} + \frac{3}{1000}$
d.	Thirty-one point six six	

6. **Represent these as a decimal.**

a. $60 + \frac{2}{10} + \frac{3}{100}$

b. $0 + \frac{1}{10} + \frac{9}{100}$

c. $500 + 20 + 0 + \frac{2}{100}$

d. $10 + 9 + \frac{3}{10} + \frac{0}{100} + \frac{7}{1000}$

e. 4 hundreds + 2 tens + 7 tenths + 2 hundredths

f. 3 thousands + 2 ones + 7 hundredths + 5 thousandths

7. Convert the decimals into fractions. Give the answer in the lowest terms.

a. 74.39 b. 512.651 c. 9.99

d. 108.1 e. 70.003 f. 10.08

8. Convert the fractions into decimals.

a. $11\frac{19}{100}$ b. $7\frac{3}{10}$ c. $150\frac{456}{1000}$ d. $13\frac{47}{100}$

e. $\frac{61}{100}$ f. $\frac{923}{1000}$ g. $4\frac{9}{100}$ h. $85\frac{7}{10}$

LIKE AND UNLIKE DECIMALS

Engagement

Decimals with the same number of digits after the decimal point are called like decimals.

For example, 4.7, 15.2, 31.1 and 140.5 have one digit after the decimal point so they are like decimals.

Decimals with different number of digits after the decimal point are called unlike decimals.

For example, 4.71, 15.2 and 31.143 are unlike decimals.

Equivalent decimals

Decimals whose values are equal are called equivalent decimals.

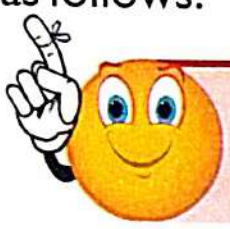
For example, 0.6, 0.60, 0.600 and 0.6000 are equivalent decimals.

The above example tells us that, any number of zeroes after the last digit in the decimal part does not change the value of the decimal number.

Conversion of unlike decimals to like decimals

We can convert unlike decimals to like decimals as follows.

Step 1. In the given set, identify the number with the maximum number of digits after the decimal point.



Keep in Mind

$0.5 \neq 0.05$

But, $0.5 = 0.50$

Step 2. Add zeroes to the extreme right of every decimal number in the set to have the same number of digits after the decimal point.

Example 14 : Convert the given set of decimals into like decimals.

1.41, 10.7, 11.01, 12.235

Solution : After the decimal point, there are a maximum of three digits in the given set.

Therefore, we rewrite the numbers as 1.410, 10.700, 11.010, 12.235.

Now, the given set represents like decimals.

COMPARING AND ORDERING DECIMALS

Comparing decimals

Decimal numbers can be compared just like whole numbers.

We can compare decimal numbers using these steps.

Step 1. Convert the decimal numbers into like decimals.

Step 2. Compare the whole number. The number with the bigger whole number part is greater.

Step 3. In case the whole number parts are equal, compare the fractional parts of the numbers. The number with the greater value in the tenths place is greater.

Step 4. Compare the hundredths and thousandths places, if required.

Example 15 : Compare the decimals.

(a) 20.657 ◯ 12.45

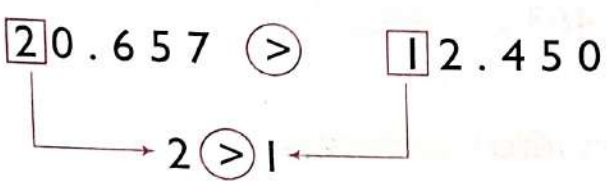
(b) 4.823 ◯ 4.710

(c) 0.552 ◯ 0.559

(d) 6.61 ◯ 6.614

Solution : Compare as follows.

(a) Convert 20.657 and 12.45 into like decimals. Thus, numbers will be 20.657 and 12.450.



12.45 = 12.450

(b) The numbers represent like decimals. So,

$4.823 > 4.710$

$8 > 7$

(c) The numbers are like decimals. So,

$0.5552 < 0.5559$

$2 < 9$

(d) Convert the decimals into like decimals. So,

$6.610 < 6.614$

$0 < 4$

$6.61 = 6.610$

Ordering Decimals

Example 16. Arrange the decimals in ascending order.

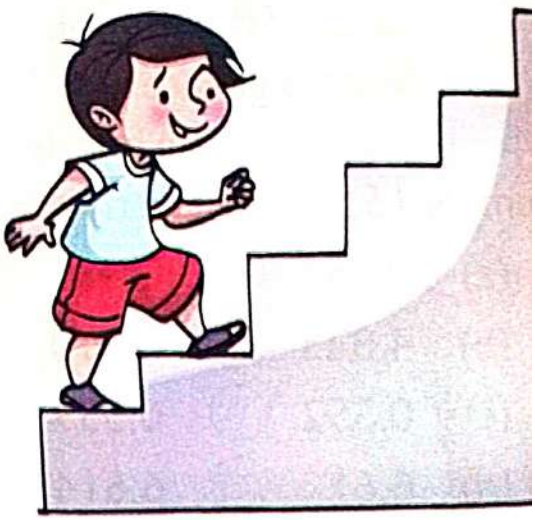
2.2772, 2.772, 2.72, 2.7772, 2.272

Solution : Follow these steps :

Step 1. Convert all decimal numbers into like decimals.

In this case, two numbers have digits up to four places of decimal.

So, 2.2772, 2.7720, 2.7200, 2.7772, 2.2720



Step 2. Now, compare the numbers up to the ten thousandths place and then arrange the numbers in ascending order.

$2.2720 < 2.2772 < 2.7200 < 2.7720 < 2.7772$

Example 17. Arrange the decimals in descending order.

4.623, 64.23, 463.2, 3.462, 23.46

Solution : Follow these steps :

Step 1. Convert all decimal numbers into like decimals.

In this case, two numbers have digits up to three places of decimal.

So, 4.623, 64.230, 463.200, 3.462, 23.460

Step 2. Now, compare the numbers up to the thousandths place and then arrange the numbers in descending order.

So, 463.200 > 64.230 > 23.460 > 4.623 > 3.462

Progress CHECK-UP-4

Pleasure TIME

Mastery

1. **Sort out like and unlike decimals.**

   28.032, 3.46, 10.15, 3.1356, 49.4, 713.13, 9100.69, 36.93, 18.01056

2. **Convert the unlike decimals into like decimals.**

   a. 53.21, 60.072, 111.03 b. 10.007, 19.51, 9.34

   c. 161.222, 310.201, 18.6

3. **Compare the decimals using >, < or = .**

   a. 2.132 ◯ 0.412 b. 0.75 ◯ 0.952 c. 21.68 ◯ 21.62

   d. 4.001 ◯ 4.0010 e. 390.82 ◯ 339.82 f. 41.605 ◯ 41.650

   g. 33.333 ◯ 33.330 h. 6.932 ◯ 6.738 i. 99.362 ◯ 99.370

4. **Arrange in ascending order.**

   a. 23.46, 43.92, 23.06, 38.97, 46.528 b. 9.812, 9.64, 8.002, 9.644, 8.702

   c. 410.08, 4100.8, 4.1008, 41.008

5. **Arrange in descending order.**

   a. 0.6, 0.06, 6.06, 6.006, 0.006 b. 7.21, 7.201, 7.021, 7.002, 7.220

   c. 0.314, 0.431, 0.341, 0.134, 0.143

7

Basic Geometr

Learning Outcomes

- Geometrical Concepts
- Measuring and Drawing Line Segment
- Angl
- Interior and Exterior of an Angle
- Polygons
- Circle

GEOMETRICAL CONCEPTS

Point : A point has no shape or size. It is just a dot made on paper. It is t smallest geometrical shape. It has no length or breadth. We denote a point a capital letter say A, B, C, etc. All geometrical figures are made of points.

A B C D are some examples of points.

Line Segment : Make any two points let C and D on a sheet of a paper. Join them with the help of a ruler. What you get is a line segment CD. It can also be written as $\overline{CD}$ or $\overline{DC}$.

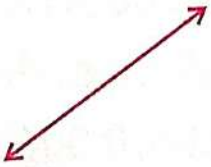
Line segment has a definite length. We can measure the length of a li segment.

Line : If line segment CD is extended endlessly in both the directions, we get line CD. Line CD can also be written as $\overleftrightarrow{CD}$ or $\overleftrightarrow{DC}$.

A line can be of many types :

Vertical

Horizontal



Slanting

Curved

Keep in Mind

- There are countless number of points on a given line.
- We can draw unlimited number of lines through a given point.

A line cannot be measured as it has no end points. It extends indefinitely on both sides.

Ray : If line segment CD is extended in one direction only, we get ray CD. It can be written as $\overrightarrow{CD}$, where C is its end point.

A ray cannot be measured as it can be extended to any length in one direction.

Try This

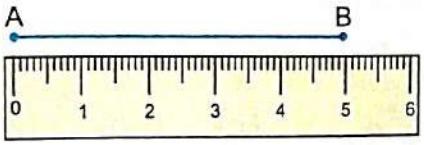
A ray $\overrightarrow{AB}$ is not the same as ray $\overrightarrow{BA}$. Why?

MEASURING AND DRAWING LINE SEGMENT

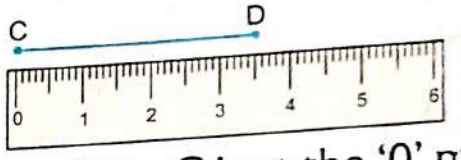
Measuring Line Segment

To measure a line segment, keep the '0' mark of the scale at one end of the line segment and read the other end point of the line segment on the scale.

(1)



(2)

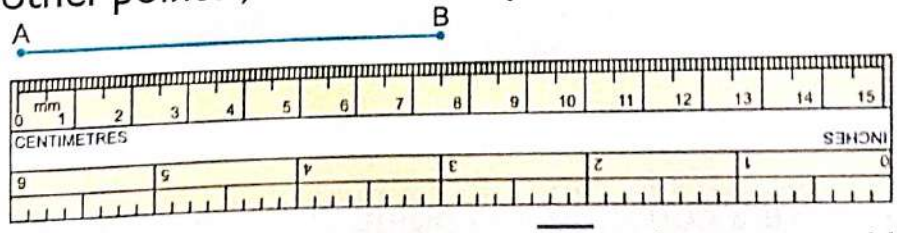


The line segment AB is 5 cm long. In the line segment CD, C is at the '0' mark and point D is halfway between 3 and 4. So, it is 3.5 and the line segment CD is 3.5 cm long.

Drawing Line Segment

To draw a line segment of length 7.5 cm (let)

1. Mark a point A on paper and place the ruler straight on the paper such that it indicates the '0' mark on the ruler.
2. Mark another point B, let 7.5 cm away from point A along the ruler.

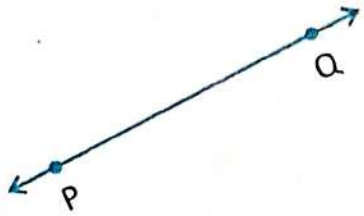


3. Draw a line joining the points A and B. $\overline{AB}$ is the required line segment of length 7.5 cm.

Progress CHECK-UP-1

Pleasure TIME

1. Identify and name the following as ray/line/line segment.

(a) 

(b) 

(c) 

2. Fill in the blanks :

(a) A line can be extended on ..... sides.

(b) A line segment has ..... end points.

(c) A ray has ..... end point.

(d) The initial point of a ray $\overrightarrow{CD}$ is ..... .

3. Measure the length of the following line segments.

(a) 

(b) 

(c) 

$\overline{XY}$ = ... $\overline{PQ}$ = ... $\overline{AB}$ = ...

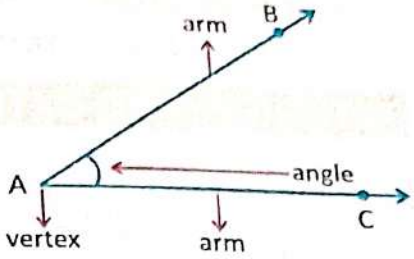
4. Draw line segments of the given lengths.

(a) 8 cm
(b) 7 cm
(c) 4.5 cm
(d) 6 cm

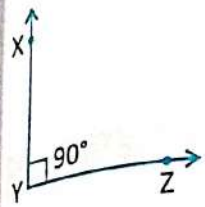
ANGLES

When two rays have a common end point, an angle is formed. The con
end point is called the vertex and the both rays are called the arms of the a

To name an angle, the vertex is written in the middle and the points of the both arms are written on its either side. The symbol for an angle is $\angle$. In the given figure, the angle shown is written as $\angle BAC$ or $\angle CAB$ and is read as angle BAC or angle CAB respectively. $\overrightarrow{AB}$ and $\overrightarrow{AC}$ are the both arms or the angle.

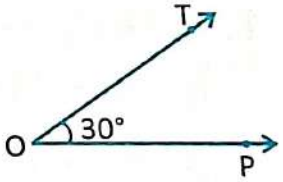


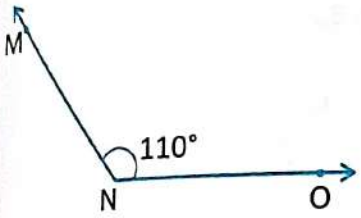
Angles are of the following types :



Right angle : An angle whose measure is 90° is called a **right angle**. $\angle XYZ = 90°$ is a right angle.

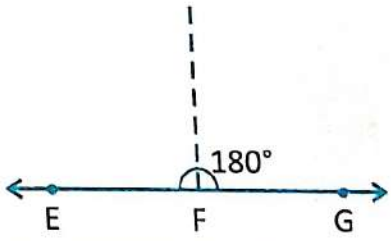
Acute angle : An angle whose measure is greater than 0° but less than 90° is called **acute angle**. $\angle TOP = 30°$ is an acute angle.



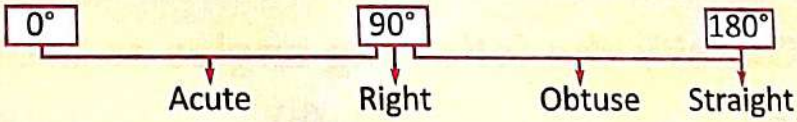


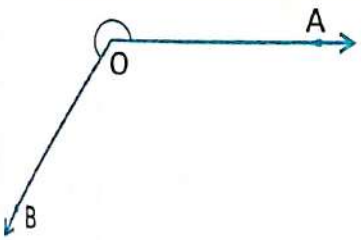
Obtuse angle : An angle whose measure is greater than 90° but less than 180° is called a **obtuse angle**. $\angle MNO = 110°$ is an obtuse angle.

Straight angle : An angle whose measure is 180° is called a **straight angle**. Since $\angle EFG = 180°$, therefore it is a straight angle.



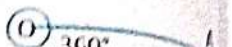
Note : Always remember :





Reflex angle : An angle whose measure is between 180° and 360° is called **reflex angle**.

Complete angle : An angle of measure 360° is called **complete angle.**

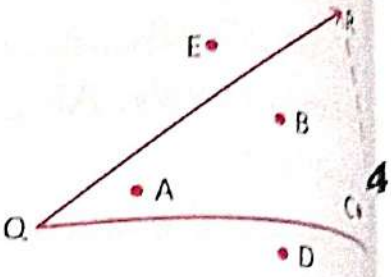


INTERIOR AND EXTERIOR OF AN ANGLE

Look at the figure :

The points A, B and C are lying in the interior of the angle ∠PQR.

Points D and E are lying in the exterior of the angle ∠PQR.



Progress CHECK-UP-2

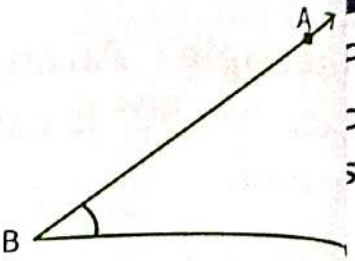
Pleasure TIME

1. In the given figure.

(a) name the angle

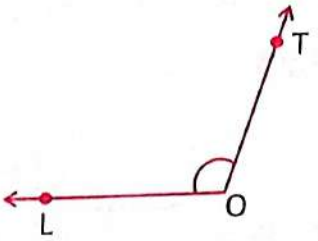
(b) name the arms of the angle

(c) name the vertex.

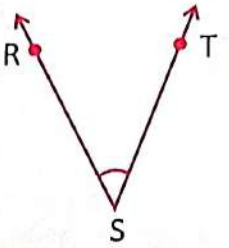


2. Name each of the following angles in two ways.

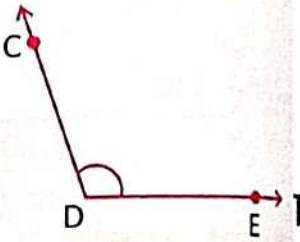
(a)



(b)



(c)

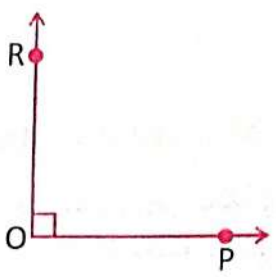


....

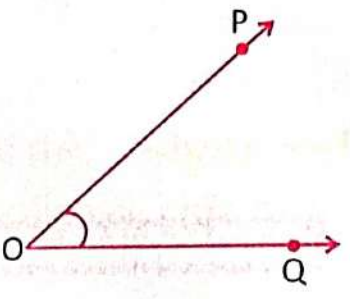
....

3. Classify the following angles as acute, obtuse, right or straigh

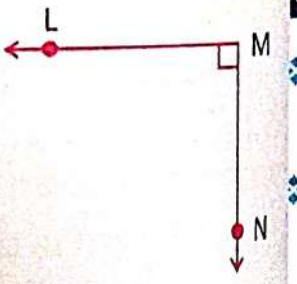
(a)



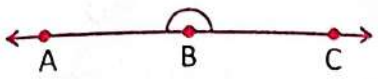
(b)



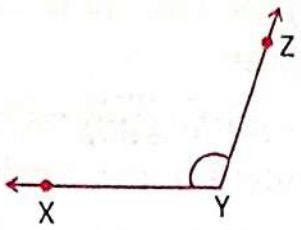
(c)



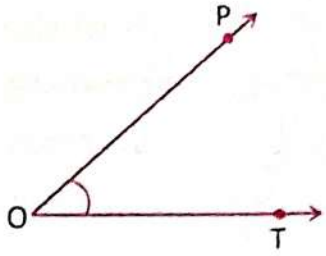
(d)



(e)



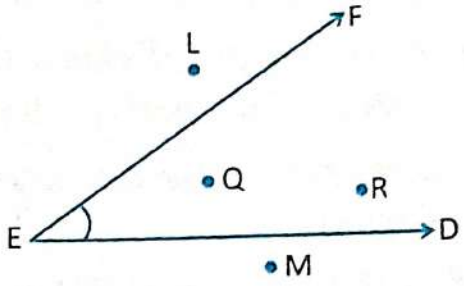
(f)



4. From the given figure, write the name of points which are :

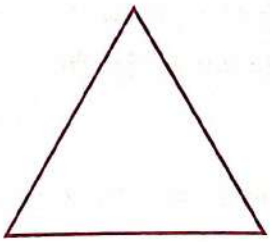
(a) In the exterior of ∠DEF

(b) In the interior of ∠FED

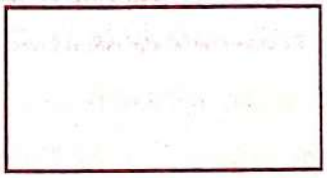


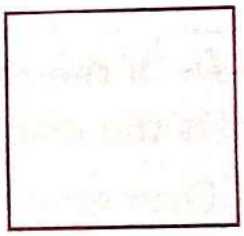
POLYGONS

Polygons are closed shapes that have more than two sides. A **triangle** is a polygon with 3 sides. A quadrilateral is a polygon with 4 sides. Rectangles and squares are special types of quadrilaterals.



Triangle





Quadrilateral : Rectangle, Square

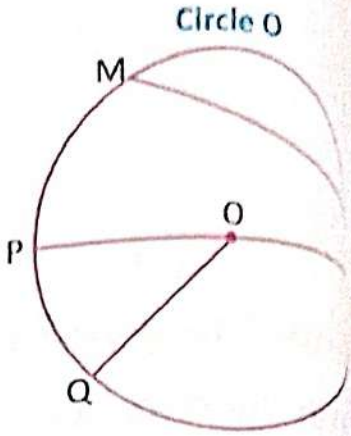
The line segments which make up of polygon are known as its **sides** and the point at which two line segments meet is called the **vertex**.

Keep in Mind

A triangle is a polygon with least number of sides.

CIRCLE

- A circle is a closed figure made up of only one curved line. It is drawn around a fixed point. The fixed point O is called the **centre** of the circle.
- All the points on the curved surface are at the same distance from the centre. This distance (OQ, OP, OR) is called the **radius** of the circle.



- The length of the boundary of a circle is called its **circumference** or perimeter.
- Any line (let MN) formed by joining any two points on the circle is called the **chord** of the circle.
- If any chord passes through the centre of circle, then it is called the **diametre** of the circle.
- A diameter divides the circle into two equal halves. Each half is called a **semi-circle**.

The length of the diameter is twice the radius.

PR is the diameter. PO and OR are the two radii of the circle.

Diameter = radius + radius

Or Diameter = 2 × radius

$\Rightarrow$ PR = PO + OR

Keep in Mind

- *A circle can have many cho Chords can be of varying length*
- *Diameter touches the points P, R on the circumference.*
- *The diameter is the longest chor a circle.*
- *A circle can have unlimited num of diameters and radii.*

Example 1 : If the radius of the circle is 8 cm, what is the diameter of that circle?

Solution : Diameter = 2 × Radius
= 2 × 8 = 16 cm

Example 2 : If the diameter of a circle is 10 cm, what is its radius?

Solution : $\text{Radius} = \frac{\text{Diameter}}{2} = \frac{10}{2} = 5$ cm

Drawing a Circle

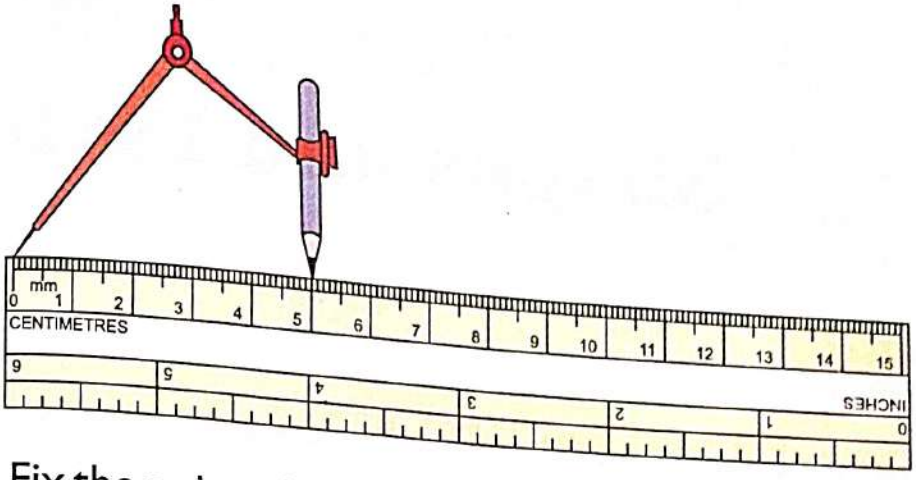
To draw a circle of a given radius, you need a pencil, a compass and a ruler.

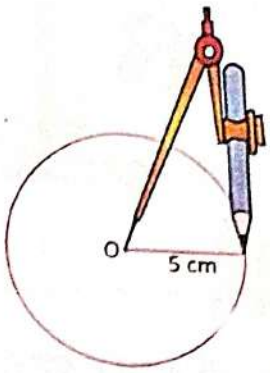
Example 3 : Draw a circle of radius 5 cm with the help of compass.

Solution :

Step 1 : Attach a sharpened pencil to your compass.

Step 2 : Stretch of compass on a ruler so that the end points of arms are 5 apart.





Step 3 : Fix the pointed tip of your compass in your notebook.

Step 4 : Rotate the pencil arm to draw a smooth circle.

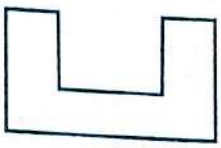
Progress CHECK-UP-3

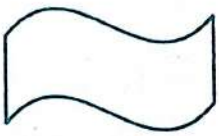
Pleasure TIME

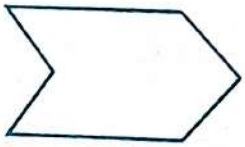
Mastery

1. Which of the following are polygons? Colour them.

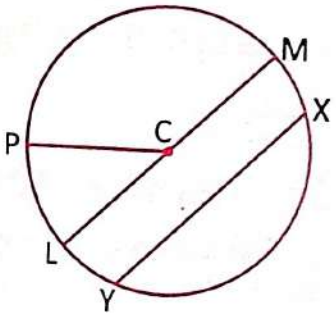
(a) 

(b) 

(c) 

(d) 

2. Name the following parts of the given circle.



(a) radii .....

(b) chords .....

(c) diameter .....

(d) centre .....

3. Find the diameter of a circle whose radius is :

(a) 7cm (b) 50 cm (c) 44 cm (d) 35 cm

4. Find the radius of a circle whose diameter is :

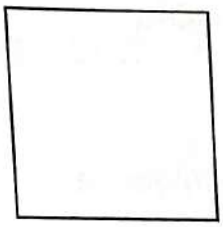
(a) 12 cm (b) 24 cm (c) 30 cm (d) 44 cm

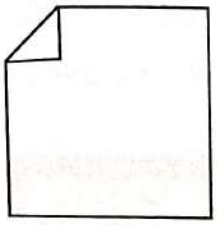
8 Shapes and Pattern

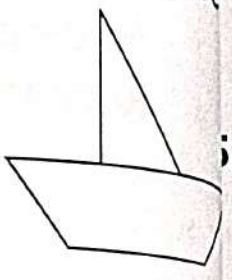
Travel Through

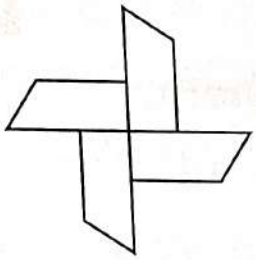
Readi

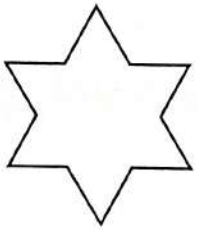
1. Write the number of sides and number of corners of the figure

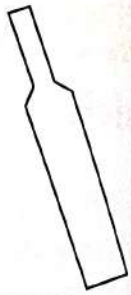
a. 

b. 

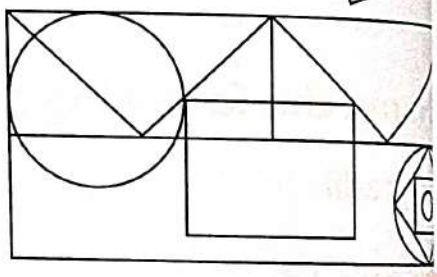
c. 

d. 

e. 

f. 

2. Count the number of triangles, rectangles, squares and circles in the adjoining figure.



3. Identify the geometrical shape the objects most clos resembles to.

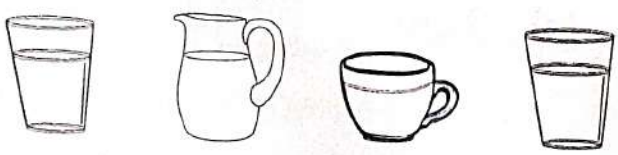
a. Wheel of a cycle

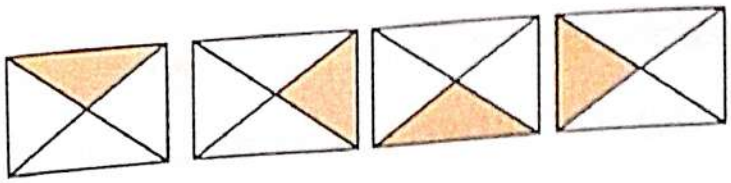
b. Your school diary

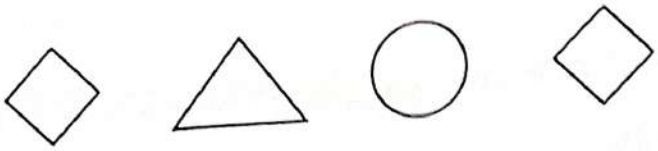
c. A dice

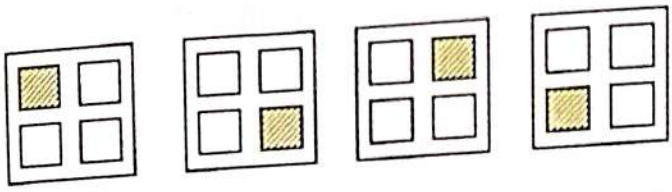
d. A pizza slice

4. Complete the patterns.

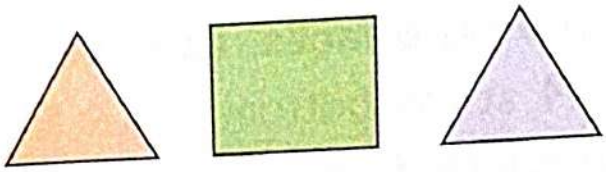
a. 

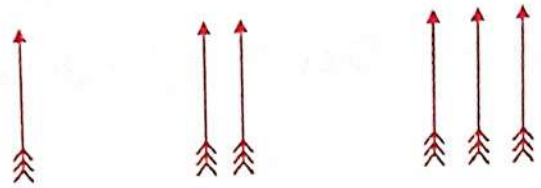
b. 

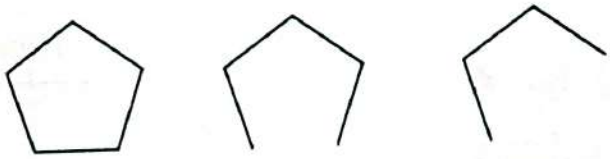
c. 

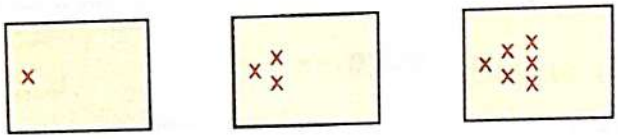
d. 

Observe and draw the pattern.

a. 

b. 

c. 

d. 

Learning Outcomes

- Solid Shapes : Cubes and Cuboids
- Views of a Brick
- Concept of Symmetry
- Patterns in Pictures
- Patterns in Numbers

SOLID SHAPES : CUBE AND CUBOID

Engagement

Using plane figures we can build objects. These objects are called solid shapes.

Solid shapes are three-dimensional figures that can be viewed from all sides. They have length, breadth and height.

Solid shapes have faces, edges and corners.

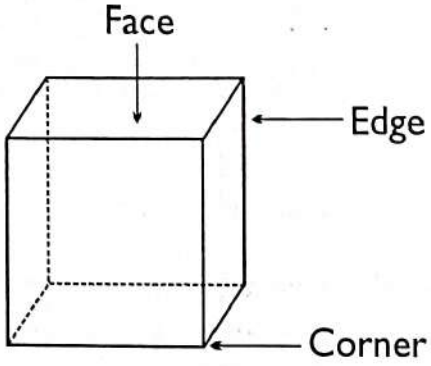
The face of an object is the surface of the object. It is a plane figure.

The edge of an object is the line along which two faces meet. An edge can straight or curved.

The corner of an object is the point where two edges meet. It is also called vertex. Let us study some solid shapes.

Cube

It is formed using six squares. Hence, it has 6 faces.



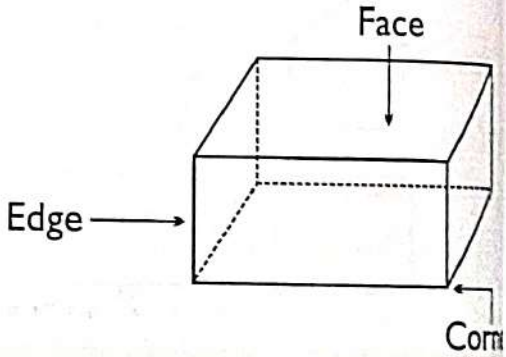
A cube has **6 faces, 12 edges**– 4 at top, 4 at the bottom and 4 around object. It has **8 corners** or **vertices**.

Examples : Dice, Rubik's cube, etc.

Cuboid

A cuboid is a solid object formed by 6 rectangular shapes. It has **6 faces, 12 edges** and **8 corners** or **vertices**.

Examples : Pencil box, duster, brick, etc.



Keep in Mind

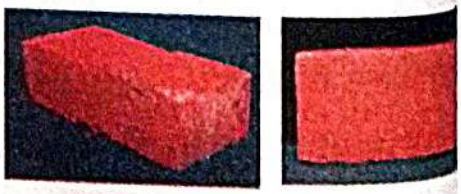
- *In a cube, all the edges are equal in length, but in a cuboid edges are not equal length.*
- *All cubes are cuboids. However, all cuboids are not cubes.*

VIEWS OF A BRICK

How to Draw a Brick?

These are two photos of the same brick.

In one photo we can see only one **face** of the brick. In the other we can see three faces.



f. The number of faces in a brick is equal to ..... .

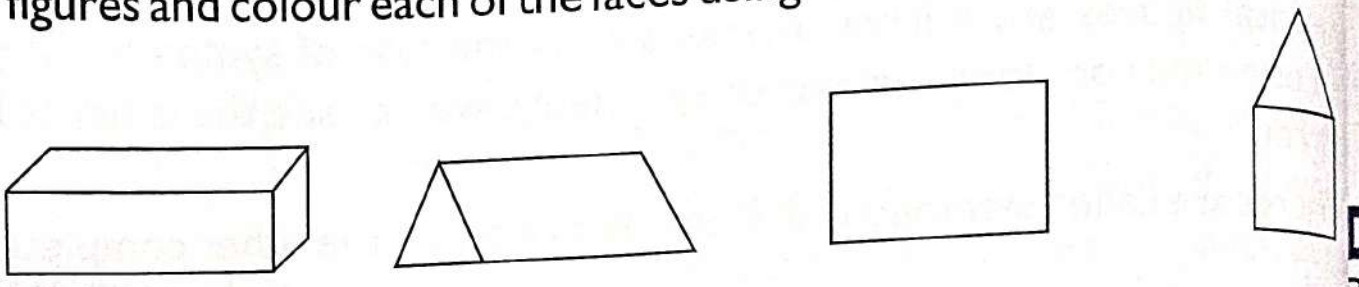
g. A dice has ..... faces.

h. A brick is a ..... dimensional object.

i. A triangle has ..... sides.

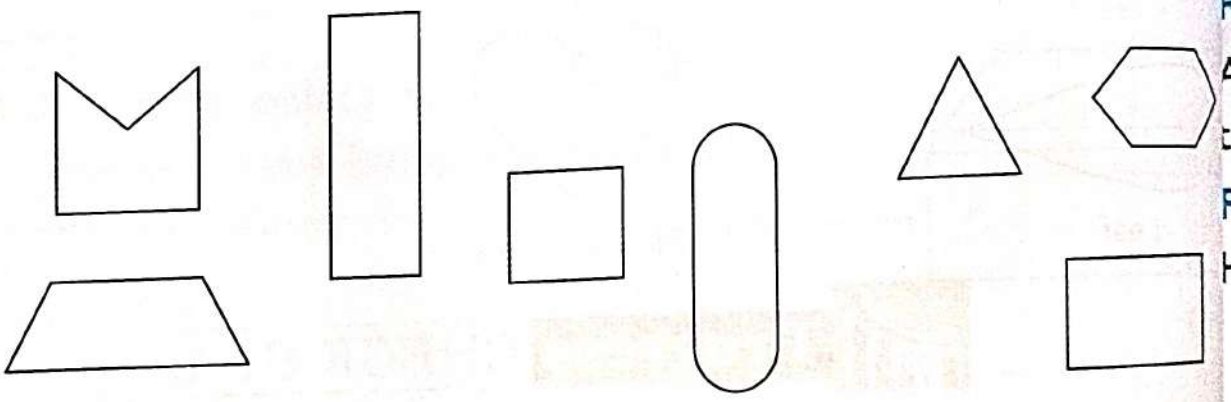
j. A triangle has ..... corners.

2. Count and write the number of faces you can see in each of the follow figures and colour each of the faces using different colours.

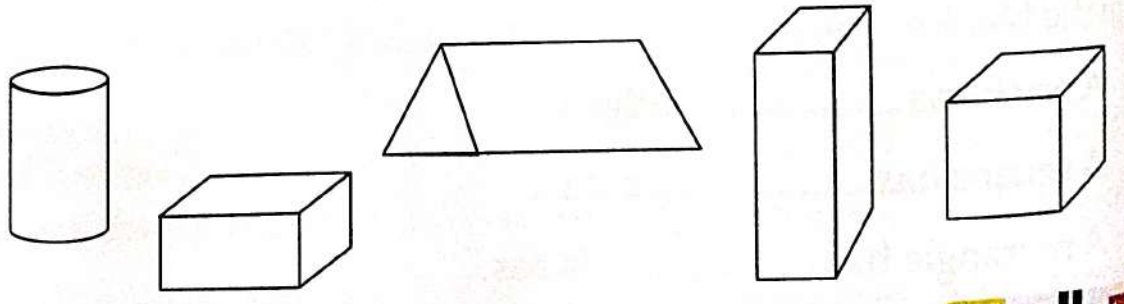


a. ..... b. ..... c. ..... d. .....

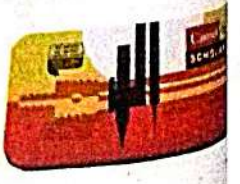
3. Which of these are the faces of a brick? Mark a tick (✓).



4. Which of these is a drawing of a brick? Mark a tick (✓).



5. Make a drawing of this box to show 3 of its faces.



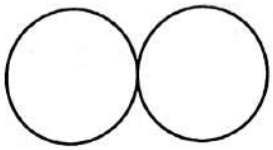
6. Draw all possible line of symmetry of the letters :

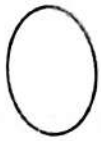
a. A b. B c. F d. L e. P

f. R g. U h. V i. Y j. Z

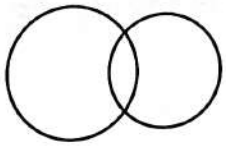
7. Draw lines of symmetry for the following figures :

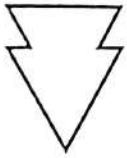
a. 

b. 

c. 

d. 

e. 

f. 

PATTERNS IN PICTURES

Pattern is an arrangement in a particular order. Patterns are found everywhere around us. We find patterns on sarees, carpets, bed sheets, floor, etc.

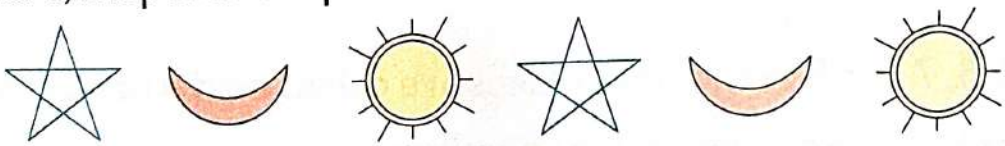
Very often patterns are formed based on **some rules**.

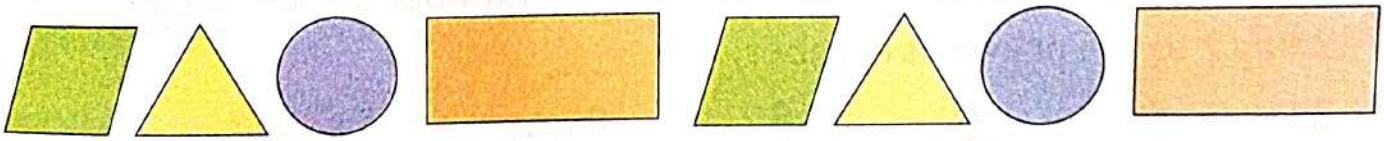
Rules of Patterns

A pattern can be a set of shapes, numbers or words that is repeated according to a rule. It can be of different types.

Repetition of Shapes

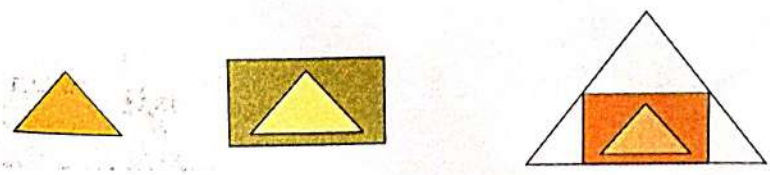
Here, shapes are repeated at fixed intervals.





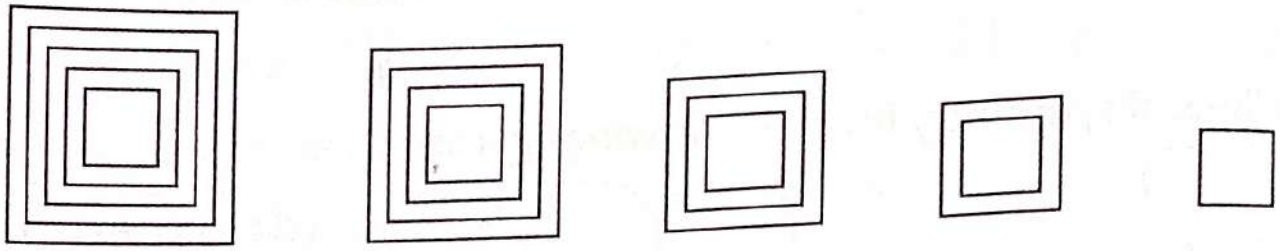
Increase in size or number

Here, the size and number of the pattern is increasing.



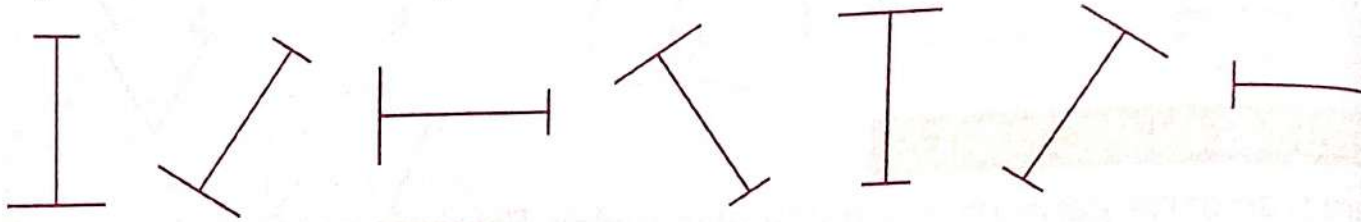
Decrease in size or number

Here, the size and number of the pattern is decreasing.



Change in direction

Here, the direction of the pattern is changing.



PATTERNS IN NUMBER

Patterns not only exist in nature and the world around us but also in numb

Example: 2, 3, 4, 5, 6 (Here, each subsequent number is increasing by 1)

10, 20, 30, 40, 50 (Here, each subsequent number is increasing by

Patterns in even and odd numbers

We already know about even and odd numbers.

- Numbers with 2, 4, 6, 8 and 0 at the ones places are called e **numbers**.
- Numbers with 1, 3, 5, 7 and 9 at the ones places are called **odd numbe**

Observe that each number in an even or odd number series can be obtai by adding 2 to the previous number.

2, 4, 6, 8, 10 .....

+2 +2 +2 +2

1, 3, 5, 7, 9 .....

+2 +2 +2 +2

Thus, a pattern is formed in the numbers.

However, patterns are not just restricted till here. Different patterns can be formed with even and odd numbers.

Example 1 : Complete the number patterns.

a. 4, 7, 10, _____, _____

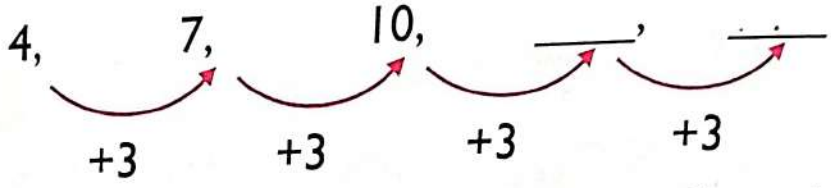
b. 60, 55, 50, _____, _____

Keep in Mind

Patterns also help us understand the concepts of addition and multiplication.

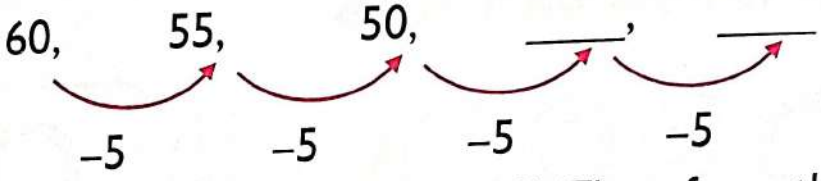
Solution:

a. In this case, the numbers are increasing.



Each subsequent number is increasing by 3. Therefore, the pattern is 4, 7, 10, 13, 16.

b. In this case, the numbers are decreasing.

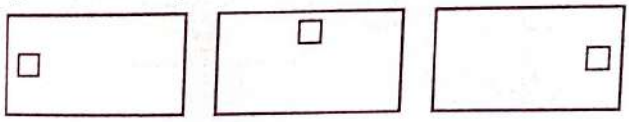


Each subsequent number is decreasing by 5. Therefore, the pattern is 60, 55, 50, 45, 40.

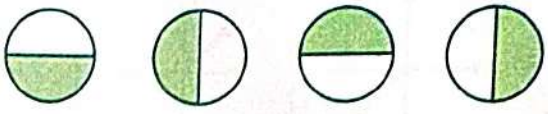
Progress CHECK-UP-2

Pleasure TIME **Mastery**

1. Complete the patterns.

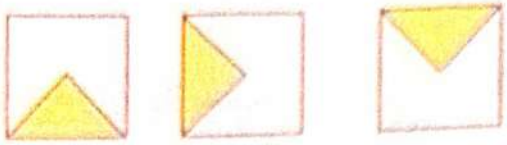
a. 

_____ _____ _____

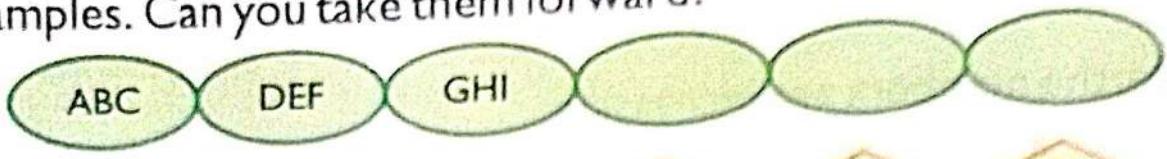
b. 

_____ _____ _____

c. 

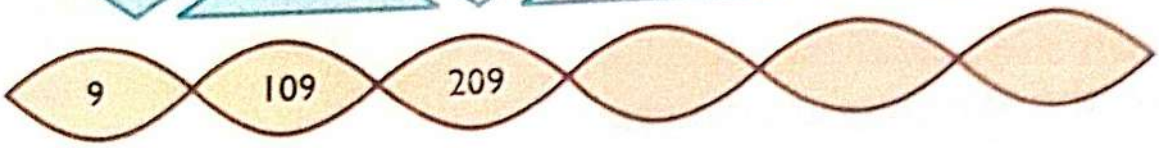
d. 

2. We can also make patterns with numbers and letters. Below are a few examples. Can you take them forward?

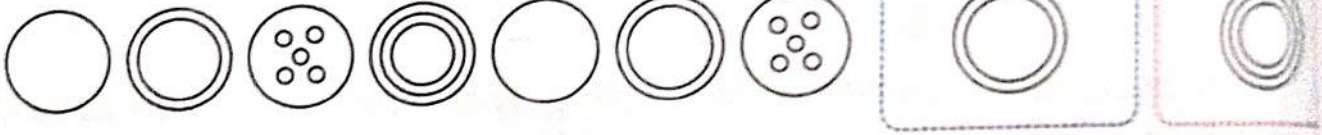
a. 

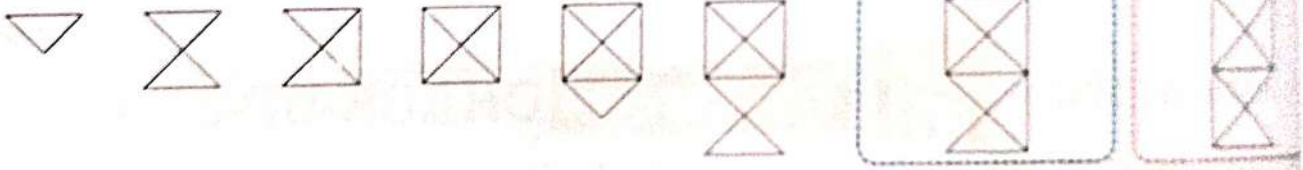
b. 

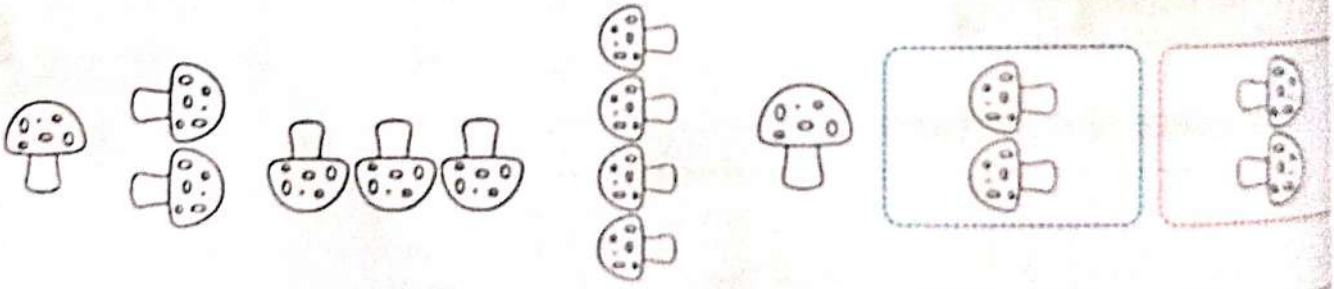
c. 

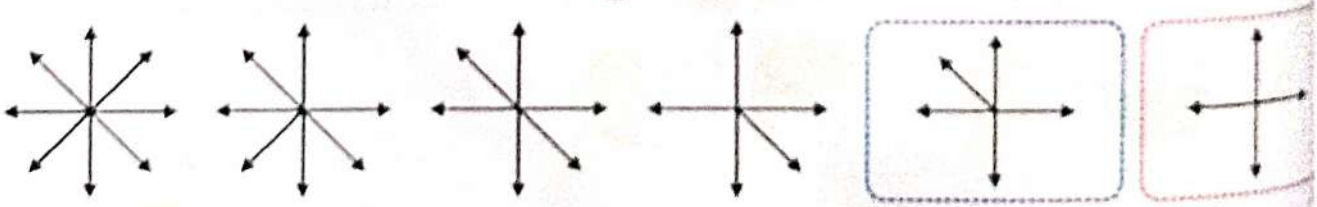
d. 

3. Tick (✓) the pattern that will come next.

a. 

b. 

c. 

d. 

Write the next there terms of each pattern :

a. 1, 2, 3, 5, 8, ..., ..., ...

b. 1, 4, 8, 13, ..., ..., ...

c. 1, 4, 9, 16, ..., ..., ...

d. 64, 63, 61, 58, ..., ..., ...

e. 991, 892, 793, 694, ..., ..., ...

f. $\frac{1}{5}, \frac{4}{10}, \frac{7}{15}$, ..., ..., ...

g. $\frac{1}{10}, \frac{2}{9}, \frac{3}{8}$, ..., ..., ...

9 Measuring Leng

Travel Through

1. Read the conversations and answer the questions based on y understanding.

a.

Agrim does not have a scale or measuring tape. Suggest some un measurement that he can use to measure the dining table.

.....

.....

b.

When Agrim laid the piece of table cloth on the dining table, he rea that it was big for the table. Why do you think this happened? (*Hint:* The shopkeeper measured 15 handspans using his hand.)

.....

.....

This tells us that we should not use the ..... units of measureme

2. Tick (✓) the appropriate unit of measurement.

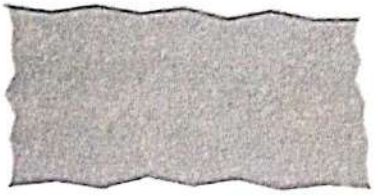
a.

Length of a car
m ☐ cm ☐

b.

Length of a bicycle
cm ☐ m ☐

c.



Length of a long road
cm ☐ km ☐

Learning Outcomes

- Metric System
- Measuring length
- Conversion of metres and centimetres
- Conversion of kilometres and metres
- Mathematical operations involving length

METRIC SYSTEM

Measurement helps us describe different things around us.

In earlier times, there were no standard units of measurement. Length or width of fingers arms and feet were used as units of measurement. However, this system was not effective as everyone's fingers, arm and feet were not of the same size. Thus, a standard system of measurement was required.

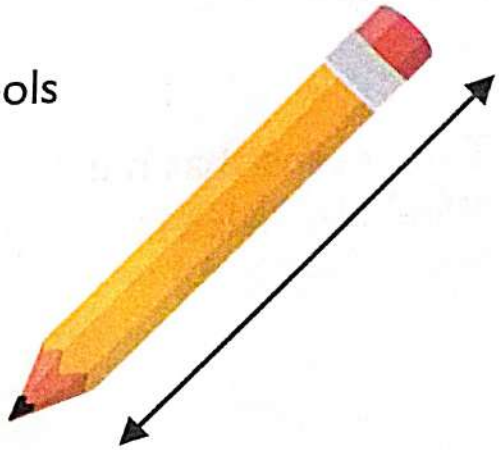
The system that was then developed is called the metric system.

MEASURING LENGTH

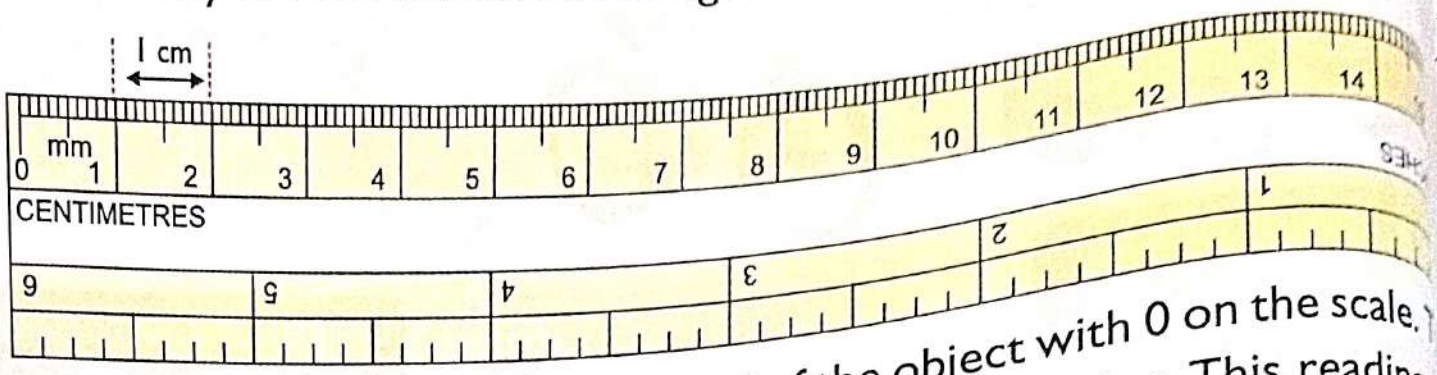
Length is the distance between the two ends or points of something. It also tells us how long or short an object is.

We can measure length using various measuring tools like rulers, metre sticks, measuring tapes, etc.

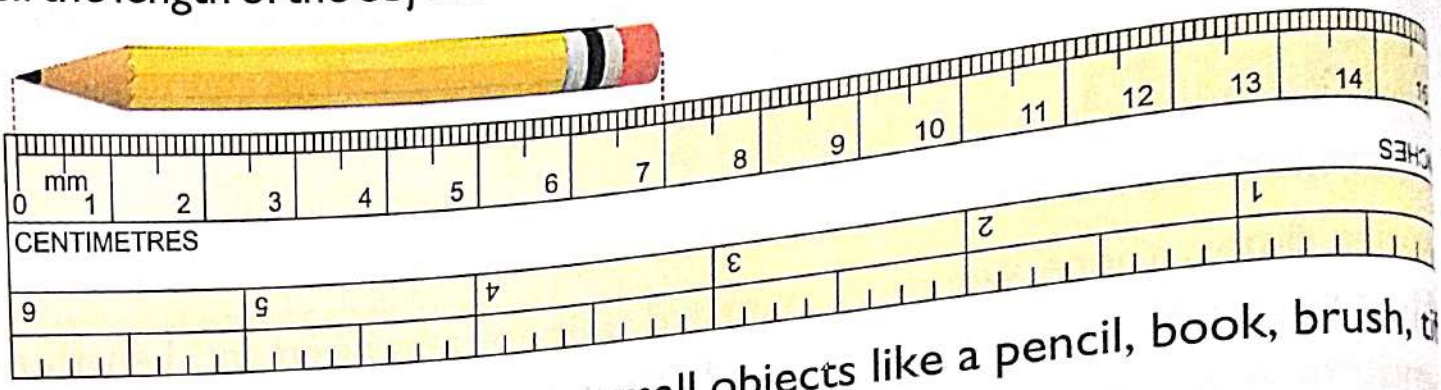
The standard units of measurement of length are millimetre, centimetre, metre and kilometre.



Generally, a centimetre ruler is used to measure small lengths. The dist between any two consecutive markings on the ruler is 1 cm.



To measure an object, coincide one end of the object with 0 on the scale. other end will coincide with another marking on the ruler. This reading tell the length of the object.



A ruler can be used to measure small objects like a pencil, book, brush, t box, etc. Centimetre is represented as cm.

A metre scale on the other hand is used to measure longer objects. The len of a piece of cloth, a blackboard, a table, etc., is measured using a metre scale Metre is represented as m.

CONVERSION OF METRES AND CENTIMETRES

We know that,

$$1 \text{ m} = 100 \text{ cm}$$

This means that hundred divisions of centimetre combine to form a met Thus, metre is a bigger unit.

Keep in Mind

Cent means 100. Centimetre is the 100th part of a metre.

While converting metres into centimetres, we multiply metres by 100. However, while converting centimetres into metres, we group the digits at the ones and the tens places. We can also divide the number by 100.

Example 1: Convert into centimetres.

a. 3 m b. 7 m c. 4 m 32 cm

Solution: Calculate as follows.

a. $3\text{ m} = 3 \times 100 = 300\text{ cm}$

b. $7\text{ m} = 7 \times 100 = 700\text{ cm}$

c. $4\text{ m } 32\text{ cm} = 4\text{ m} + 32\text{ cm}$

We know, $4\text{ m} = 4 \times 100 = 400\text{ cm}$

$4\text{ m} + 32\text{ cm} = 400\text{ cm} + 32\text{ cm} = 432\text{ cm}$

Keep in Mind

- $1\text{ m} = 100\text{ cm}$
- $100\text{ cm} = 1\text{ m}$ and $1\text{ cm} = \frac{1}{100}\text{ m}$

Example 2: Convert into metres.

a. 500 cm b. 6 cm c. 864 cm

Solution: Calculate as follows.

a. $1\text{ m} = \frac{1}{100}\text{ m}$

$500\text{ cm} = \frac{500}{100}\text{ m} = 5\text{ m}$

b. $1\text{ cm} = \frac{1}{100}\text{ m}$

$6\text{ cm} = \frac{6}{100}\text{ m}$

c. $864\text{ cm} = 800\text{ cm} + 64\text{ cm} = 8\text{ m} + 64\text{ cm}$

Here, 6 tens and 4 ones are grouped together.

Keep in Mind

- To convert metres and centimetres into centimetres, first convert metres into centimetres and then add the given centimetres.
- While converting centimetres into metres, we group the digits at the ones and the tens places.

CONVERSION OF KILOMETRES AND METRES

In case of large distances, we use kilometres as the unit of measurement. For example, we measure the distance between two cities, the length of a long road, the length of a river, etc. in kilometres.

Kilometre is represented as km.

1 km = 1000 m

Example 3: Convert into metres.

a. 4 km b. 9 km c. 7 km 565 m

Solution : Calculate as follows.

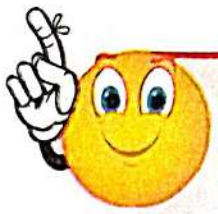
a. 4 km = 4 × 1000 m = 4000 m

b. 9 km = 9 × 1,000 m = 9,000 m

c. 7 km 565 m = 7 km + 565 m

We know, 7 km = 7 × 1,000 m = 7,000 m

7 km + 565 m = 7,000 m + 565 m = 7,565 m



Keep in Mind

- 1 km = 1,000 m
- To convert kilometres and metres into metres, convert the kilometres into metres and then add the given metres.
- While converting metres into kilometres, we group the digits at the ones, tens, hundreds places.

Example 4: Convert into kilometres.

a. 3,700 m b. 2,453 m

Solution: Calculate as follows.

a. 3,700 m = 3,000 m + 700 m

= 3 km + 700 m = 3 km 700 m

b. 2,453 m = 2,000 m + 453 m

= 2 km + 453 m = 2 km 453 m

Here, 4 hundreds, 5 tens and 3 ones are grouped together.

MATHEMATICAL OPERATIONS INVOLVING LENGTH

Example 5: Find the final length of the following on :

a. Adding 4 km 345 m and 3 km 506 m

b. Adding 2 km 187 m and 6 km 918 m

c. Subtracting 2 km 741 m from 5 km 199 m

d. Subtracting 7 km 642 m from 8 km 203 m

Solution: Calculate as follows.

a.

km	m		
		(1)	
4	3	4	5
+ 3	5	0	6
7	8	5	1

b.

km	m		
(1)	(1)	(1)	
2	1	8	7
+ 6	9	1	8
9	1	0	5

c.

km	m		
(4)	(11)		
5	1	9	9
− 2	7	4	1
2	4	5	8

d.

km	m		
(7)	(1) 11	(10)	
8	2	0	3
− 7	6	4	2
0	5	6	1

Example 6 : A handicraft worker uses 16 m cane rope each day to make baskets. How much rope will he require in a week, if Sunday is a holiday?

Solution: We know that,

Length of rope used in a day = 16 m

Days in a week = 7 days

Number of working days in the week = 6 days

Length of rope used in 6 days = 16 m × 6

	(3)	
	1	6
×		6
9	6	

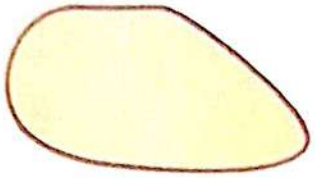
Thus, 96 m of rope will be used by the handicraft worker in 6 days.

Progress CHECK-UP

Pleasure TIME **Mastery**

1. Construct the line segments of the following length.
   a. 4 cm
   b. 2 cm

2. Find the length of the boundary using a thread. Measure the length in scale.



..... cm

9.

3. Which is a better unit to measure these? (cm, m or km)

a. Length of a pin .....

b. Height of a house .....

c. Distance the scooter travels .....

d. Length of a park .....

e. Height of Qutub Minar .....

f. Distance from school to your house .....

4. Convert into centimetres.

a. 8 m b. 14 m c. 5 m 20 cm d. 10 m

e. 16 m 75 cm f. 2 m 30cm g. 9 m 99 cm h. 20 m

5. Convert into metres.

a. 8 km b. 6 km c. 6 km 500 m d. 2 km 30

e. 9 km 999 m f. 1 km 002 m g. 3 km h. 4 km 705

6. Convert into metres and centimetres.

a. 23 cm b. 700 cm c. 650 cm d. 703 cm

e. 512 cm f. 56 cm g. 400 cm h. 934 cm

7. Convert into kilometres and metres.

a. 4,179 m b. 6,877 m c. 9,082 m d. 5,728 m

e. 3,306 m f. 7,805 m g. 1,003 m h. 3,522 m

8. Find the measures.

a. 20 cm less than 8 m 40 cm .....

b. 80 cm more than 4 m 10 cm .....

c. 2 m more than 8 m 45 cm .....

d. 600 m less than 7 km 950 m .....

e. 9 km 200m more than 5 km 500 m .....

9. Complete the table and answer the questions below.

S.No.	Name of the plant	Last month's height	This month's height	cms-grown
(i)	TULSI	5cm	8cm	
(ii)	MANGO	10cm	13cm	
(iii)	BAMBOO	20cm	38cm	
(iv)	ROSE	32cm	32cm	

a. The plant which has grown maximum is .....

b. The plant which has grown minimum is ....., ...

c. The plant which has not grown .....

d. The plant which has grown by 18 cm is .....

e. This month ..... plant is taller than ....., ...

10. Read the following table and answer the following questions.

S.No.	Names	Distance of sixes beaten in a cricket match
(i)	Sachin	90 m
(ii)	Yuvaraj	101 m 5 cm
(iii)	Gambhir	52 m 25 cm

a. What is the difference between the distance hit by Sachin and Yuvaraj?

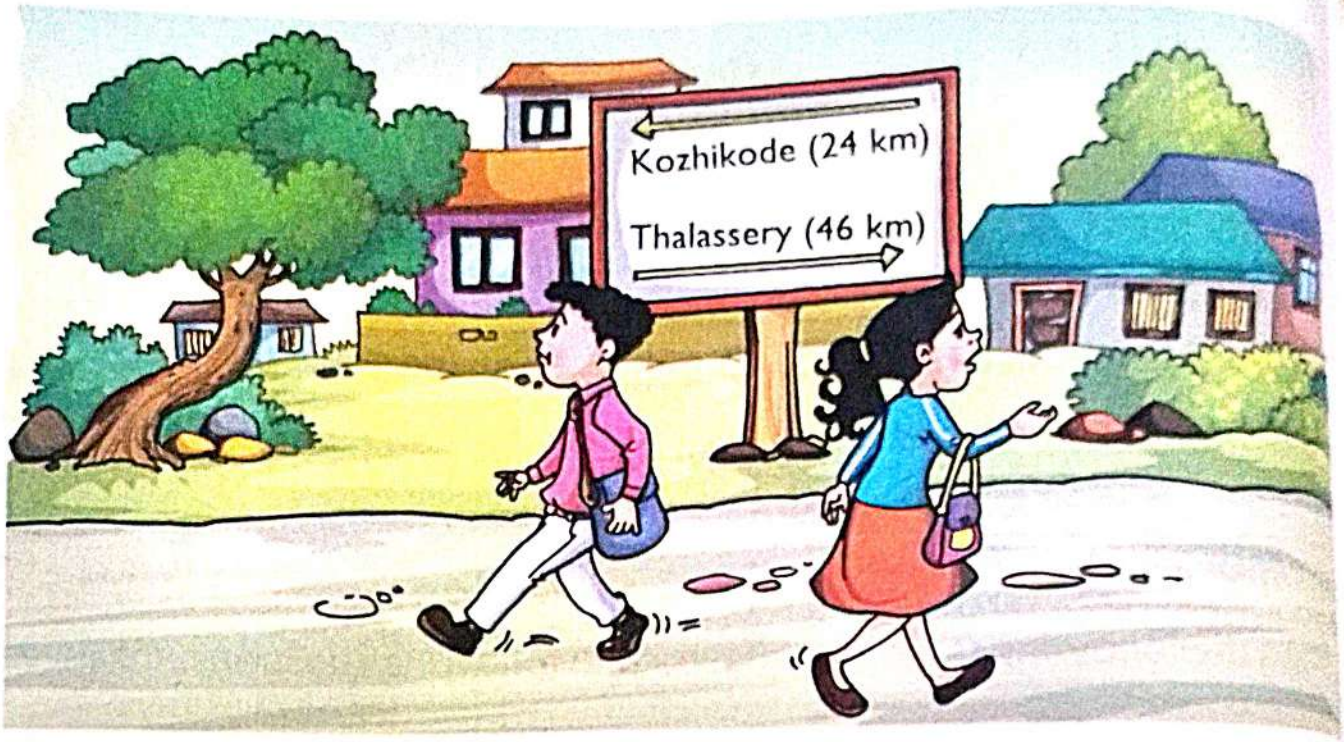
b. What is the difference between the distance hit by Yuvaraj and Gambhir?

11. Have you heard about marathon races in which people have to run about 40 kilometres? People run marathons on roads because the track of a stadium is only 400 metres.

- 10 rounds of a stadium track = ... km
- So, if you run a marathon on a stadium track, you will have to complete ..... rounds !

12. Subodh is going to Kozhikode which is 24 kilometres (km) away. Ma is going to Thalassery which is 46 km away in the opposite direction.

How far is Kozhikode from Thalassery? .....

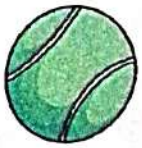


10 Measuring Weight (Mass)

Readiness

Travel Through

1. Tick (✓) the approximate weight.

a. 

100 g / 50 kg

b. 

700 g / 5 kg

c. 

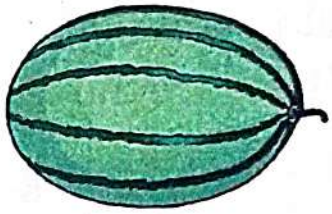
500 g / 500 kg

d. 

100 g / 100 kg

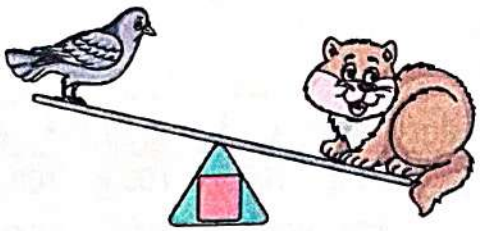
e. 

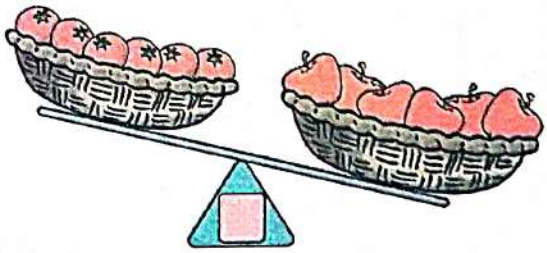
200 g / 2 kg

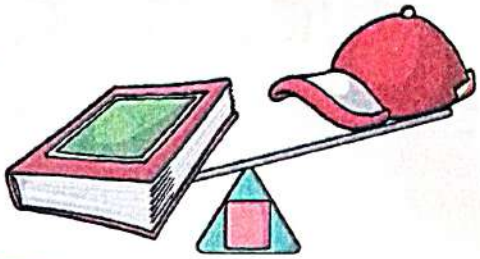
f. 

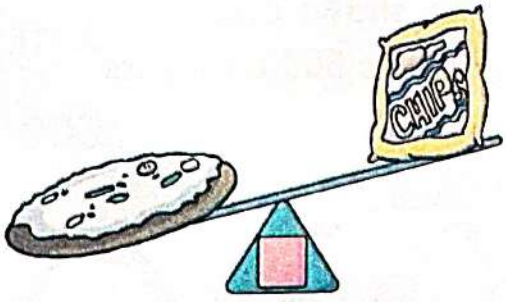
200 g / 2 kg

2. Use >, < or = to compare weights of objects in each pair.

a. 

b. 

c. 

d. 

Learning Outcomes

- Mass
- Measuring Mass
- Mathematical Operations involving Mass

MASS

Mass is the measure of how heavy or light an object is. It is not dependent o
the size of an object. For example, a heap of cotton and a small piece of sto
might weigh the same, in spite of the fact that cotton occupies more space
this case.

MEASURING MASS

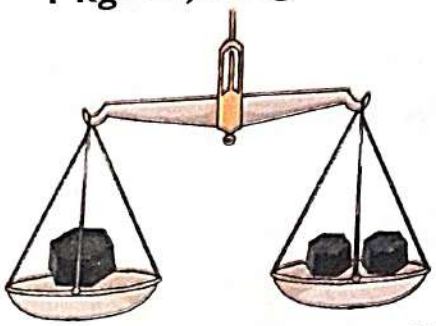
The standard units of measurement of mass are gram (g) and kilogram (kg).

1,000 g = 1 kg

Gram (g) is used to measure smaller capacity. Heavier things are measured
kilograms (kg).

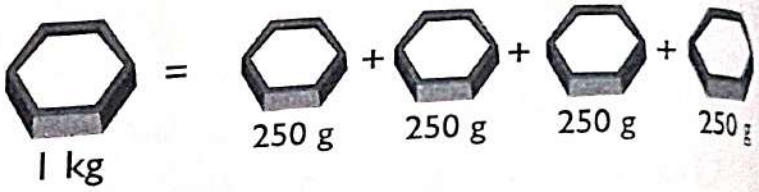
These are the different kinds of weights used.

1 kg = 1,000 g.



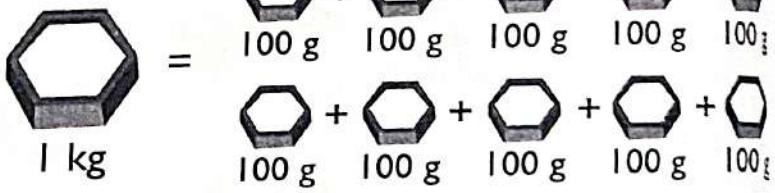
1 kg 500 g 500 g

The balance shows that
one 1 kg = two 500 g weights.



1 kg = 250 g + 250 g + 250 g + 250 g

One 1 kg = ... 250 g weights.



1 kg = 100 g + 100 g + 100 g + 100 g + 100 g + 100 g + 100 g + 100 g + 100 g + 100 g

One 1 kg = ... 100 g weights.

5 kg 2 kg 1 kg 500 g 200 g 100 g

Do and Learn

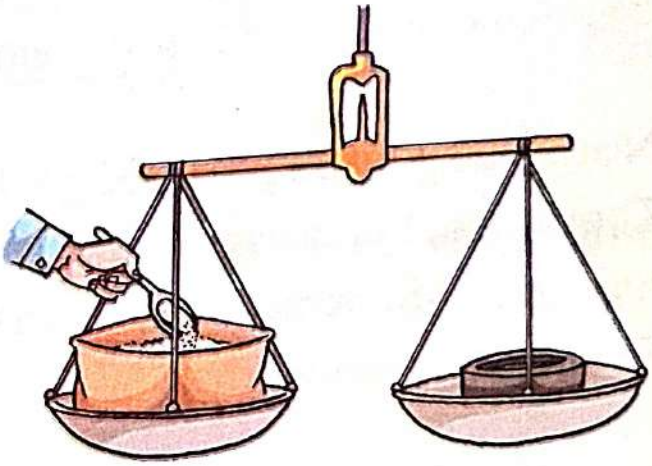
Make your own weights.

Things needed: A balance, weights, a cake of soap, plastic packets, sand and rubber bands.

What to do?

Get a new cake of soap. The packet will have the weight written on it. You can use this soap to make your own different weights.

The soap weighs ..... grams (g).

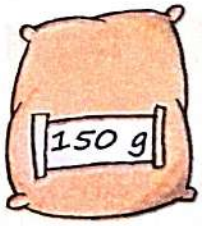


Take a small plastic packet.

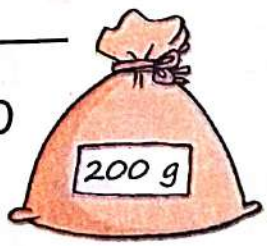
Put it in one pan of the balance. Put the soap in the other pan.

Slowly add sand to the packet till the pans are balanced.

Close the packet with a rubber band or string. Now stick a strip of paper and write '_____ g' on it.



If you put the soap and the weight you just made together in a pan, how many grams will both these weigh? _____



Now make different weights — 150 g, 200 g and 250 g. You can use soaps of different weights for this.

Also make some bigger weights of 500 g, 1000g, and 750 g.

- Use your weights to weigh different things and write in your notebook.

MATHEMATICAL OPERATIONS INVOLVING MASS

Sushil had 1 kg of mangoes. His father bought another 1 kg mangoes returning from work. Now there are 2 kg mangoes in Sushil's house.

Mass expressed in the same kind of units can be added or subtracted.

Example 1 : Add 4 kg 900 g and 1 kg 100 g.

Solution : Arrange the measures one below the other.

kg	g
①	
4	900
+ 1	100
6	000

Keep in Mind

Gram has provision for three d
It is advisable to write 8 kg 9
8kg 009 g.

Note, 900 g + 100 g = 1,000 g = 1 kg

Therefore, 1 is carried over to the next place.

Example 2 : Subtract 900 g from 4 kg

Solution : We know that,

1 kg = 1,000 g

So, 4 kg = 4,000 g

kg	g
③	①
~~4~~	000
− 0	900
3	100

Therefore, 4 kg – 900 g = 3 kg 100 g

Progress CHECK-UP

Pleasure TIME

Master

1. Answer the following.
   a. Which weights more; 1 kg steel or 1 kg cotton?
   b. Which is the smallest unit of measurement used in measuring fruit and vegetables?
   c. How many grams are there in 3 kilograms?

d. Convert the following into specified units.

(i) 2 kg = _____ g

(ii) 6 kg = _____ g

(iii) 1 kg 4 g = _____ g

(iv) 12,000 g = _____ kg

(v) 2,500 g = _____ kg _____ g

Fill in the blanks.

a. One kilogram = _____ grams.

b. Half a kilogram = _____ grams.

c. The heavier one among 100g and 10 kg is _____.

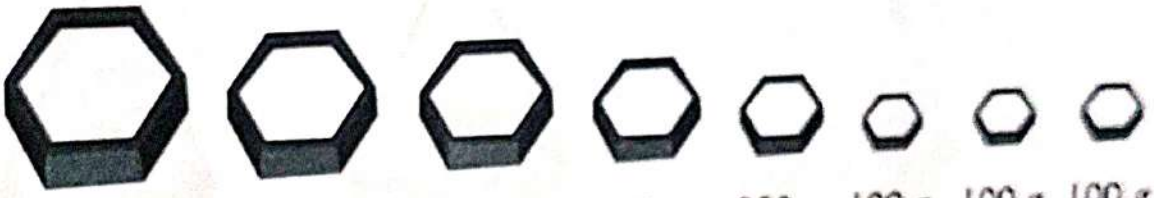
d. 1 kg = 5 x _____ grams.

e. 5 kg = _____ grams.

Mark the least number of weights that you will need to weigh the following.

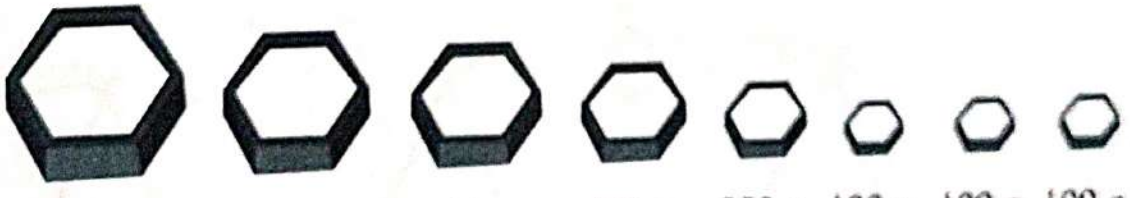
a. 

750 g =



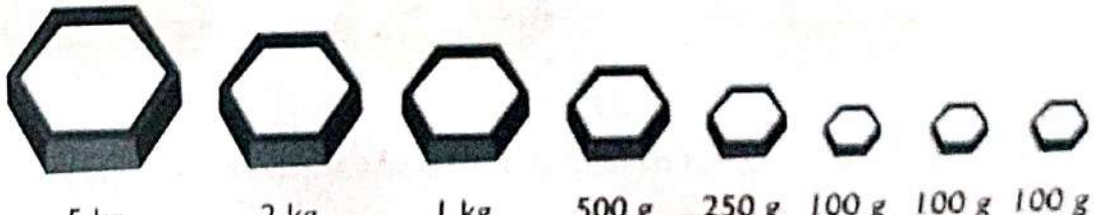
b. 

2 kg 500 g =



c. 

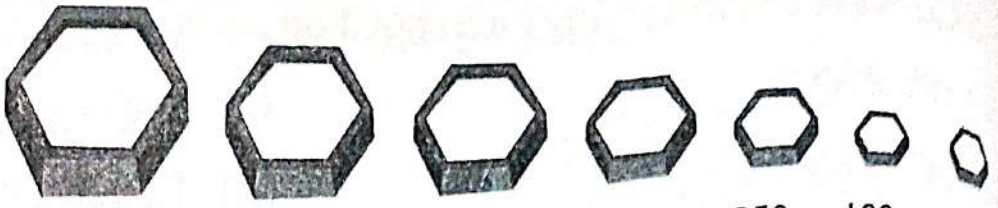
450 g =



d.

3 kg 350 g

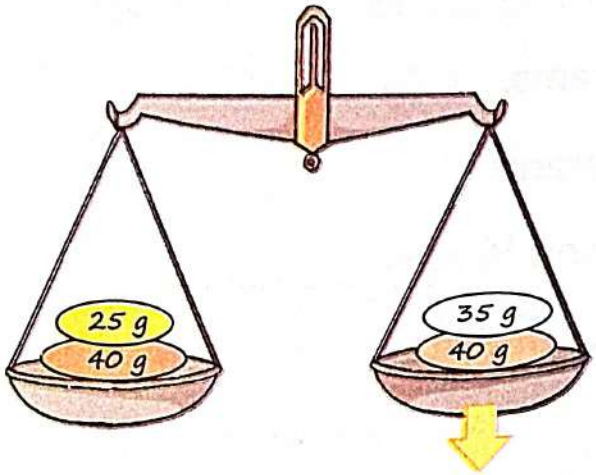
=

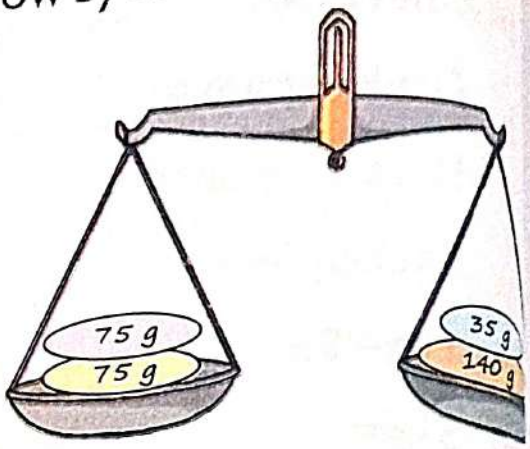


5 kg 2 kg 1 kg 500 g 250 g 100 g 100 g

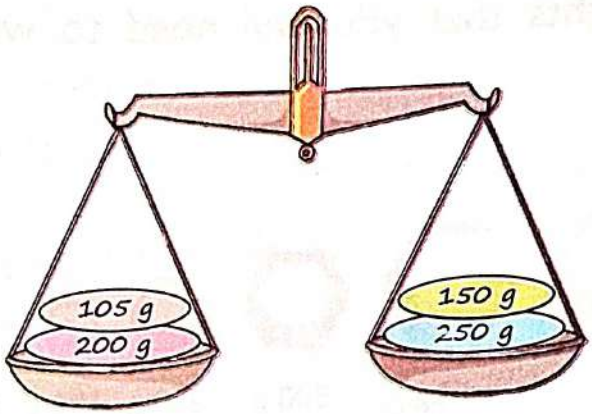
4. Which pan of the balance will go down? Show by drawing an arrow.

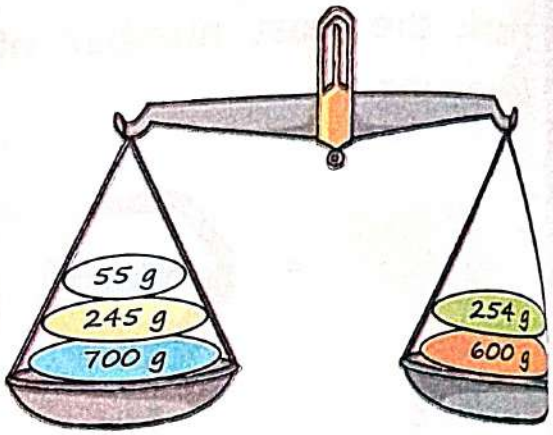
a.



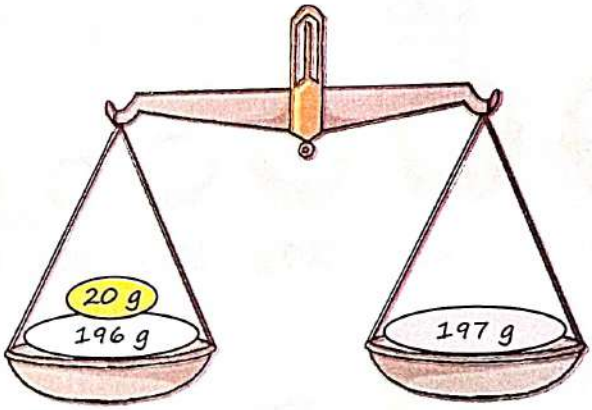


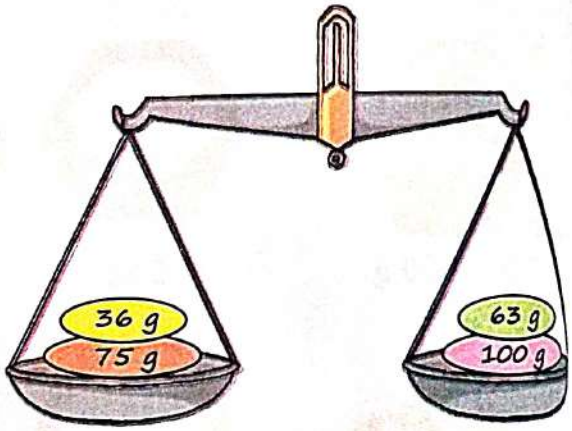
b.





c.





d. Is the weight on any of the pans equal to 1 kilogram? Mark it.

e. How many grams are there in 1 kg?

5. Rahim is a fruit seller at the market. His cart can hold 100 kg of fruit. He has oranges, apples and mangoes.

Together the apples and oranges weigh 55 kg.
How much do the mangoes weigh? ..... kg
Together the mangoes and oranges weigh 66 kg.
How much do the oranges weigh? ..... kg
How much do the apples weigh? ..... kg

6. A vegetable-seller had 25 kg of onions. He sold 20 kg 250 g. How much onions are left with him?

7. Mrs Kapoor has 2 kg of neem powder. She wants to put it into smaller packets of 200 g each. How many packets will she get?

8. A crow weight is 650 g and a frog weight is 145 g. How much do they weigh together?

11 Measuring Capacity

Travel Through

Reading

I. Multiple Choice Questions.

a. Which of the following is the standard unit to measure liquid quantities?

(i) Centimetre (ii) Millilitre

(iii) Litre (iv) Gram

b. The unit to measure the quantity of water in the tank is

(i) kilogram (ii) metre

(iii) litre (iv) millilitre

c. The unit to measure the quantity of soft drink in a glass is

(i) millilitre (ii) litre

(iii) kilogram (iv) centimetre

d. The unit to measure the water in a bucket is

(i) litre (ii) millilitre

(iii) kilogram (iv) none of these

e. Which of the following can hold the maximum liquid?

(i)  (ii)  (iii)  (iv) 

Learning Outcomes

• Capacity and its measurement • Conversion of litres to millilitres • Conversion of millilitres to litres • Mathematical operations involving capacity

CAPACITY AND ITS MEASUREMENT

Engagement

The amount of liquid a container can hold is its capacity.

Capacity is measured in millilitres and litres. The unit millilitre is used to measure smaller quantities and litre is used to measure larger quantities.

Millilitre is represented as **mL**.

Litre is represented as **L**.

1 L = 1,000 mL

Different types of containers are used to measure different volumes of liquids.

CONVERSION OF LITRES TO MILLILITRES

Example 1 : Convert into millilitres.

a. 2 L b. 5 L 166 mL c. 7 L 83 mL

Solution: Calculate as follows.

a. 2 L = 2 × 1,000 mL = 2,000 mL

b. 5 L 166 mL = 5 L + 166 mL

We know, 5 L = 5 × 1,000 mL = 5,000 mL

Thus, 5 L + 166 mL = 5,000 mL + 166 mL

= 5,166 mL

c. 7 L 83 mL = 7 L + 83 mL

We know, 7 L = 7 × 1,000 mL

= 7,000 mL

Thus, 7 L 83 mL = 7,000 mL + 83 mL

= 7,083 mL

Keep in Mind

- To convert litres into millilitres, multiply by 1,000.
- To convert litres and millilitres into millilitres, first convert litres into millilitres and then add the given millilitres to them.

CONVERSION OF MILLILITRES TO LITRES

Example 2 : Convert into litres and millilitres.

a. 7,000 mL b. 6,658 mL

Solution : Calculate as follows.

a. 1 L = 1,000 mL

$1\ mL = \frac{1}{1{,}000}\ L$

$7{,}000\ mL = \frac{7{,}000}{1{,}000}\ L = 7\ L$

Keep in Mind

- *While converting millili litres we divide by 1,000.*
- *While converting millilitr litres, group the digits ones, tens and hundreds pl*

b. 6,658 mL = 6,000 mL + 658 mL

= 6 L 658 mL

Here, 6 hundreds, 5 tens and 8 ones are grouped together.

MATHEMATICAL OPERATIONS IN VALVING LENGTH

Example 3 : (a) Add : 46 L 173 mL and 32 L 819 mL

(b) Subtract : 8 L 9 mL from 19 L 8 mL

Solution : (a)

	L	mL
		1
	46	173
+	32	819
	78	992

(b)

	L	mL
	18	18
	~~19~~	~~8~~
−	8	9
	10	9

Example 4 : Subtract 15 kL 345 L from 23 kL 130 L.

Solution :

	kL		L		
	1	12	10	12	10
	~~2~~	~~3~~	~~1~~	~~3~~	~~0~~
−	1	5	3	4	5
	0	7	7	8	5

Hence, the required difference is 7 kL 785 L.

Example 5 : A water tank contains 2225 litres of water. During the day 97 325 mL of water is pumped out from the tank. How much water is left in tank?

Solution : Water in the tank = 2225 L
Water in the tank = 975 L 325 mL
So, water left = 2225 L – 975 L 325 mL

	L	mL
	2225	000
–	975	325
	1249	675

Therefore, water left = 1249 L 675 mL.

Example 6 : A milkman sold 55 L 575 mL of milk on the first day, 40 L 480 mL on the second day and 60 L 825 mL on the third day. What quantity of milk did he sell during these three days?

Solution :

		L	mL
Milk sold on first day	=	55	575
Milk sold on second day	=	40	480
Milk sold on third day	=	+ 60	825
So, total milk sold	=	156	880

Therefore, total milk sold 156 L 880 mL.

Example 7 : A Dettol bottle contains 500 mL of Dettol. How much Dettol is contained in 12 dozen such bottles?

Solution : Since one contains Dettol = 500 mL
Therefore, 12 × 12 bottles contain Dettol = 500 mL × 12 × 12
= 500 mL × 144
= 72000 mL = 72 L

Progress CHECK-UP

Pleasure TIME

Mastery

1. Use the appropriate unit (L or mL) for the following :
   a. Water in a small cup .....
   b. Capacity of water in a water tank .....
   c. Cough syrup in a spoon .....
   d. Oil in an oil tank .....
   e. Eye drop in an eyedropper .....

f. Water in the sump .....

g. Shampoo in sachet .....

h. Milk in a milk packet .....

2. Complete the following.

a. 1 litre = ... mL

b. ..... times 250mL = 1

c. ..... times 500mL = 1 litre

d. $\frac{3}{4}$ of a litre = ... mL

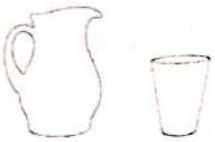
e. ..... times 100mL = 1 litre

f. $\frac{1}{4}$ of a litre = ... mL

g. ..... times 200mL = 1 litre

h. $\frac{1}{2}$ of a litre = ... mL

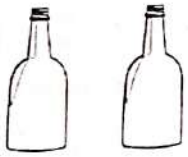
3. Fill in the blanks using word less, more, same and different.

a. 

The jar holds ..... water than the glass tumbler

b. 

The glass tumbler holds ..... water than the bo

c. 

Both the bottles hold the ..... quantity of wat

4. Look at these pictures. Now look for some other things we get in pac or bottles like these. Make your own list.

Packet	How many mL or L?
Milk	500 mL

5. Convert into millilitres.

a. 8 L b. 3 L 402 mL c. 9 L 500 mL d. 7 L 098 mL

6. Convert into litres and millilitres.

a. 6,500 mL b. 4,763 mL c. 5,508 mL d. 3,063 mL

7. List things we use more than one litre at a time, for example, water for taking bath.

a. ..... b. .....

c. ..... d. .....

8. Three 2 L jugs are filled with different quantities of orange juice. Observe and fill in the blanks.

a.

Filled: .....

Unfilled: .....

b.

Filled: .....

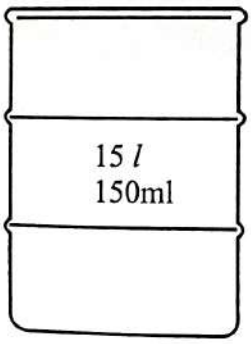
Unfilled: .....

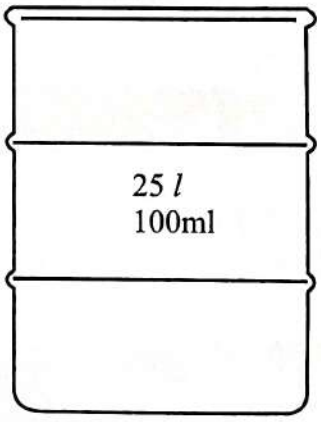
c.

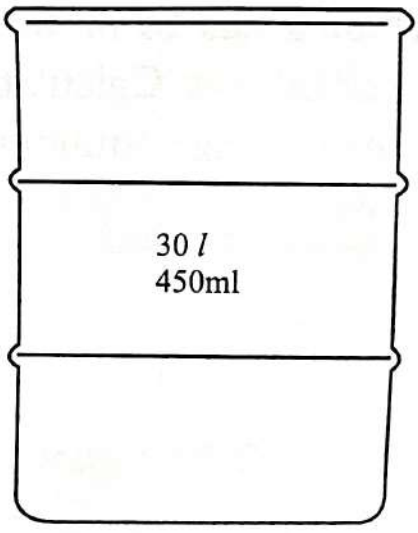
Filled: .....

Unfilled: .....

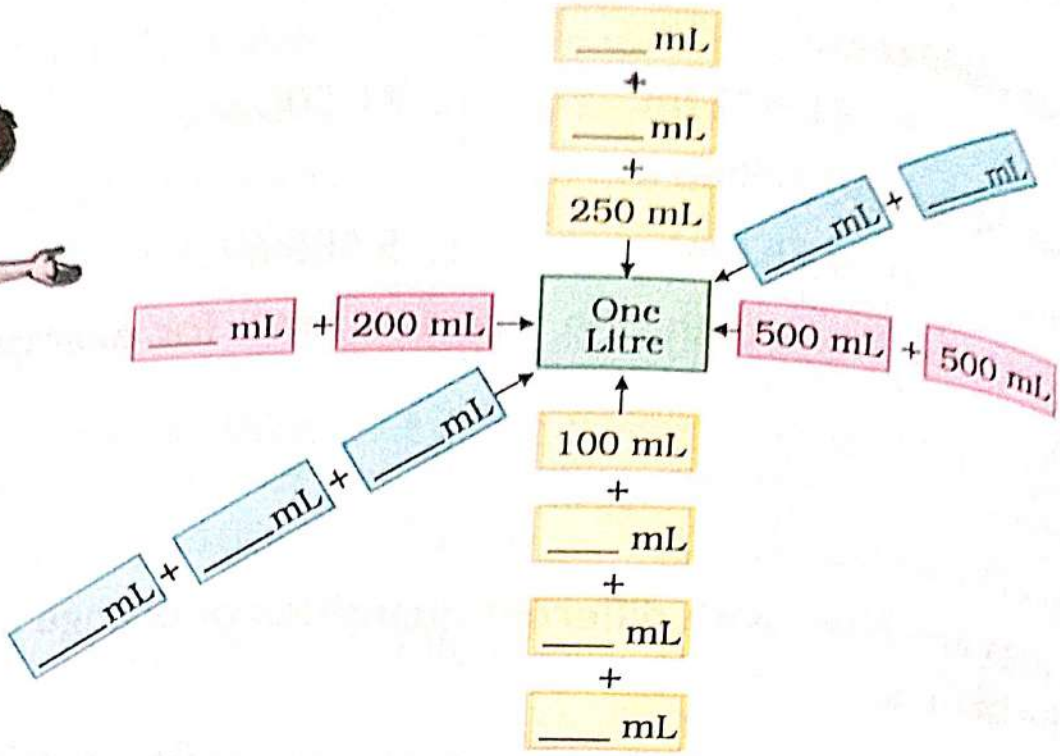
9. What is the total capacity of the 3 drums?







10. Puneet is trying to look for different ways to add up to 1 litre. Help him complete the chart.



11. Given below is the procedure to prepare 1L guava juice. Write quantity of ingredients required to prepare 2 L and 4 L juice respectively

Ingredients	Volume of juice		
	1 L	2 L	4 L
Guava juice	750 mL		
Water	250 mL		
Sugar	350 g		

12. Naina has to fill her 1 L water jug with water. She has these measuring containers. Calculate and write the number of times Naina has to refill measuring containers to fill the jug.

1 Litre		
		
200 mL glass	100 mL glass	500 mL bottle
..... number of times	..... number of times	..... number of times

13. Amina's water bottle holds one litre of water. She drank 250 mL of water and her friend Govind drank 150 mL. How much water is left in her bottle?

14. Yusuf runs a tea shop. For making a glass of tea he uses 20 mL of milk. Yesterday he made 100 glasses of tea. How much milk did he use?

15. Radha's grandma was ill. The doctor gave her a bottle with 200 mL of medicine. She has to take the medicine every morning for 10 days. How many millilitres of medicine does she have to take every morning?

16. Chelannur village has a milk society. Geetha and Ammini went there to buy 4 litres of milk. But the man could not find the one litre measure. He had only a 3 litre and a 5 litre bottle with him. But he gave them exactly 4 litres of milk. Explain how he did this?

12 Area and Perimet

Learning Outcomes

- Perimeter
- Perimeter of Plane Figures
- Area
- Area of Plane Figu
- Concept of Unit
- Area of Irregular Shapes

Engagem

PERIMETER

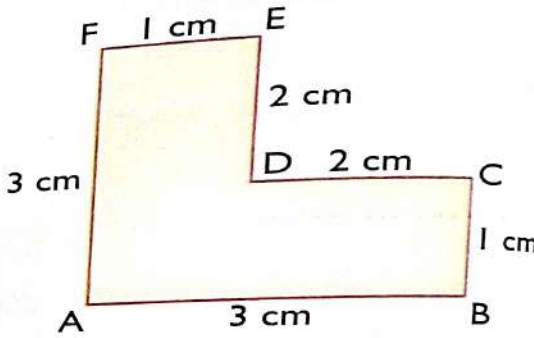
The length of the boundary of a plane figure is called its perimeter. It is the s of measurement of all sides of a plane figure.

In the given figure, the measurement of the sides are :

AB = 3 cm, BC = 1 cm

CD = 2 cm, DE = 2 cm,

EF = 1 cm, AF = 3 cm.



Thus, the perimeter of the plane figure is

$$P = AB + BC + CD + DE + EF + AF$$
$$= 3 + 1 + 2 + 2 + 1 + 3 = 12 \text{ cm}.$$

PERIMETER OF PLANE FIGURES

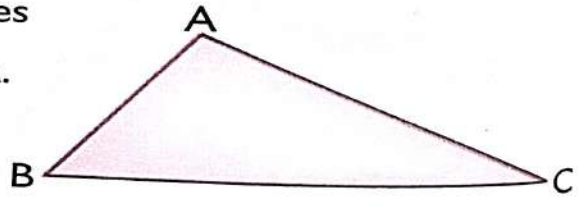
Let us understand the perimeter of some plane figures.

Triangle: The sides of the triangle shown in the figure are AB, BC, CA.

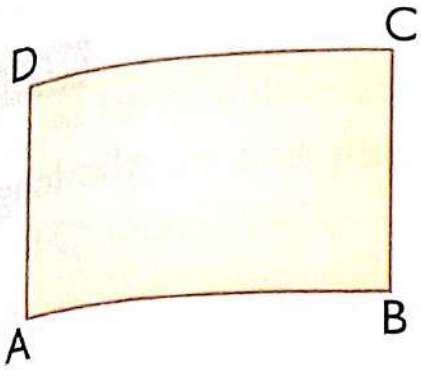
Therefore,

Perimeter (P) of a triangle = sum of the sides

= AB + BC + CA.



Rectangle: The sides of the rectangle given here are AB, BC, CD, DA



Therefore,

Perimeter (P) = sum of the sides

= AB + BC + CD + DA

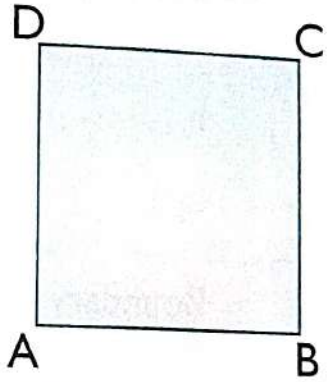
But, in a rectangle, the opposite sides are equal.

AB = CD = length (L) of the rectangle

BC = AD = breadth (B) of the rectangle

Perimeter (P) of a rectangle = L + B + L + B = 2 × (L + B)

Square: The four sides of the square given here are AB, BC, CD, DA. These sides are equal in length.



Perimeter (P) of a square = L + L + L + L

= 4 × L

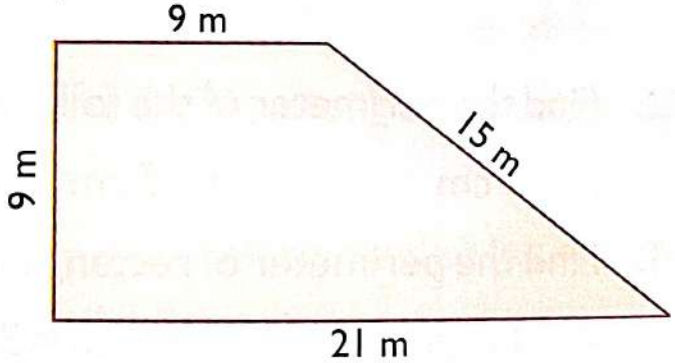
Teacher's Tips

A closed plane figure may not always be a triangle, rectangle or a square. Yet the perimeter of a closed plane figure is the sum of all its sides.

Example 1 : Rahmat is a farmer. He grows wheat in his field. He needs a fence around his field. How much wire should he buy?

Solution : Rahmat needs to find the length of the boundary (perimeter) of the field.

For this he measures the length of each side and write it near it.



The boundary of his field = Sum of all its sides

= 21 + 15 + 9 + 9 = 54 m

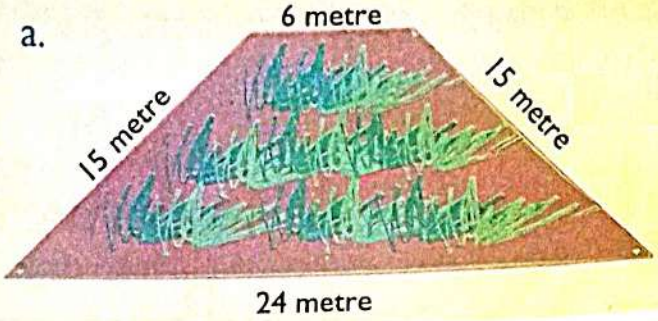
So, he should buy 54 m wire for the fence.

Progress CHECK-UP-1

Pleasure TIME

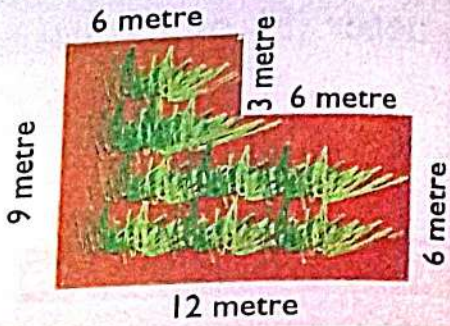
1. Here are pictures of some fields. Find out which one has the long boundary.

a.



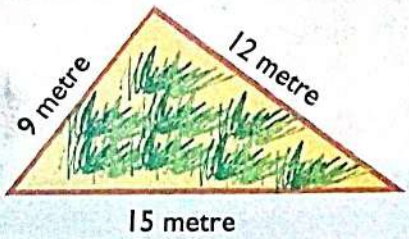
Boundary = _____ metre

b.



Boundary = _____ metre

c.



Boundary = _____ metre

2. Find the perimeter of the following squares whose sides measuring.

   a. 5 cm b. 7 cm c. 10 cm

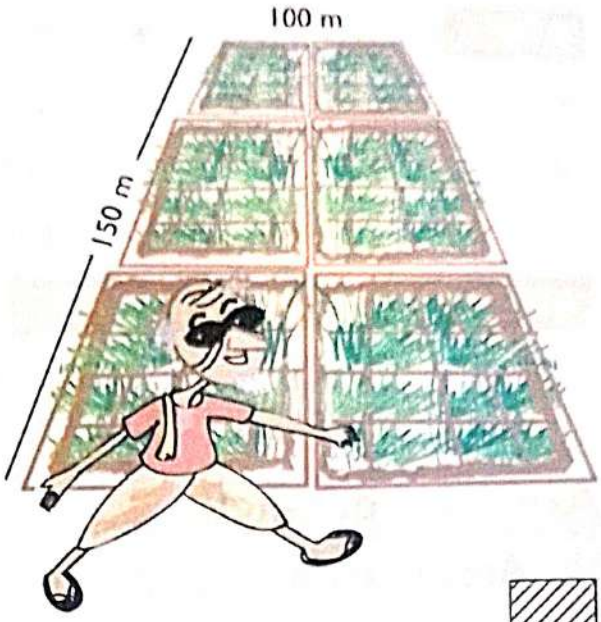
3. Find the perimeter of rectangle whose length and breadth are given.

   a. Length = 7 cm, breadth = 5 cm

   b. Length = 12 cm, breadth = 8 cm

   c. Length = 15 cm, breadth = 10 cm

4. Chandu's father is called the 'young old man' in his village. At 70 years of age, he is fully fit. Do you know his secret? He goes for a walk around the field every morning. Everyday he takes four rounds of Chandu's field.



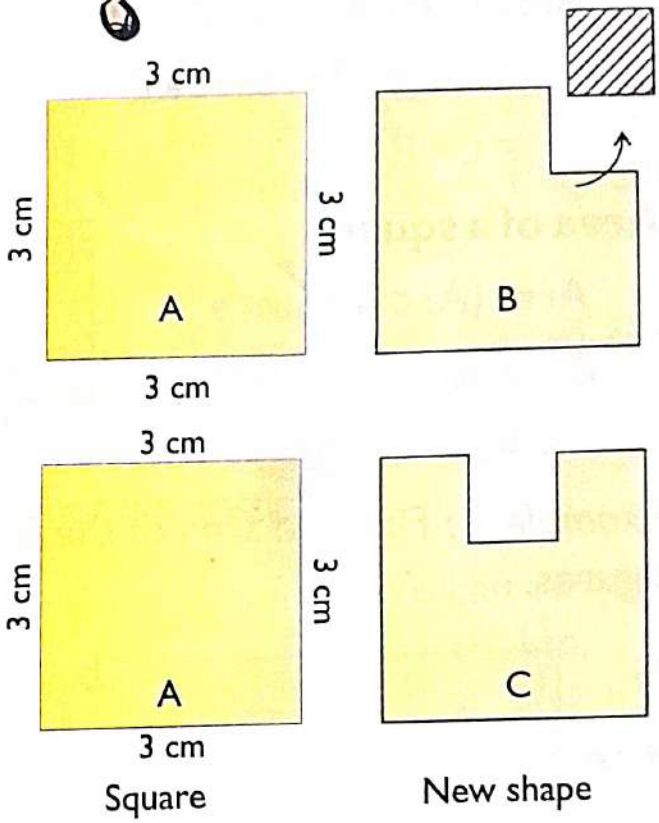
What is the total distance he covers?

4 × _____ = _____ m = _____ km

5. A square has a boundary of 12 cm.

a. From the corner of this square, a small square of side 1 cm is cut off. Will the boundary of B be less or more? Find its length.

b. If you cut a 1 cm square to get shape C, what will be the length of the boundary of C?



6. A hockey field is 91 m 40 cm long and 55 m wide. How long is the boundary of the field?

7. A square garden is 200 m long. How much wire will be needed for fencing around it 3 times?

8. Ram walks around a square field of length 6 m and 25 cm and Tanish walk around a rectangular field of length 4 m 80 cm and breadth of 5 m 10 cm. Who walks a greater distance and by how much?

AREA

Area tells us how much space is occupied by a shape. All of these structu here occupy different amount of space.

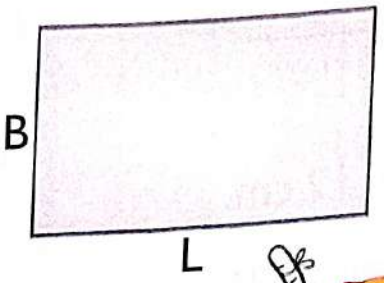
Area of a plane figure is the measure of space enclosed by it.

AREA OF PLANE FIGURES

We shall now formulate expression for calculating the area of simple pl figures.

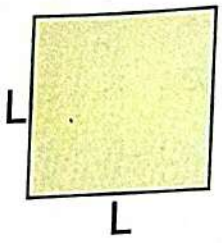
Area of a rectangle

Area (A) of a rectangle
= length × breadth
= L × B



Area of a square

Area (A) of a square
= length × length
= L × L

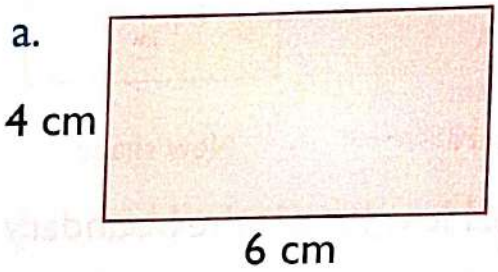


Keep in Mind

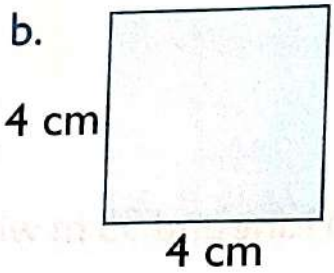
- If the length of a pla figure is measured in c then the area is measured square centimetre and i written as sq. cm.
- If you remove a portion fro a plane figure you wi notice that the perimete will increase and the area will decrease.

Example 2 : Find the area of the following plane figures.

a.



b.



Solution:

a. Area of a rectangle
= length × breadth
= 6 cm × 4 cm
= 24 sq. cm

b. Area of a square
= length × length
= 4 cm × 4 cm
= 16 sq. cm

Example 3 : Find the area of a rectangle whose length is 4 m and breadth is 2 m.

Solution: Area = length × breadth

Area = 4 m × 2 m = 8 sq. m

Example 4 : Find the area of the square whose side is 5 cm.

Solution: Area = length × length

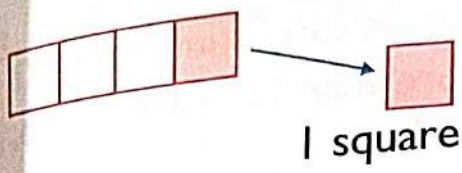
Area = 5 cm × 5 cm = 25 sq. cm

Keep in Mind

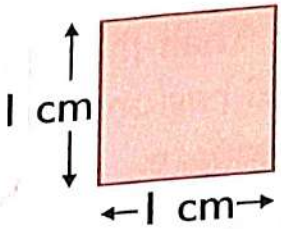
The units of length and breadth should be the same.

CONCEPT OF UNIT

Area is calculated based on the total number of square units required to cover the given shape.

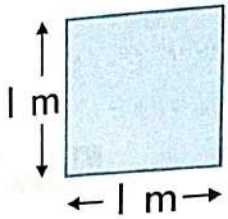


1 square unit

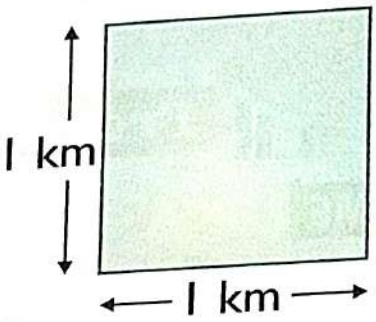


We can write it as 1 sq. cm.

There are higher units for measuring larger area—square metre (sq. m) and square kilometre (sq. km).



We can write it as 1 sq. m.



We can write it as 1 sq. km.

Hence, we can conclude that the unit of measuring the area depends upon the size of area being measured.

AREA OF IRREGULAR SHAPES

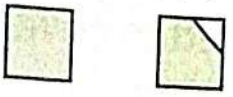
Irregular shapes do not have defined dimensions like plane figures; hence, only approximate area can be calculated for such figures.

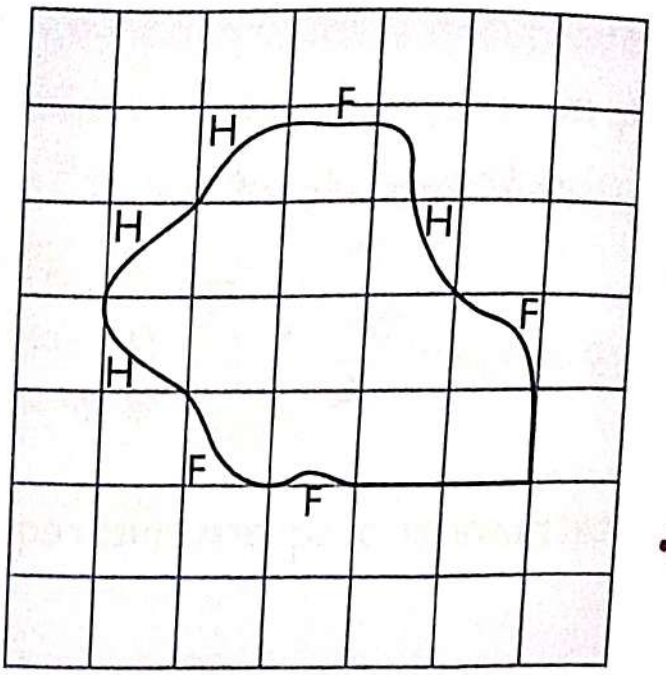
We count the squares to find the area of each shaded shape. Consider the following example.

For example, see how to find area of such figures.

Half-filled square (H)

Full-filled square (F)





- 2 Half-filled squares equal to 1 complete sq
- More than half-filled sq is equal to 1 comp square.
- Less than half-filled sq is not considered.

In the above example, there are 4 half-filled squares, so we can count them as 2 complete squares. If the shaded region occupies more than half of a squa then we count it as 1 complete square.

Half-filled squares = 4 = 2 squares.

More than half or completely shaded squares = 11 squares.

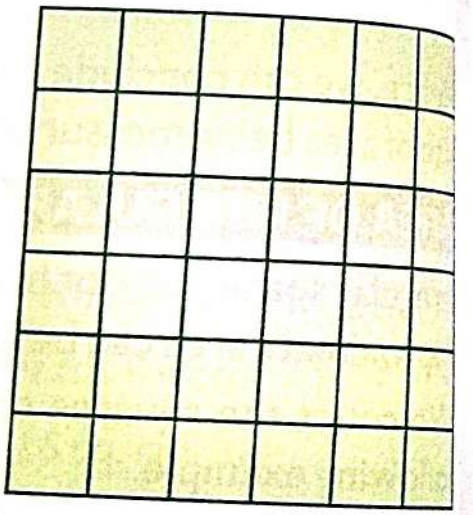
Area of the irregular shape = 2 + 11 = 13 sq. units.

Progress CHECK-UP-2

Pleasure TIME

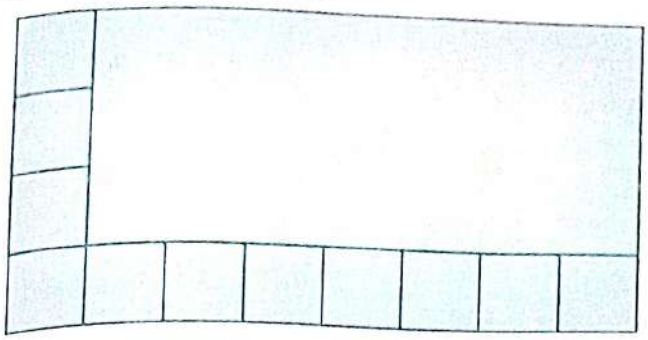
Mastery

1. a. How many small squares of size 1 cm are there in this big green square?



b. Can you think of a faster way to know the total number of small squares without counting each ?

2. Guess how many squares of one centimetre can fill this blue rectangle.

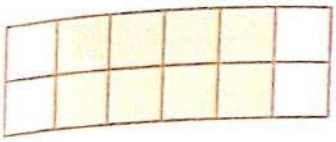


Write your guess here. _____

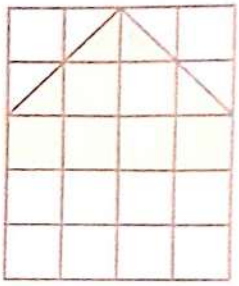
Check your guess by filling it with small squares.

3. Find the area of the shaded figures, if the area of each small square is 1 sq. cm.

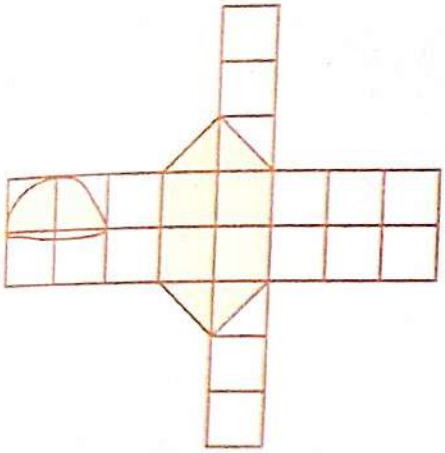
a.



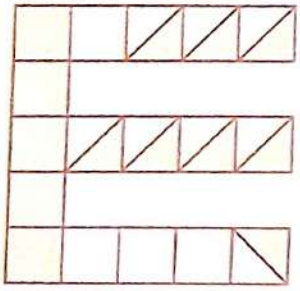
b.



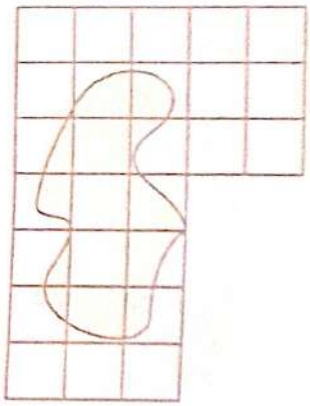
c.



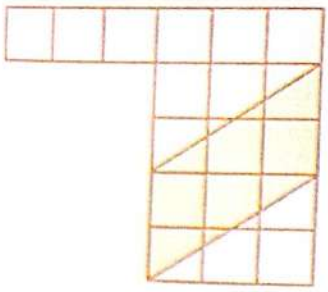
d.



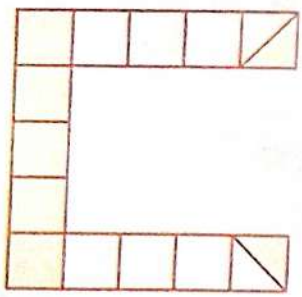
e.



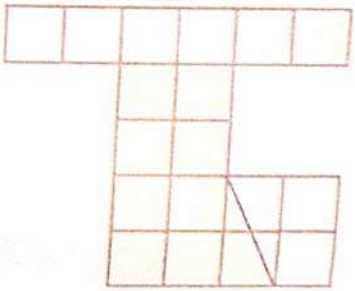
f.



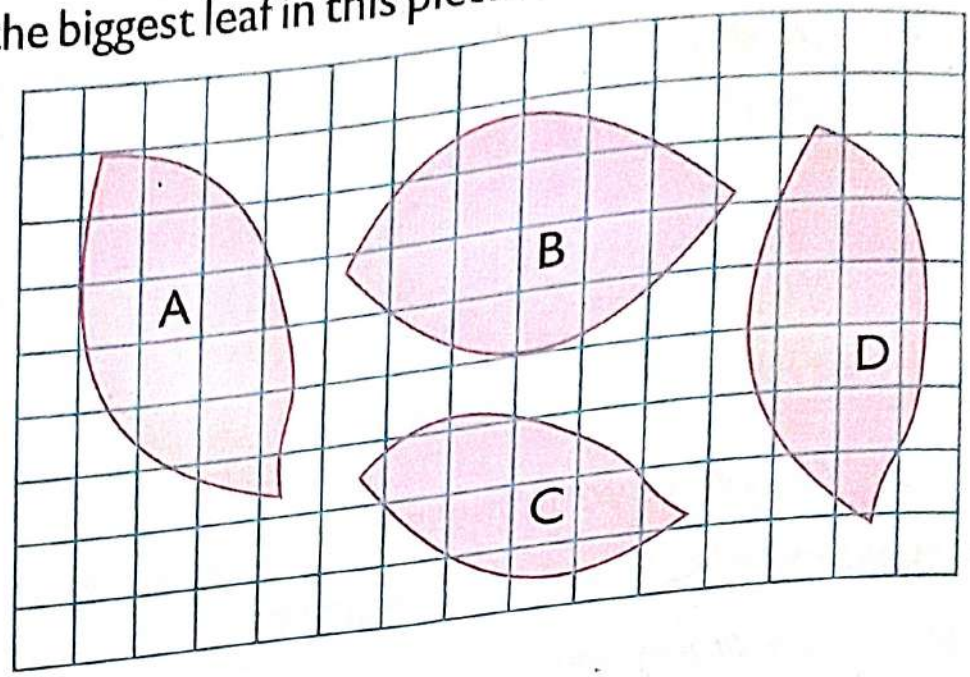
g.



h.



4. Which is the biggest leaf in this picture?



5. Fill in the table.

	Geometrical shape	Perimeter	Area
a.	7 cm, 12 cm		
b.	8 cm, 8 cm		
c.	11 cm, 2 cm		
d.	2.8 cm Each small square = 1 sq. cm		

13 Time

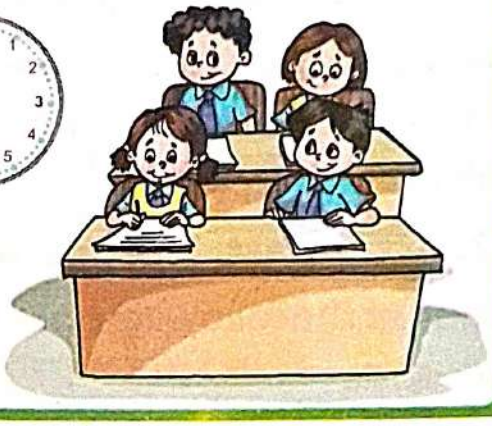
Travel Through

Readiness

Read the time on the clock and fill in the blanks.

a. Riya gets up at ..... o'clock in the morning.

b. Agrim reaches the school at ..... .



c. Arun comes back from school at ..... .

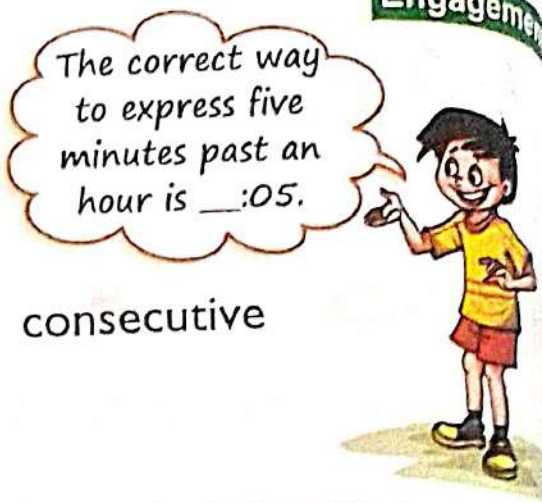
d. Krati sits down to do her homework at ..... o'clock.

Learning Outcomes

- Reading Time on a clock
- Time Duration
- 24-Hour Clock

READING TIME ON A CLOCK

Engagem



Reading time to 5 minutes correctness

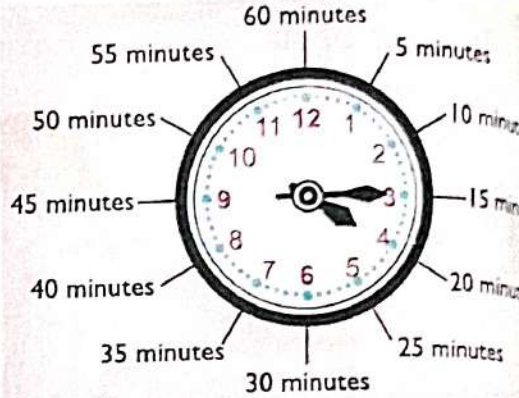
The dial of a clock has 12 equal divisions numbered from 1 to 12.

There are five equal divisions between two consecutive numbers.

There are 60 such small divisions on the dial of the clock.

Each small division represents one minute.

As the minute hand of the clock moves from one number to the next number, we say 5 minutes have passed.



Quarter past, half past and quarter to

Look at the following clock.

In a clock,

- when the minute hand is in the blue portion of the clock, the time is read as **past**.
- when the minute hand is in the yellow portion of the clock, the time is read as **to**.

10 minutes to 12

15 minutes past 4

A clock is divided into four equal parts called quarters.

- The first quarter is completed when the minute hand moves from 12 reaches at 3, it is thus called quarter past. It also means that 15 minu have passed.

- The second quarter is completed when the minute hand moves from 3 to 6. In this case, two quarters are completed (from 12 to 3 and from 3 to 6) so it is called half past. It means that 30 minutes have passed.
- The third quarter is completed when the minute hand travels from 6 to 9. It is then call quarter to. It means that 45 minutes have passed.
- The last quarter is completed when the minute hand travels from 9 to 12. This is when hour is completed on the clock.

Example 1 : Show the movement of the minute hand through the different quarters on the clock between 7 and 8.

Solution:

7 o'clock
7:00

Quarter past 7
7:15
15 minutes past 7

Half past 7
7:30
30 minutes past 7

Quarter to 8
7:45
45 minutes past 7 or
15 minutes to 8

8 o'clock
8:00

a.m. and p.m.

1 day = 24 hours

The hour hand on a clock takes 12 hours to go around the clock. So how does the hour hand complete a day on the clock?

The answer is simple. The hour hand completes two full rounds around the clock in a day. The two rounds are classified as a.m. and p.m. The first round from 12 midnight to 12 noon is called a.m. The second round from 12 noon to 12 midnight is called p.m.

Keep in Mind

- *a.m. stands for Ante Meridiem (before noon) and p.m. stands for Post Meridiem (after noon).*
- *12:00 in the night is referred to as 12 midnight (and not 12 a.m.).*
- *12:00 in the afternoon is referred to as 12 noon (and not 12 p.m.).*

Therefore, if you get up at 6 o'clock in the morning for school, it is 6 a.m. and if you go to bed at 8:30 in the evening, it is 8:30 p.m.

Try This

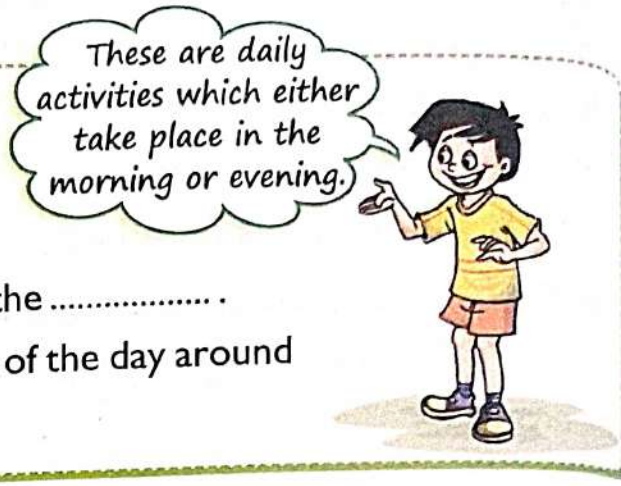
Fill in the blanks based on your understanding.

a. Dinner is served at 8:30 ..... .

b. The sun will set at 6:18 ..... .

c. My mother wake me up at 5:45 ..... in the ..... .

d. The hour hand will complete it's first round of the day around the clock at 12 ..... .

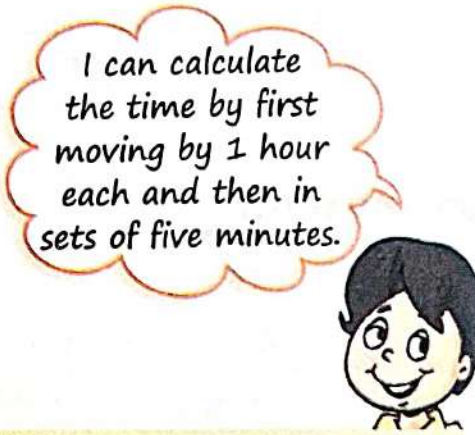


TIME DURATION

Engagement

The duration between two times on the clock is called time duration. It can also be understood as the time taken to complete an activity.

Example2: Ahaan started his train journey from Delhi at 7:30 a.m. He reached Ambala at 10:40 a.m. Calculate the time taken for his journey.



Solution : Calculate as follows.

7:30 a.m. $\xrightarrow{+\ 1\ \text{hour}}$ 8:30 a.m. $\xrightarrow{+\ 1\ \text{hour}}$ 9:30 a.m.

$\downarrow\ +\ 1\ \text{hour}$

10:40 a.m. $\xleftarrow{+\ 5\ \text{minutes}}$ 10:35 a.m. $\xleftarrow{+\ 5\ \text{minutes}}$ 10:30 a.m.

Total time taken = 1 hour + 1 hour + 1 hour + 5 minutes + 5 minutes
= 3 hours 10 minutes

Example 3 : Christina reached her office at 9:30 a.m. Her journey from her home to office took 1 hour 15 minutes. At what time did she leave her house?

Solution : Calculate as follows.

I will have to move backwards in time, first by 1 hour and then in sets of 5 minutes.

9:30 a.m. $\xrightarrow{-\ 1\ \text{hour}}$ 8:30 a.m. $\xrightarrow{-\ 5\ \text{minutes}}$ 8:25 a.m.

8:15 a.m. $\xleftarrow{-\ 5\ \text{minutes}}$ 8:20 a.m. $\xleftarrow{-\ 5\ \text{minutes}}$

Thus, Christina left her house at 8:15 a.m.

Progress CHECK-UP-1

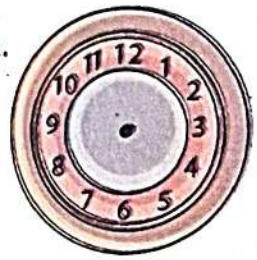
Pleasure TIME

Mastery

1. Three friends read time from a clock. Who is right?

	Cheeku		Bittu		Pinki	
	12:03	☐	12:15	☐	3:00	☐
	7:25	☐	5:07	☐	5:35	☐
	3:35	☐	7:03	☐	7:15	☐

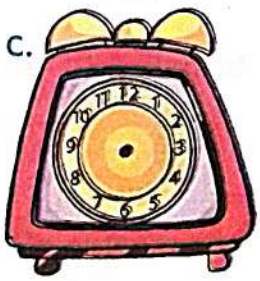
2. Show the following times in the clock :

a. 

3:10

b. 

6:40

c. 

4:45

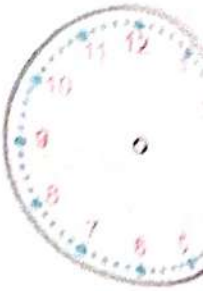
d. 

3:15

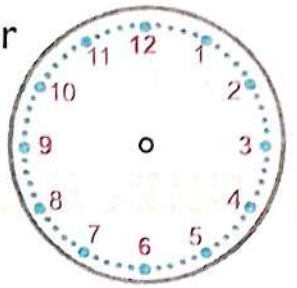
3. Draw where the hands will be :

a. 20 minutes after 6 o' clock

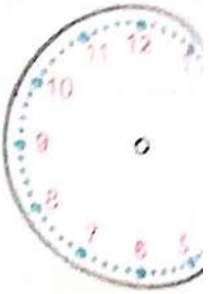
b. 10 minutes after 7 o' clock



c. 30 minutes after 8 o' clock



d. 15 minutes after 5 o' clock



4. Find out how long will it take the minute hand to move from.

a.  to  .....

b.  to  .....

c.  to  .....

d.  to  .....

5. a. How long does your school assembly take? .....

b. How long is your lunch break? .....

c. How long is your games period? .....

d. Is it the same as all the other periods? .....

6. Express time in different formats based on the information given.

a. 

1:00

b. 

9:05

5 minutes past 9

c. 

10 minutes past 10

d. 

15 minutes past 6

e. 

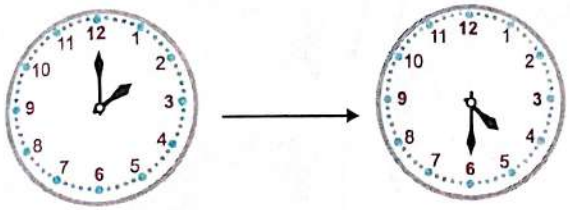
4:30

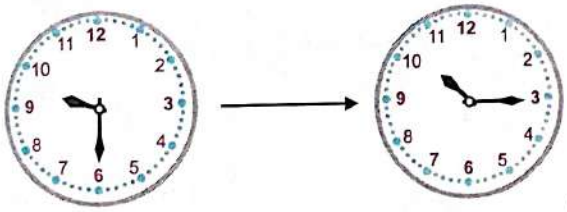
Half past 4

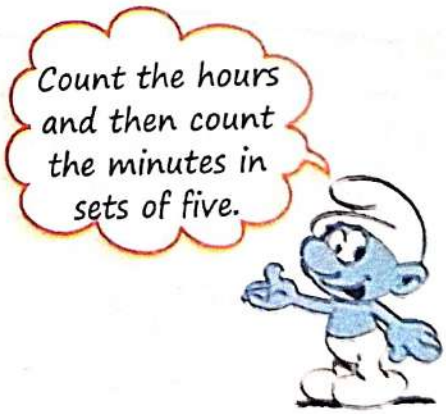
f. 

35 minutes past 10

7. Calculate how much time has passed between the time shown on the two clocks.

a.  = ...

b.  = ...



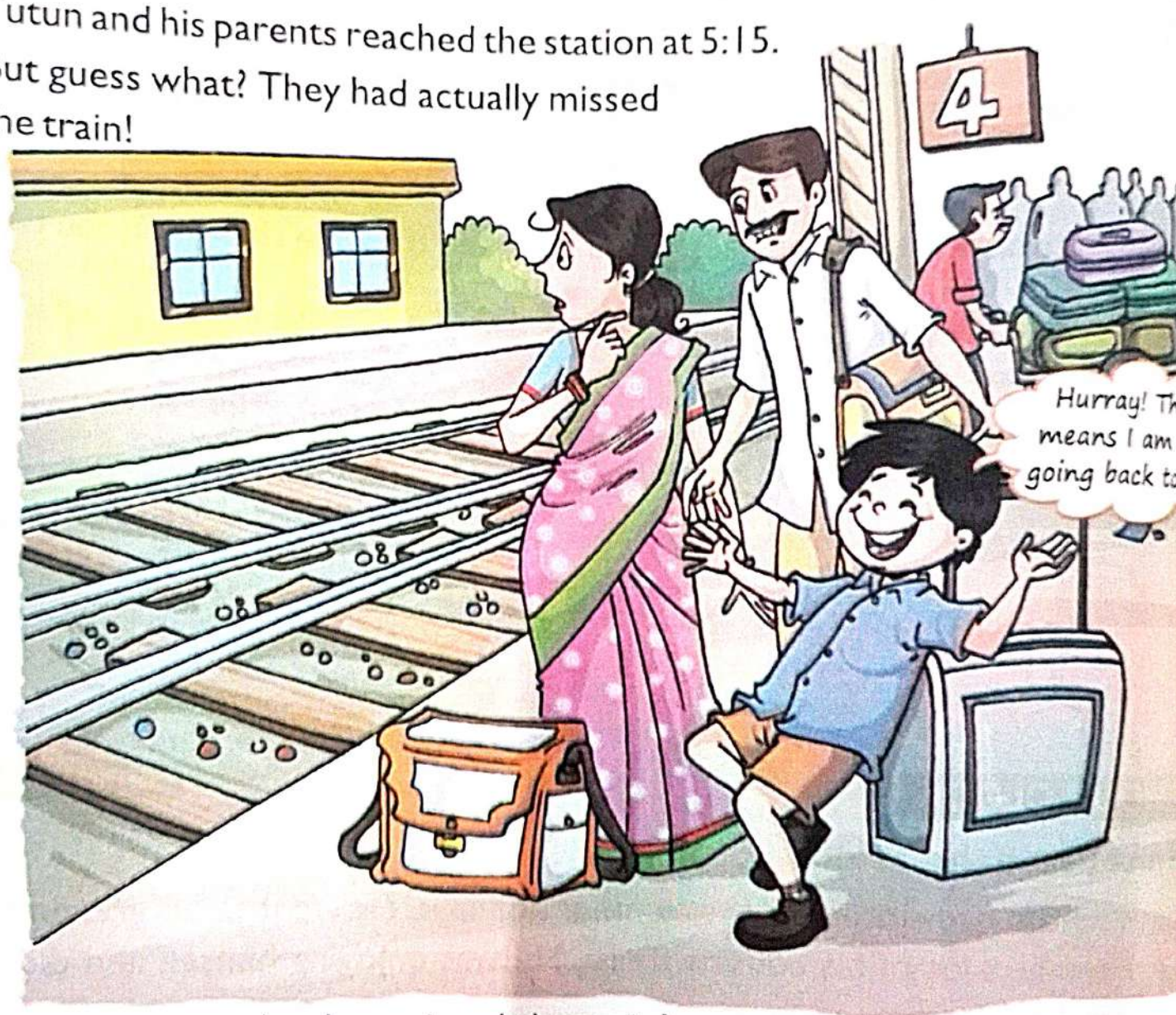
24-HOUR CLOCK

Engagement

Tutun Missed the Train

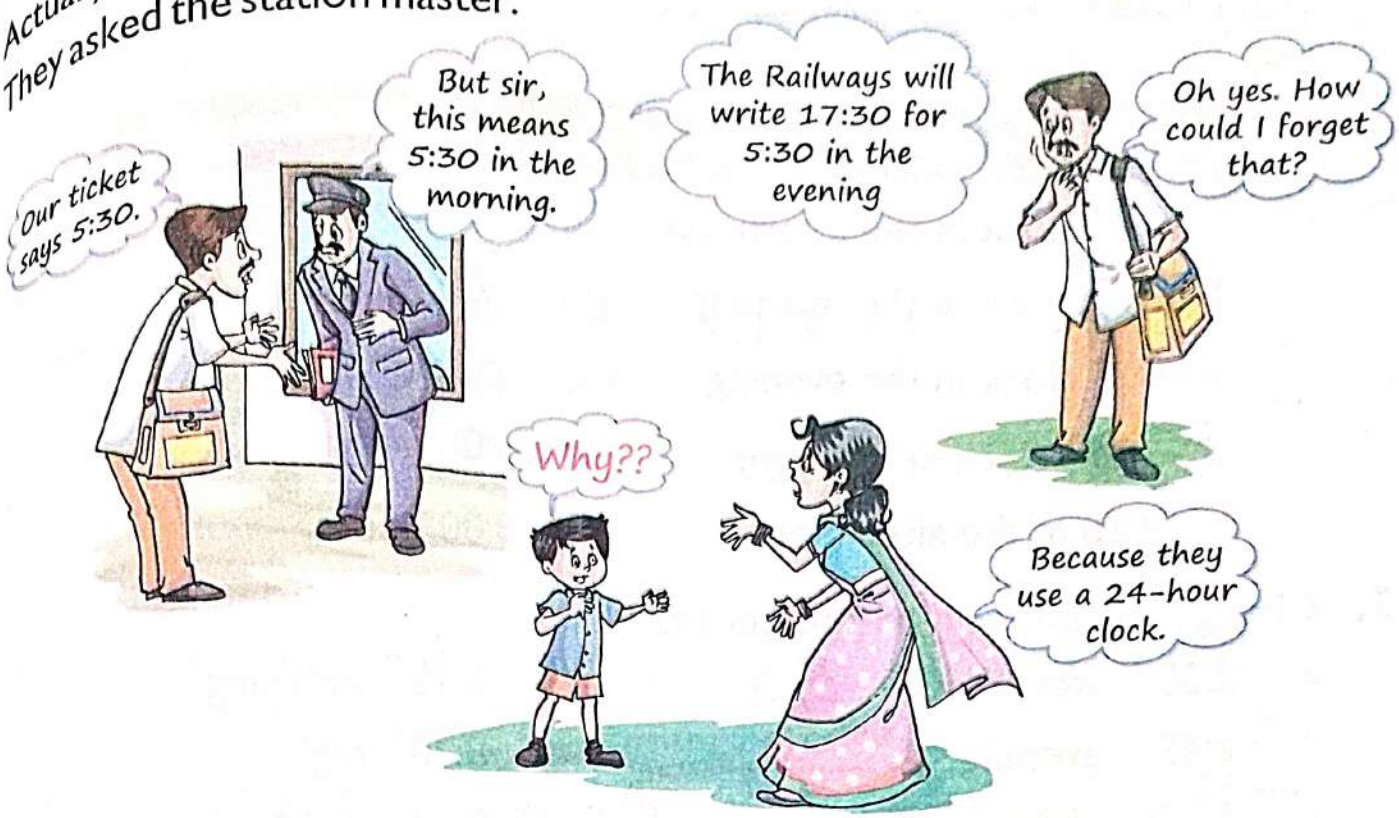
Tutun's school had closed for the summer holidays. He went to his grandma's place. He met a lot of his cousins there. He was enjoying himself and didn't want to go back home.

Tutun and his parents reached the station at 5:15. But guess what? They had actually missed the train!



Can you guess why they missed the train?

Actually the train had left at 5:30 in the morning! Tutun's parents were upset. They asked the station master:



Progress CHECK-UP-2

Pleasure TIME

Mastery

1. Look at this chart. It tells the difference between your watch and a 24-hour clock. Try to complete it.

Time by your watch (12-hour clock)	Time by a 24-hour clock
1 o' clock in the afternoon	13:00 hours
2 o' clock in the afternoon	14:00 hours
3 o' clock in the afternoon	.....
3:30 in the afternoon	15:30 hours
6 o' clock in the evening	.....
9 o' clock in the evening	.....
12 o' clock at midnight	.....

Suppose a train leaves at 8:30 at night. The time written on the Railw ticket would be ..... .

2. Match the columns:

Time by a 12-hour clock	Time by a 24-hour clock
a. 2 o' clock in the afternoon	(i) 18:00 hours
b. 4 o' clock in the morning	(ii) 16:30 hours
c. 6 o' clock in the evening	(iii) 14:00 hours
d. 12 o' clock at midnight	(iv) 04:00 hours
e. 4:30 in the afternoon	(v) 00:00 hours

3. Change the following to 24-hour clock.

a. 2:30 afternoon .....
b. 5:15 morning .....
c. 6:45 evening .....
d. 8:20 night .....
e. 11:10 night .....
f. 9:40 night .....
g. 6:45 morning .....
h. 12:00 midnight .....

4. Express the following in a.m. or p.m.

a. 12 noon .....
b. 12 midnight .....
c. 4:45 in the evening .....
d. 8 o'clock in the morning .....

14 Money

Travel Through

Readiness

1. Express each of the following amounts in figures.
   a. One rupees and ninety paise.
   b. Seventy five paise.
   c. One hundred rupees and twenty five paise.
   d. Eighteen rupees and eighty paise.
   e. Seventy nine rupees and thirty-five paise.
   f. Two hundred seventy rupees and sixty five paise.
2. Express each of the following amounts in words :
   a. ₹ 83.50 b. ₹ 90.50 c. ₹ 64.75 d. ₹ 197.50
   e. ₹ 163.25 f. ₹ 0.06 g. ₹ 107.60 h. ₹ 10.10
3. See the following real-life situation and find the money paid by Baloo, a friend Reetu.

Baloo, the bear went to the Pacific Mall. He wanted to buy a camera, a mobile phone and goggles. He searched the whole range of cameras, mobile phones and goggles.

At last he selected a camcorder camera, a touch screen mobil phone and ultraviolet proof goggles.

It was a huge bill. But Baloo paid.

Bill

Camera C	₹ 3515
4G Mobile phone	₹ 4125
UVP Goggles	+ ₹ 1205
Total	

Learning Outcomes

- Indian Currency
- Conversion of Money
- Addition and Subtraction of Mone
- Multiplication and Division of money
- Word Problems
- Making a Bill
- Shoppin

INDIAN CURRENCY

Engageme

These are the notes and coins commonly used in our country.

₹ 1

₹ 2

₹ 5

₹ 10

₹ 1

₹ 2

₹ 5

₹ 10

₹ 20

₹ 50

₹ 100

₹ 200

₹ 500

₹ 2000

Example 1: In a box, there are 100 coins. Half of them are of ₹ 5 and the other half are of ₹ 2. How much money is there in the box?

Solution : Half of 100 coins = 100 ÷ 2 = 50 coins

50 coins of ₹ 5 = ₹ 5 × 50 = ₹ 250

50 coins of ₹ 2 = ₹ 2 × 50 = ₹ 100

Total money in the box = **₹ 350**

Example 2 : Julia put 2 notes of ₹ 2000, 3 notes of ₹ 500 and 5 notes of ₹ 100 in her wallet. How much total money did Julia have in her wallet?

Solution : 2 notes of ₹ 2000 = ₹ 2000 × 2 = ₹ 4000

3 notes of ₹ 500 = ₹ 500 × 3 = ₹ 1500

5 notes of ₹ 100 = ₹ 100 × 5 = ₹ 500

= **₹ 6000**

Hence, Julia has ₹ 6000 in her pocket.

Progress CHECK-UP-1

Pleasure TIME

Mastery

A. How much amount is it?

(a) 10 notes of ₹ 20
6 coins of ₹ 10

(b) 14 notes of ₹100
6 notes of ₹ 50

5 coins of ₹ 5
10 coins of ₹ 1

10 notes of ₹ 10

(c) 8 notes of ₹ 500
5 coins of ₹ 10
20 coins of ₹ 5

(d) 2 notes of ₹1000
5 notes of ₹ 500
3 notes of ₹ 50

B. Solve the following problems:

1. Alice carried 1 note of ₹ 10, 3 coins of ₹ 5 and 5 coins of ₹ 1. How m money in all did she carry to school?
2. The teacher asked each student to bring ₹ 100 for picnic. Max too notes of ₹ 10 and 6 coins of ₹ 5. Did he carry enough money?
3. Harry has 10 notes of ₹ 100 and Raymond has 20 notes of ₹ 50. W has more money?
4. Peter has 5 notes of ₹ 500, 3 notes of ₹ 100 and 7 notes of ₹ 20. H much money does he have in all?

CONVERSION OF MONEY

Engageme

We already know that ₹ 1 = 100 paise or 100 p.

So, 1 p = ₹$\frac{1}{100}$

2 p = ₹$\frac{2}{100}$ and so on.

Conversion of Rupees into Paise

To convert rupees into paise, we multiply by 100.

Example 3 : Convert ₹ 39.75 into paise.

Solution : ₹ 39.75 = 39.75 × 100 p = 3975 p

Example 4 : Convert ₹ 24.05 in paise.

Solution : ₹ 24.05 = 24.05 × 100 p = 2405 p

Keep in Mind

- *Money is somethin that is accepted a payment against th goods and service offered.*
- *It is a medium o exchange in the form o coins and currency notes.*

Conversion of Paise into Rupees

To convert paise into rupees, we divide by 100.

Example 5 : Convert 302 paise into rupees.

Solution : $302\text{ p} = ₹\ \frac{302}{100}$

$= ₹\ 3.02$

Example 6 : Convert 5467 paise in rupees.

Solution : $5467\text{ p} = ₹\ \frac{5467}{100}$

$= ₹\ 54.67$

Keep in Mind

- *To convert rupees and paise to paise, just remove the decimal point (e.g., ₹ 23.35 = 2325 paise).*
- *To convert paise to rupees, place the decimal point two places to the left, starting from the ones digit (e.g. 125 paise = ₹ 1.25).*

Progress CHECK-UP-2

Pleasure TIME — **Mastery**

1. Convert the following into paise :

(a) ₹ 35.28 (b) ₹ 76.12 (c) ₹ 82.32 (d) ₹ 16.47

(e) ₹ 7.09 (f) ₹ 10.05 (g) ₹ 20.00 (h) ₹ 77.22

2. Convert the following into rupees :

(a) 981 p (b) 6519 p (c) 2030 p (d) 701 p

(e) 2104 p (f) 3761 p (g) 1003 p (h) 4030 p

ADDITION AND SUBTRACTION OF MONEY

Engagement

For adding or subtracting money amounts, we write rupees and paise in separate columns.

Example 7 : Add ₹ 556.75 and ₹ 407.50.

Solution :

	₹		P
	(1)	(1)	
	5	5 6 .	7 5
+	4	0 7 .	5 0
	9	6 4 .	2 5

Answer : ₹ 964.25

Example 8 : Subtract ₹ 475.50 from ₹ 910.20.

Solution :

₹	P
(8)	(10) (9) (12)
9	1 0 . 2 0
− 4	7 5 . 5 0
4	3 4 . 7 0

Answer : ₹ 434.7

Progress CHECK-UP-3

Pleasure TIME

Master

1. Add the following :

(a) ₹ 149.75 and ₹ 356.05

(b) ₹ 1075.50 and ₹ 3180.20

(c) ₹ 5496.45 and ₹ 5366.75

(d) ₹ 203.07, ₹ 93.93 and ₹ 777.77

2. Subtract the following :

(a) ₹ 3617.35 from ₹ 8010.20

(b) ₹ 1565.40 from ₹ 1637.35

(c) ₹ 1845.65 from ₹ 8005.35

(d) ₹ 144.24 from ₹ 2014.14

3. From the sum of ₹ 2415 and ₹ 3640.25, subtract ₹ 895.75.

4. Add the difference of ₹ 261.45 and ₹ 1842.35 to the difference of ₹ 1120.1 and ₹ 3461.75.

MULTIPLICATION AND DIVISION OF MONEY

Engagemen

Multiplication and division of money with a whole number is done the sam way as that of ordinary numbers. Just remember to put the point after tw digits from the right in the product and the quotient.

Example 9 : Multiply ₹ 49.21 by 6.

Solution :

4	9 . 2 1
×	6
2	9 5 . 2 6

Answer : ₹ 295.2

Example 10 : Divide ₹ 5796.28 by 28.

Solution :

```
       207.01
  28) 5796.28
     - 56
       19
      - 0
      196
    - 196
        02
       - 0
        28
      - 28
         0
```

Answer : ₹ 207.01

Progress CHECK-UP-4

Pleasure TIME

Mastery

1. Multiply the following :

(a) ₹ 364.24 × 5 (b) ₹ 718.52 × 3 (c) ₹ 467.04 × 8

(d) ₹ 611.89 × 7 (e) ₹ 217.06 × 25 (f) ₹ 92.64 × 15

2. Divide the following :

(a) ₹ 928.48 ÷ 14 (b) ₹ 547.25 ÷ 5 (c) ₹ 738.30 ÷ 15

(d) ₹ 9223.96 ÷ 9 (e) ₹ 7128.38 ÷ 7 (f) ₹ 618.38 ÷ 7

WORD PROBLEMS

Example 11 : Shubham had ₹ 3000 with him. He spent ₹ 1999.95 on his shoes and donated ₹ 500 to an NGO. How much money was spent by him? What amount is left?

Solution : Total money with Shubham = ₹ 3000.00

Amount spent on shoes = ₹ 1999.95

Amount spent on NGO = ₹ 500.00

Total amount spent = ₹ 1999.95 + ₹ 500.00

= ₹ 2499.95

```
     1
  ₹ 1 9 9 9.9 5
+ ₹   5 0 0.0 0
  ₹ 2 4 9 9.9 5
```

Amount left with him

$$\begin{array}{rr} & \overset{2}{\cancel{3}}\,\overset{9}{\cancel{0}}\,\overset{9}{\cancel{0}}\,\overset{9}{\cancel{0}}.\,\overset{9}{\cancel{0}}\,\overset{10}{\cancel{0}} \\ - & ₹\ 2\ 4\ 9\ 9.\ 9\ 5 \\ \hline & ₹\ \ \ 5\ 0\ 0.\ 0\ 5 \end{array}$$

Hence, the amount spent is ₹ 2499.95 and the amount left is ₹ 500.05.

Example 12 : Shyam buys 9 bars of chocolate for a party. One bar costs ₹ 21.
How much money does he spend?

Solution : Cost of one bar of chocolate = ₹ 21.75
Cost of 9 bars of chocolate = ₹ 21.75 × 9
= ₹ 195.75

$$\begin{array}{r} 21.75 \\ \times\ 9 \\ \hline 195.75 \end{array}$$

Hence, the total money spent by Shyam is ₹ 195.75.

Example 13 : A shopkeeper sold 4 tables at ₹ 234.05 each. He bought 10 cha
with the same amount. At what price did he buy each chair?

Solution : Amount of 1 table = ₹ 234.05
∴ Amount of 4 tables = ₹ 234.05 × 4
Amount got by selling 4 tables = ₹ 936.20

$$\begin{array}{r} ₹\quad p \\ \overset{1}{\cancel{2}}\,\overset{1}{\cancel{3}}\,\overset{2}{\cancel{4}}.\,\overset{2}{\cancel{0}}\,\overset{2}{\cancel{5}} \\ \times\ 4 \\ \hline 936.20 \end{array}$$

Total amount = ₹ 936.20
No. of chairs purchased = 10
∴ Cost of 1 chair = ₹ 936.20 ÷ 10

$$\begin{array}{r} 93.62 \\ 10\overline{)936.20} \\ -\ 90 \\ \hline 036 \\ -\ 30 \\ \hline 062 \\ -\ 60 \\ \hline 020 \\ -\ 20 \\ \hline 0 \end{array}$$

Hence, cost of each chair is ₹ 93.62.

Progress CHECK-UP-5

Pleasure TIME

Mastery

1. Richa bought a skirt for ₹ 558.50 and a pair of shoes for ₹ 1325.25. How much money did she spend in all?
2. Manoj spends ₹ 785 on train fare, ₹ 245.50 in buying gifts and ₹ 528.50 in buying a sweater. What is his total spending?
3. Sakshi bought apples for ₹ 128.50, oranges for ₹ 78.50 and grapes for ₹ 210.75. If she had ₹ 900 initially, how much money is left with her?
4. If 1kg mangoes cost ₹ 85, then find the cost of 12 kg mangoes.
5. 5 friends bought a gift for ₹ 1375.50. How much did each person contribute?
6. If three notebooks costs ₹ 526.26, what will be the cost of one notebook? If a 200 rupee note is given to the shopkeeper, how much money will he return?

MAKING A BILL

Example 14 : Miss Emily, resident of G-30, Civil Lines, Delhi purchased the following things from Jessica General Store, Cannaught Place, New Delhi :
2 packets of 100 g butter at ₹ 36 each, 2 litres refined oil at ₹ 150 per litre, 1 kg gram flour at ₹ 110 per kg, 2 packets of biscuits at ₹ 25 each.
Make a bill for this purchase.

Solution :

JESSICA GENERAL STORE
Cannaught Place, New Delhi

Ph. : .....

Name and Address : Miss Emily
G-30, Civil Lines, New Delhi.

Bill No. : .....
Dated : .....

S.No.	PARTICULARS	Qty.	Rate (₹)	Amount (₹)
1.	Butter packet	2×100 g	36	72
2.	Refined oil	2 litres	150	300
3.	Gram flour	1 kg	110	110
4.	Biscuits	2 packets	25	50
		TOTAL		532

Sign. .....

Progress CHECK-UP-6

Pleasure TIME

1. Make out a bill for the following purchases:
   a. Rice : ₹ 16.00, Refined oil : ₹ 55.50, Sugar : ₹ 17.50, Soap : ₹ 9.25. Toothpaste : ₹ 18.50.
   b. Notebook : ₹ 14.50, Pencil : ₹ 3.75, Pencil box : ₹ 21.00, Magazine : ₹ 18.50, Story book : ₹ 12.25.
2. Prices of items in a general store are given below :

Items	Quantity	Price (in ₹)
Rice	1 kg	18.00
Atta	1 kg	14.00
Daal (Chana)	1 kg	30.00
Daal (Moong)	1 kg	40.50
Soap	200 g	11.50
Toothpaste	100 g	19.50
Face Cream	150 g	26.50
Sugar	1 kg	21.50
Salt	1 kg	8.50
Biscuit	1 packet	12.00
Namkeen	200 g	14.00
Refined Oil	1 litre	65.00

Using the list, answer for each of the following purchases:

a. 1 kg *daal (moong)*, 150 g face cream, 100 g toothpaste, 3 packets biscuits.

b. 2 kg rice, 2 kg *atta*, 1 kg *daal (chana)*, 2 kg *daal (moong)*, 200 g soap, 100 toothpaste, 1 litre refined oil, 1 kg sugar.

c. 3 kg rice, 1 kg *daal (chana)*, 1 kg *daal (moong)*, 1 kg salt, 2 packets buscuits.

d. 2 kg *atta*, 1 litre refined oil, 200 g soap, 1 kg sugar, 200 g *namkeen*.

e. 5 kg *atta*, 1 litre refined oil, 200 g soap, 1 kg salt, 100 g toothpaste, 150 g face cream.

f. 4 kg rice, 2 kg *daal (chana)*, 1 kg sugar, 2 packets of biscuits, 1 litre refined oil, 150 g face cream.

HOPPING

ample 15 : Raghav bought a notebook for ₹ 6.75, an eraser for ₹ 2.25 and a ıocolate for ₹ 15.50. He gave a 50-rupee note to the shopkeeper. How much d he get back?

olution : Cost of a notebook = ₹ 6.75
Cost of an eraser = + ₹ 2.25
Cost of a chocolate = + ₹ 15.50
= **₹ 24.50**

Raghav gave to the shopkeeper = ₹ 50.00
Raghav spent = – ₹ 24.50
He got back = **₹ 25.50**

Hence, Raghav will get back ₹ 25.50.

Example 16 : The cost of 1 chocolate is ₹ 6.50. Mother bought 5 chocolates and paid with a 50-rupee note. How much will she get back?

Solution : Cost of 1 chocolate = ₹ 6.50
× 5
Cost of 5 chocolates = **₹ 32.50**

Mother gave = ₹ 50.00
Mother spent = – ₹ 32.50
She will get back = **₹ 17.50**

Hence, mother will get back ₹ 17.50.

Example 17 : Mrs. Sana bought the following items from a shop.
1 packet of *namkeen* for ₹ 80.50
2 kg of *daal* for ₹ 72.50
1 packet of tea for ₹ 138.50
She gave a 500-rupee note to the shopkeeper. How much money did the shopkeeper return?

Solution :

Cost of 1 packet of *namkeen*	=	₹ 80.50
Cost of 2 kg *daal*	= +	₹ 72.50
Cost of 1 packet of tea	= +	₹ 138.50
Total cost	=	₹ 291.50

Now,

Mrs. Sana gave to the shopkeer	=	₹ 500.00
She has to pay	=	₹ 291.50
Shopkeeper will return	=	₹ 208.50

Hence, the shopkeeper will return ₹ 208.50 to Mrs. Sana.

Progress CHECK-UP-7

Pleasure TIME

Mast

1. Akshay bought a fountain pen for ₹ 11.25 and a ball-point pen for ₹ 5. He gave a twenty-rupee note to the shopkeeper. How much mo should he get back?
2. Shilpi had ₹ 50.00. She bought an ice-cream for ₹ 15.00 and chocolates ₹ 12.00. How much money is left with her?
3. Kavita had ₹ 300.00. She bought a purse for ₹ 72.50 and a suit for ₹ 125. How much money is left with Kavita?
4. Mona purchased a ribbon for ₹ 15.75, some nailpolish for ₹ 32.40 bangles for ₹ 40.20. She gave a 100-rupee note to the shopkeeper. H much money did she get back?
5. Mrs. Prabha bought a baby dress for ₹ 87.50. She gave a 100-rupee n How much change should she get back?

15 Data Handling

Travel Through

Readiness

A table helps us organise information about things.

This table shows the preference of flavour of fruit juice of 50 children.

Fruit juice	Number of Children
Orange	9
Mango	18
Guava	11
Mixed fruit	12

Use the table to answer these questions.

1. Which juice is most liked by children? ☐
2. Which juice is least liked by children? ☐
3. Mango juice is liked by ..... (double/half) the number of children than orange juice. ☐
4. **Fill in the boxes with > or <.**
   a. Number of children who like guava juice ☐ Number of children who like orange juice
   b. Number of children who like mango juice ☐ Number of children who like mixed fruit
   c. Number of children who like mixed fruit juice ☐ Number of children who like guava juice

Learning Outcomes

- Data
- Tally Marks and Data Table
- Pictographs
- Bar Graphs
- Pie Charts (Chapati Charts)

DATA

A collection of facts is called data. Facts are collected by a survey and can be represented in the form of names, numbers and objects. Data helps in understanding information better.

Data are of two types :

1. Primary Data : Collected by a person from a direct source. For example, the information collected by the person by conducting surveys or interviews.
2. Secondary Data : Collected by a person through another source. For example, the information based on some kind of research that has been done in the part or collected from the newspapers.

In this chapter, we will learn to understand and interpret the given data through tally marks pictographs, bar graphs and Pie Charts or Chapati Charts.

TALLY MARKS AND DATA TABLE

Dhruv was making a list for a picnic.

He wrote: Ankit, Priya and Anu like chicken roll; Pallavi, Bala, Vicky and Devi like samosa, ...

His sister Mala told him that it would be better to make a table.

The table would make it easier to know how many of each thing to order.

So Dhruv called out the names and what they like, and Mala made / marks.

Then she added up the marks for ordering.

Food	How many like it	Number to order
Chicken roll	///	3
Samosa	////	4
Pastry	𝍸	5
Muffin	//	2

𝍸 shows 5.

This table is a collection of facts and numbers.

It tells us things (facts) such as how many of Dhruv's friends like samosas.

We say that the table has data on what Dhruv's friends like to eat.

PICTOGRAPHS

A picture chart is called a pictograph. A pictograph can also use symbols to represent information or data. For example,

Look at the pictograph below.

Number of Holidays

January	👍👍👍👍
February	👍👍
March	👍👍👍
April	👍👍👍

This box gives what the picture stands for.

1 holiday

From this pictograph we know these things :

1. The month with the most holidays is January (4).
2. The months with the same number (3) of holidays are March and April.
3. The month with the least holidays is February (2).
4. The total number of holidays in the four months is 12.

Look at this pictograph and answer the questions.

Games that Children of Tina's Class Like

Football	●●●●●
Cricket	●●●●●●●●
Basketball	●●●●
Tennis	●●●●●

● 2 children

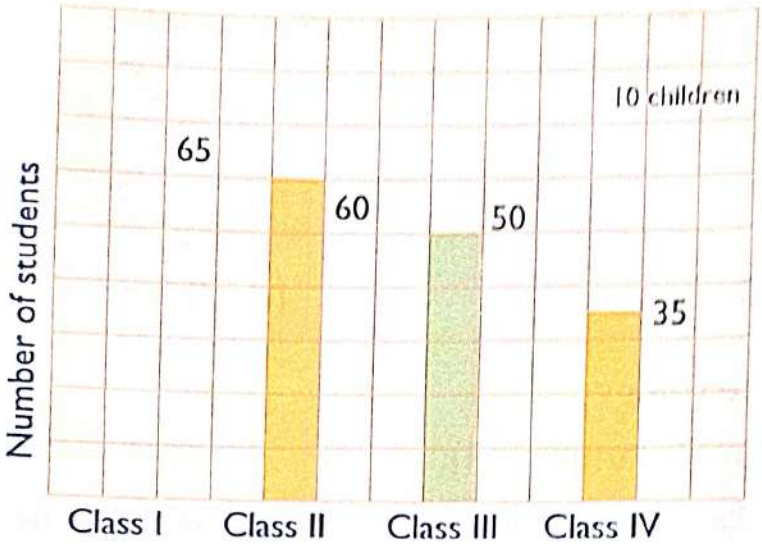
1. How many children like football? ....5 × 2 = 10.....
2. How many children like tennis? .....
3. Which game is liked the most? ..... How many like it? .....

4. Which game is liked the least? ..... How many like it? .....

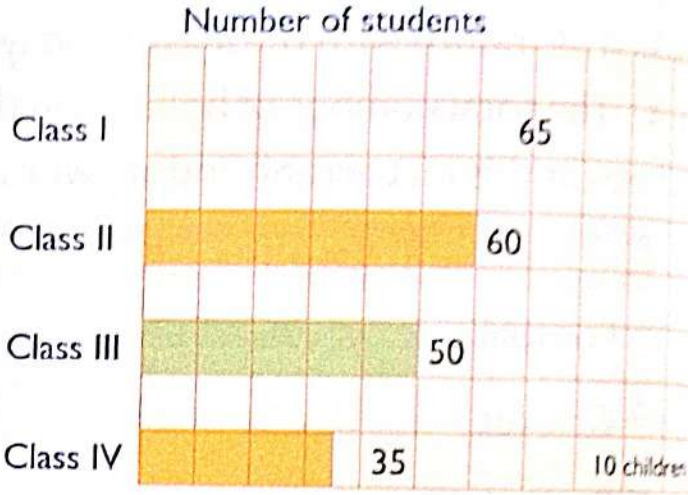
5. Which two games are liked equally? .....

BAR GRAPHS

We can make other kinds of charts to show what is given in the pictograph above. For example, we can make charts on squared paper. Two charts are shown here. In these, each coloured square shows 10 children.



The coloured squares together look like bars. We call such charts bar charts or bar graphs.



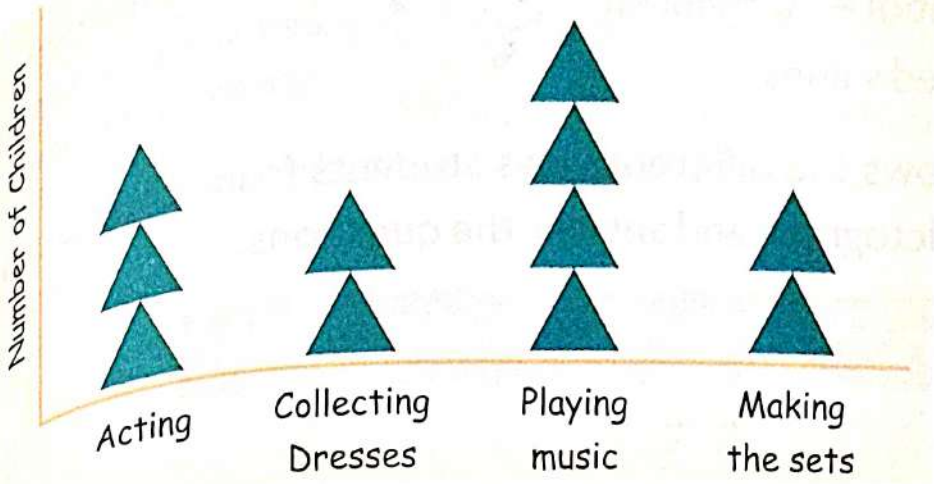
Progress CHECK-UP-1

Pleasure TIME

Mastery

1. All children of a class are getting ready for a drama. Some children are acting. Some are busy collecting the dresses. Some are bringing tables and chairs to make the sets.

The Drama Chart



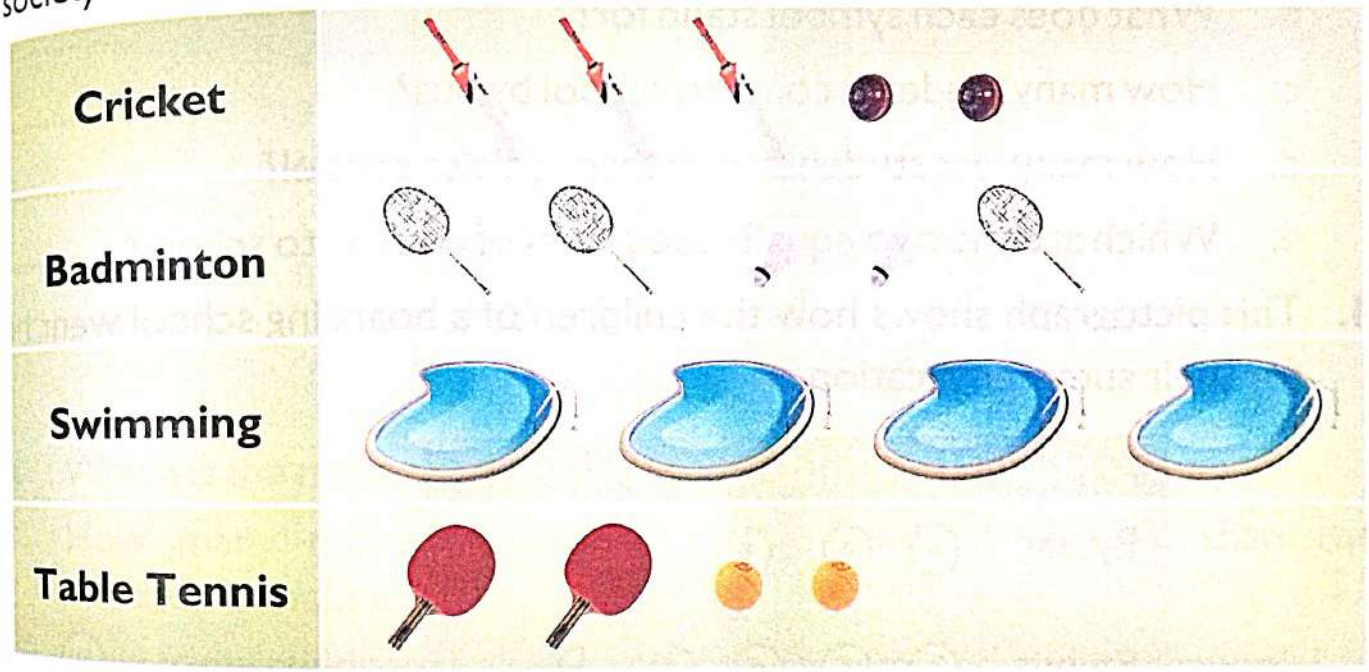
a. How many children are acting in the drama?

b. Which are more—children making the sets or those acting?

c. What is being done by most of the children?

d. How many children are collecting dresses?

The pictograph shows the preferences of sport of the children of a housing society.



a. Prepare a key for this data, if each symbol represents five children.

b. Which two sports are equally liked by children?

c. Prepare a tally chart for each of these sports.

d. Will the answers in parts b and c change if, 1 symbol = 10 children Give the changed values.

Keep in Mind

Each symbol in the pictograph represents five children.

3. This pictograph shows the different ways students from Class 8 come to school. Study the pictograph and answer the questions.

Ways of coming to school – Class 8	
Car	☺ ☺
Bus	☺ ☺ ☺ ☺ ☺ ☺
Cycle	☺ ☺ ☺
Walking	☺ ☺
☺ stands for 10 students	

a. What is the title of the pictograph? .....

b. What does each symbol stand for? .....

c. How many students come to school by bus? .....

d. How many less students walk than cycle to school? .....

e. Which are the two equally used ways of coming to school? .....

4. This pictograph shows how the children of a boarding school went home for their summer vacation.

How the children travelled	
By car	⊙ ⊙ ◐
By bus	⊙ ⊙ ⊙ ◐ ◺
By train	⊙ ⊙ ⊙ ⊙ ⊙ ⊙

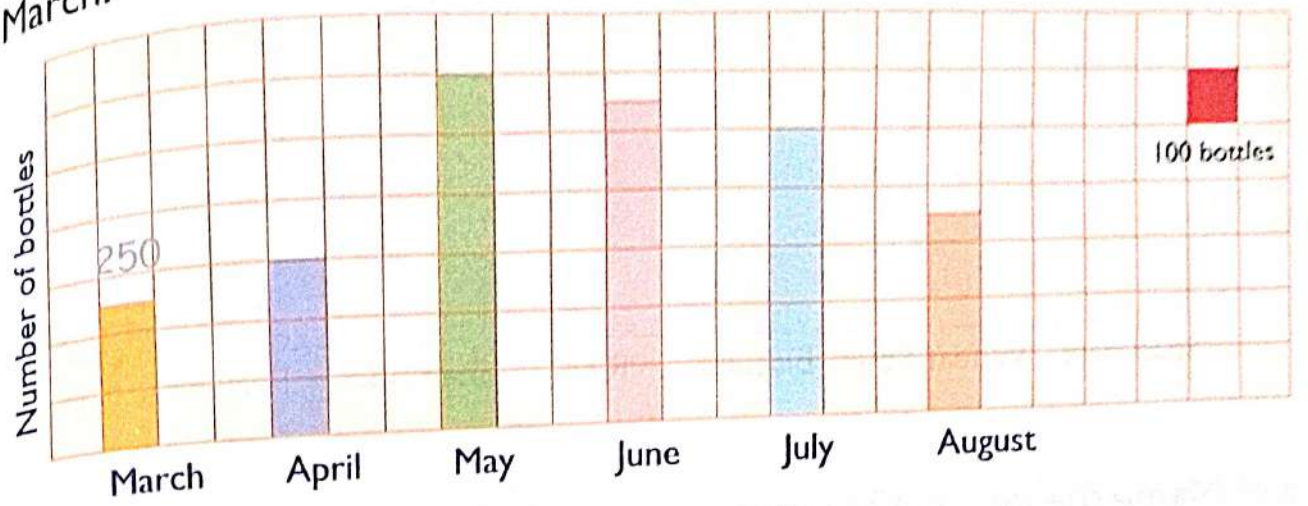
⊙ = 20
◐ = 10
◺ = 5

a. The number of children who travelled by car = ...

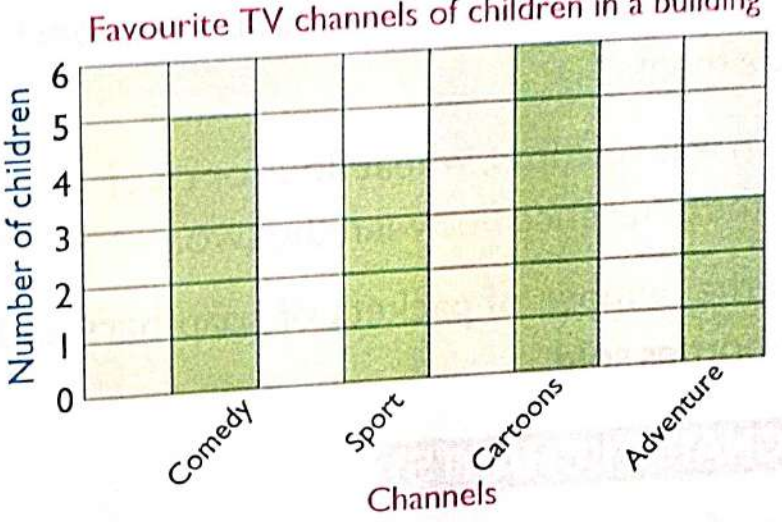
b. The number of children who travelled by bus = ...

c. The number of children who travelled by train = ...

5. This chart shows the number of bottles of cold drinks sold by a shop in different months of a year. Write the numbers in the chart, as shown for March.



6. Study the bar graph and answer the questions.

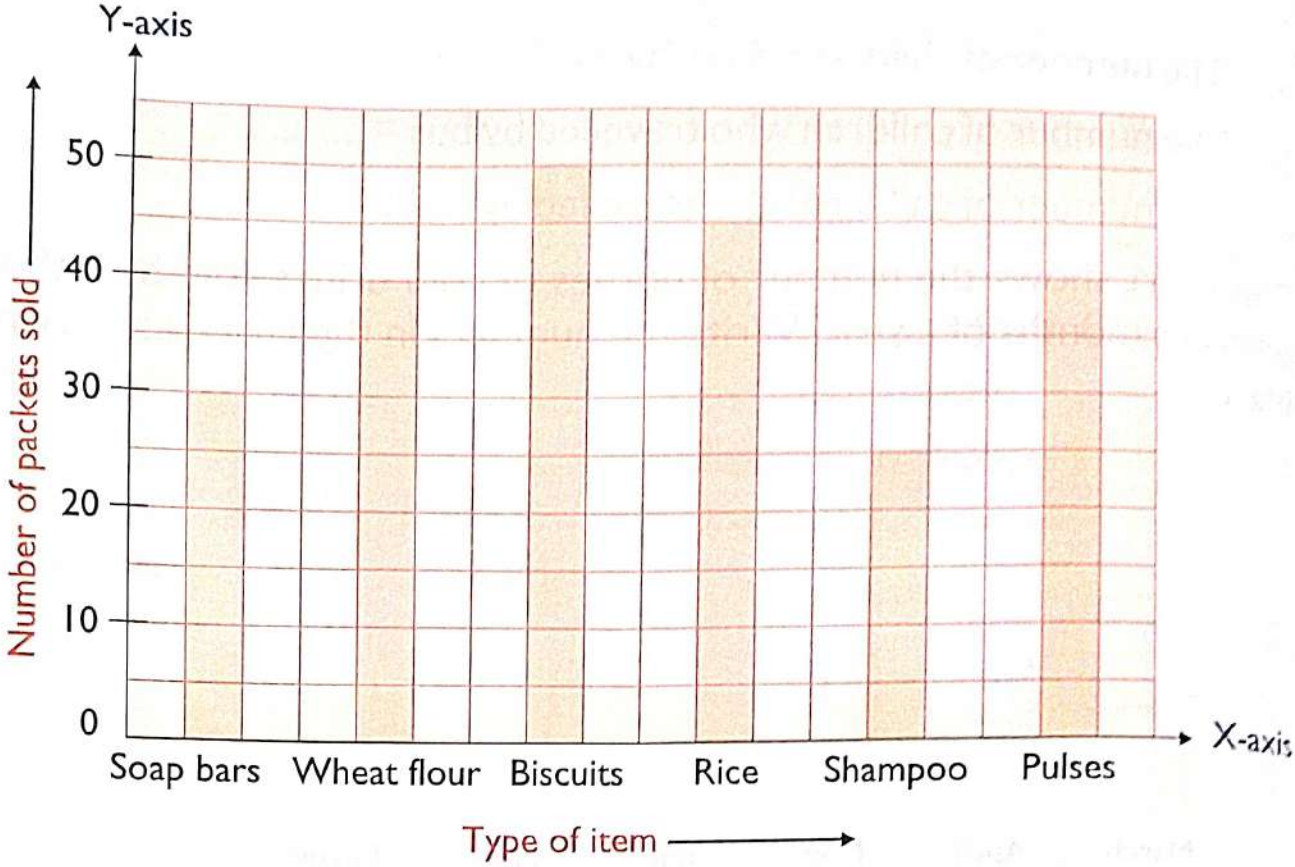


a. Which is the most popular channel?

b. How many more children like the cartoons channel than the adventure channel?

c. How many children in all like both the comedy and sports channels?

7. The graph represents the packets of items sold by a shopkeeper on a particular day. Study the graph carefully and answer the questions.



a. Name the item sold maximum in number.

b. Were there items that were sold in equal numbers? If yes, name them.

c. Which item was sold less, wheat flour or rice? Calculate the difference between the two.

d. Compare the number of packets of soap bars and shampoo bottles sold.

PIE CHARTS (CHAPATI CHARTS)

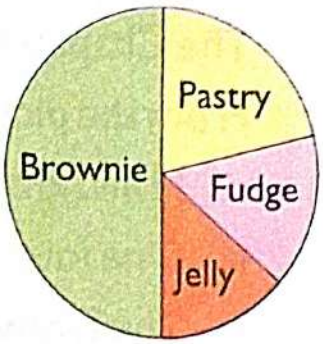
Pie chart is a type of graph that looks like a pie. We compare and show th information by the use of pie charts.

The following pie chart shows the sweets liked by students in a class.

Keep in Mind

Pie charts are commonly used to compar fractions, therefore to understand the pi charts one should have basic understandin of fractions.

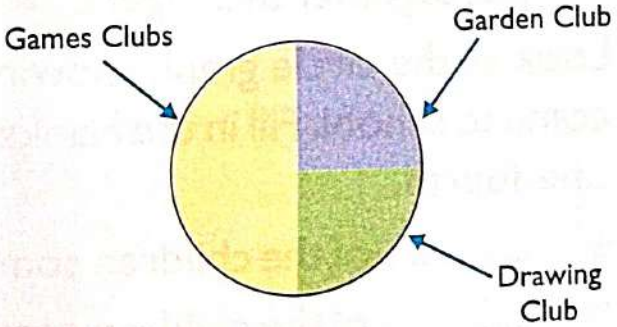
Take a close look at the pie chart. Here, half of the circle is coloured green which represents brownie, hence, we understand that brownies are liked by half of the class followed by pastry which is coloured in yellow.



However, small but equal number of children like fudge and jelly as the pink part representing fudge and orange part representing jelly is less in comparison to the green part of brownie and yellow part of pastry.

Let us read this example to have a more clear idea of a pie chart.

All children of a school take part in different clubs:



The Chapati Chart shows the number of children in different clubs.

From the picture we can see that:

a. Half the children in the class take part in the Games Club.

b. One fourth of the children are members of the Garden Club.

c. The Drawing Club has one fourth of the children of the class.

If there are 200 students in the school, look at the above Chapati Chart and tell the number of members in each club:

(i) The Games Club has ..... members.

(ii) The Garden Club has ..... members.

(iii) There are ..... members in the Drawing Club.

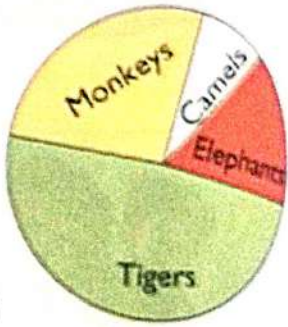
Answer: (i) $\frac{1}{2} \times 200 = 100$ (ii) $\frac{1}{4} \times 200 = 50$ (iii) $\frac{1}{4} \times 200 = 50$

Progress CHECK-UP-2

Pleasure TIME

Mastery

1. Zeenat made a circle chart of the favourite animal of children visiting the zoo. Look at the circle chart and mark True (T) or False (F).



a. More children like tigers than monkeys.

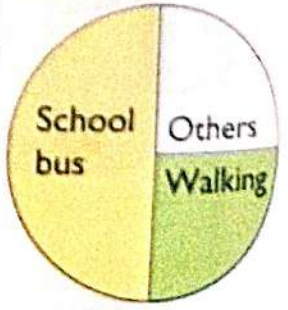
b. The least favourite animal is the elephant.

c. More children like camels than tigers.

d. The third most loved animal is the elephant.

e. More children like monkeys, camels and elephants put together than tigers.

2. Look at the circle graph showing how different children come to school. Fill in the blanks choosing from all, half or one-fourth.



a. ..... of the children come by school bus.

b. ..... of the children come walking.

c. ..... of the children use other means of transport.

If the circle represents 100 children, give the number.

d. ..... children come by bus. [**Hint :** what is ½ of 100.]

e. ..... children come walking.

f. ..... children use other means of transport.

3. A group of kids attended the summer camp for 15 days. The organisers took a survey of the activities enjoyed by the students.

The results are represented in a pie chart.

a. Which activity did the children enjoy the most?

.....

b. What fraction of the children liked indoor games?

.....

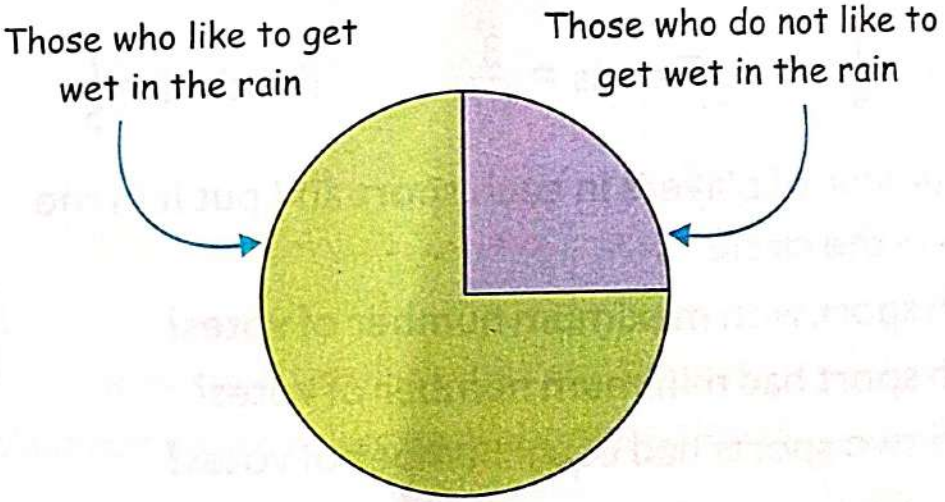
c. What fraction of the children liked outdoor games?

.....

d. Which activity was least liked by the children?

.....

4. Who likes to get wet in the rain? A child made this Chapati Chart after asking his friends.



See the Chapati Chart and tell:

a. How many children like to get wet in the rain?

(i) half (ii) one-fourth (iii) three-fourth

b. How many children do not like to get wet in the rain?

(i) half (ii) one-fourth (iii) three-fourth

If the number of children in the class is 28, then tell the number of children

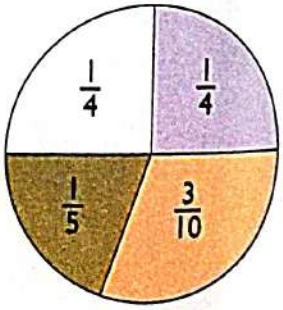
c. who like to get wet in the rain .....

d. who do not like to get wet in the rain .....

5. Twenty children assembled in the playground to play their favourite sport. But they voted for 4 different sports. Some of them wanted to play football, some basketball, some tennis and some cricket. The data collected is as follows :

Basketball = $\frac{1}{4}$ Tennis = $\frac{3}{10}$ Football = $\frac{1}{5}$ Cricket = $\frac{1}{4}$

Find the number of players in each sport and put it in the right place in the circle.



a. Which sport won maximum number of votes?

b. Which sport had minimum number of votes?

c. Which two sports had equal number of votes?

Hint: Multiply the fraction of children favouring that sport with total number of children. For basketball,

$\frac{1}{4} \times 20 = 5$ So, 5 children wanted to play basketball.

6. Colour the circle according to the information given. One is done for you.

Time spent on Sunday :

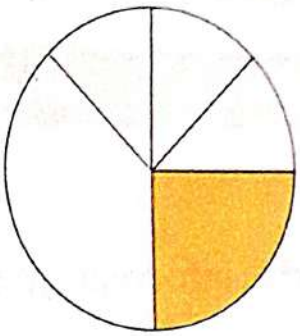
8 hours — sleeping (red)

4 hours — reading (blue)

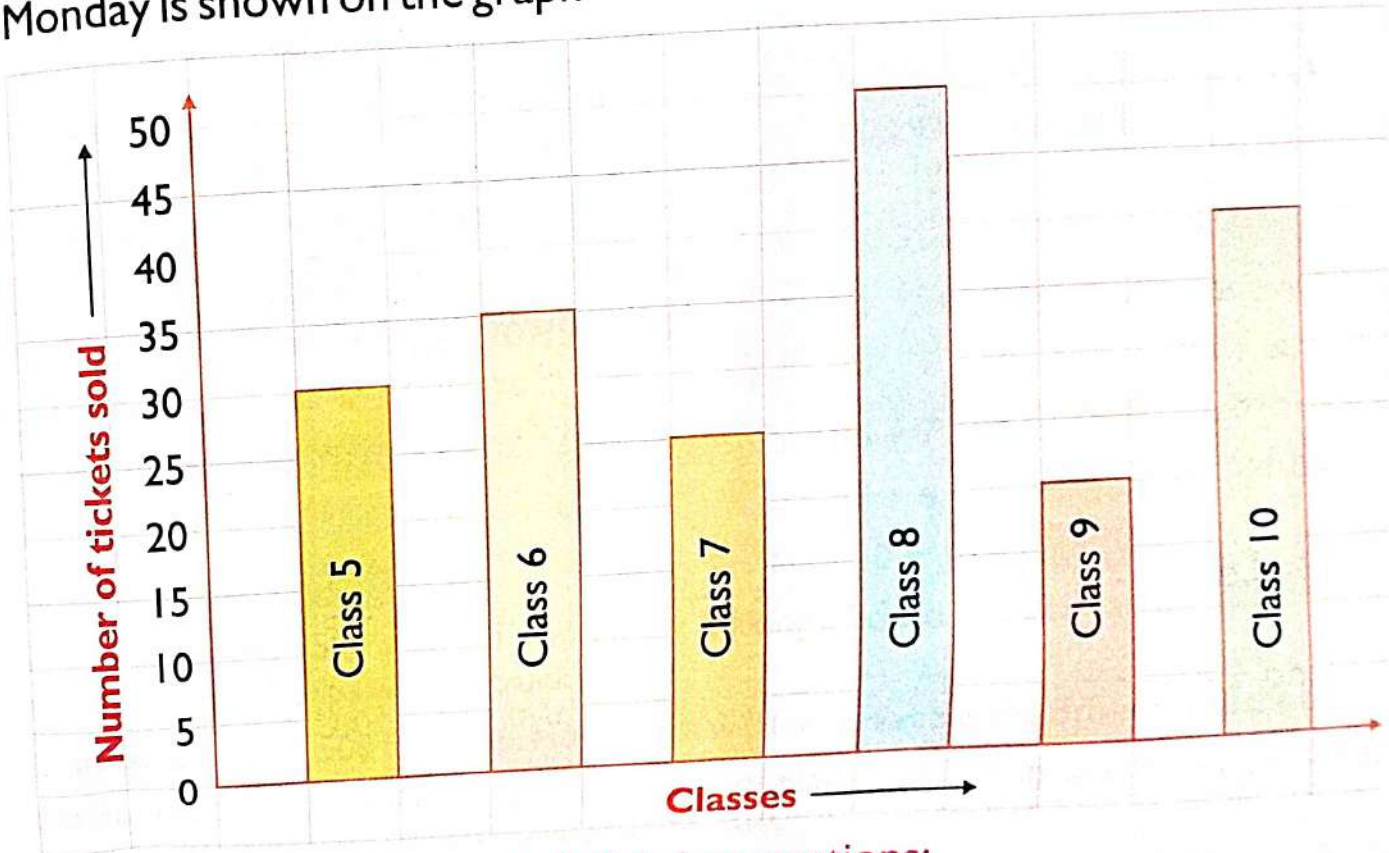
3 hours — playing (green)

3 hours — eating, bathing, etc. (yellow)

6 hours — visiting grandparents (orange)



7. A school is going to have a fete to raise money for buying computers. Each day the pupils show on a bar graph on the bulletin board, how many tickets each of the classes from 5 to 10 has sold. The record of sale of tickets on Monday is shown on the graph below :



Use the graph to answer the following questions:

a. Which class has sold the least number of tickets? .....

b. How many tickets were sold in all on Monday? .....

c. How many more tickets has Class 10 sold than Class 5?

.....

d. Which class has sold the maximum number of tickets on Monday? How many? .....

8. In an examination, Mohit secured the following marks:

English	Hindi	Mathematics	Science	History
70	75	80	75	60

Show this information using a column graph.

PERIODIC TEST I Term 1

(Based on chapters 1 to 4)

Time : ..... Marks : .....

Note : All questions are compulsory.

1. Fill in the blanks :
   a. The number 96,136 is ..... than 96,316.
   b. The successor of 26,456 is ..... .
   c. The smallest number formed by using 3, 1, 0, 7 is ..... .
   d. 63560 + ... = 63560.
   e. 156 in Roman numerals is written as ..... .

2. Write the following in figures :
   a. Seven lakh forty five
   b. Five lakh seventy nine thousand four hundred five

3. Write these numbers in expanded form :
   a. 3,64,015 b. 8,63,196

4. Find the difference in the place values of two 9s in the number 3,96,795.

5. Solve the following :
   a. 3,51,675 + 1,30,638 b. 5,36,017 + 2,31,096
   c. 75,398 – 26,349 d. 3,08,930 – 2,51,698

6. Arrange the following in descending order :
   a. 2,36,415; 3,26,581; 2,53,684; 2,56,348
   b. 7,07,077; 7,00,777; 7,00,707; 7,70,707

7. Solve these sums :
   a. 28 ÷ 2 = ____ b. 56 ÷ 7 = ____
   c. 48 ÷ 4 = ____ d. 66 ÷ 6 = ____
   e. 96 ÷ 8 = ____ f. 110 ÷ 10 = ____

8. Manpreet wants 1500 sacks of cement for making a house. A truck carries 250 sacks at a time. How many trips will the truck make?
   A driver charges ₹ 500 for a trip. How much will Manpreet pay the driver for all the trips?

9. On Sports Day, 161 children are in the school playground. They are standing in 7 equal rows. How many children are there in each row?

10. A vegetable-seller had 25 kg of onions. He sold 20 kg 250 g. How much onions are left with him?

HALF-YEARLY Test Paper

Time ..... (Based on chapters 1 to 8) Marks .....

Note : *All questions are compulsory.*

1. Tick (✓) the correct option :

a. The Roman numeral for 99 is :

(i) CXIX ☐ (ii) XCXI

(iii) XCIX ☐ (iv) CXXI

b. What is 384 × 11?

(i) 3,224 ☐ (ii) 4,224

(iii) 4,234 ☐ (iv) 3,234

c. 614 ÷ 15 gives :

(i) Q = 4, R = 4 ☐ (ii) Q = 4, R = 14

(iii) Q = 40, R = 4 ☐ (iv) Q = 40, R = 14

d. Which of the following is not a multiple of 7?

(i) 35 ☐ (ii) 43 ☐ (iii) 77 ☐ (iv) 84 ☐

2. Find the smallest and the greatest 7-digit numbers, formed using the digits 3, 9, 0, 4, 2, 1, 7.

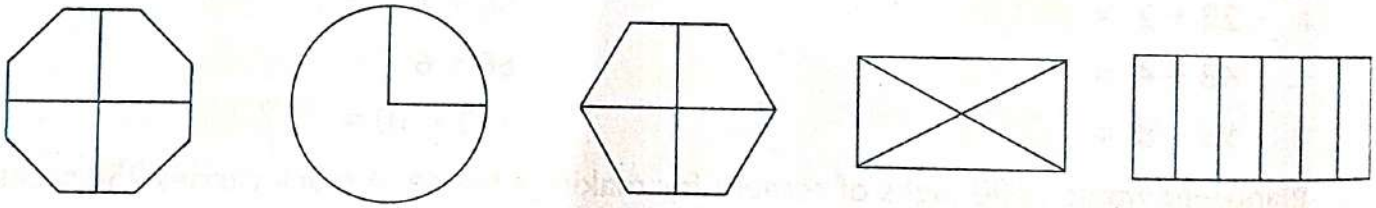
3. Find the following :

a. 753 × 48 b. 4,621 × 395 c. 8,065 ÷ 26 d. 9,827 ÷ 31

4. Find the product by lattice multiplication :

a. 71 × 48 b. 58 × 39 c. 74 × 63

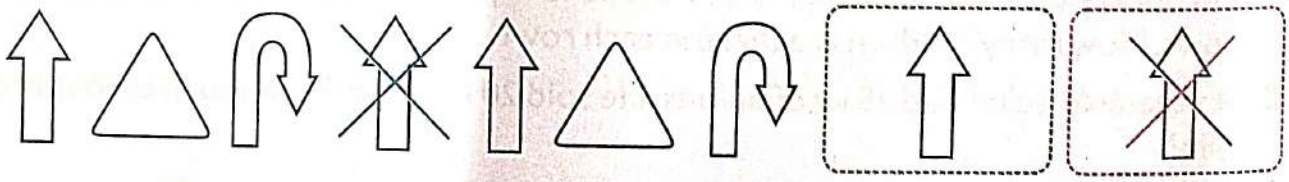
5. Colour that part of the shape which is written below :



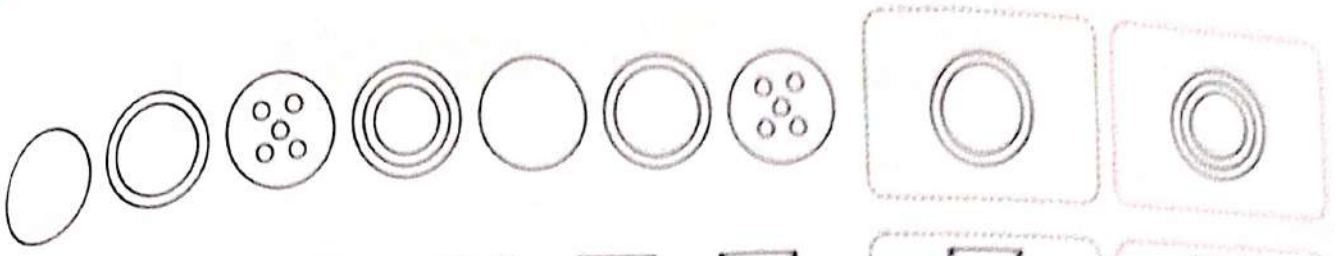
1/2 3/4 3/4 1/4 1/2

6. Tick (✓) the pattern that will come next :

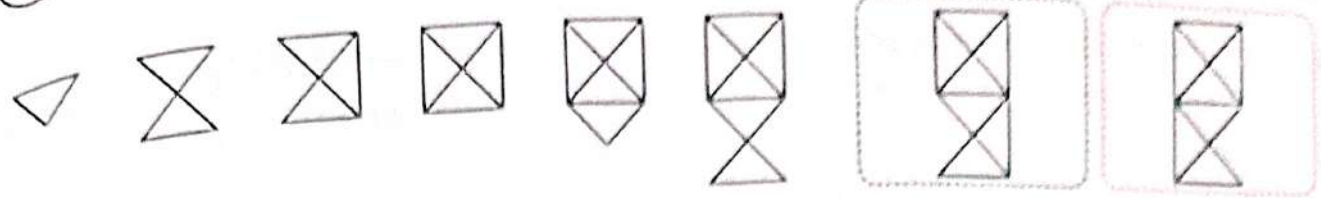
a.



b.



c.



Fill in the blanks :

a. A ..... is a simple closed curve.

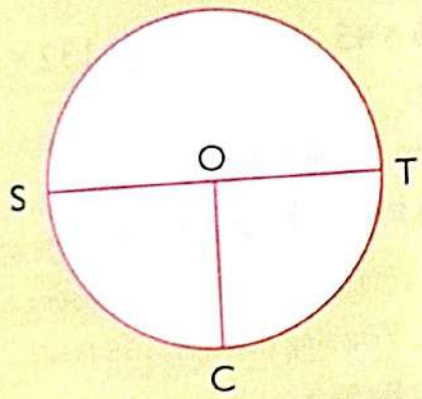
b. ..... is the line that runs between the circle and its centre.

c. ..... divides the circle into two equal halves.

d. ..... is the distance around the circle; it is the length of the circle.

Draw a circle with a radius 6 cm. With the same centre draw another circle of radius 4 cm. Within this circle, draw a third circle of radius 2 cm within this circle.

Name the parts of the circle given below :



O _____

ST _____

OC _____

OT _____

10. Solve the following :

a. Town A has a population of 2,96,439 of these 1,20,112 drink tea, 1,32,907 drink coffee while rest of the people drink neither tea or coffee. How many people drink neither tea nor coffee?

b. If 144 bulbs are packed in one cartoon, how many bulbs will be there in 48 such cartoons?

c. 7,245 roses were packed in 9 crater. How many roses were there in each crate?

PERIODIC TEST : Term 2

Time : ..... (Based on chapters 1 to 12) Marks : .....

Note : *All questions are compulsory.*

1. Raju wants to make a boundary wall of 2 metre length around his garden. He bought som 10 centimetre long bricks. How many bricks will he need to put in a line to make such wall?

2. Convert into kilometres and metres.

a. 4179 m b. 9082 m c. 5728 m d. 1003 m e. 7805 m

3. Have you heard about marathon races in which people have to run about 40 kilometre People run marathons on roads because the track of a stadium is only 400 metres.

10 rounds of a stadium track = ... km

So, if you run a marathon on a stadium track, you will have to complete ..... round

4. First guess the answer and then calculate :

a. 37×18 b. 142×5 c. 45×24 d. 382×3

e. 69×52 f. 2×175 g. 77×55 h. 4×206

5. Multiply the following by split method :

a. 25×98 b. 28×75 c. 86×45 d. 132×61

6. Use the appropriate unit (L or mL) for the following :

a. Water in a small cup ..... b. Oil in an oil tank .....

c. Shampoo in sachet ..... d. Milk in a milk packet .....

7. Study the table and solve.

Water required by a family for different purposes in a day is as follows :

Purpose	Amount of water use
Washing utensils	35 litres
Bathing	86 litres
Cooking	8 litres
Garden	3 litres

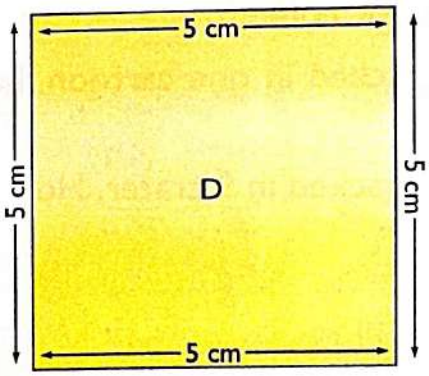
a. The total amount of water used in a day.

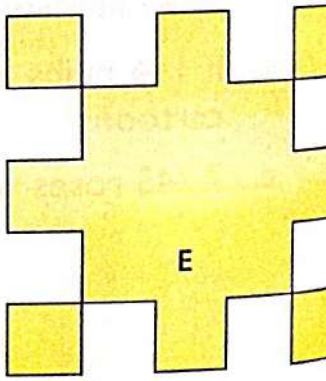
b. The total amount of water used in a week.

c. The total amount of water used in a month.

8. a. Find the length of the boundary of square D.

b. 8 squares of side 1 cm are cut out of the square D. Now it looks like shape E. What is the length of the boundary of shape E ?





ANNUAL Test Paper

Marks .....

All questions are compulsory.

1. Tick (✓) the correct option :

a. 8,275 g = ... kg ..... g.

(i) 8 kg 275 g ☐ (ii) 82 kg 075 g ☐

(iii) 8 kg 75 g ☐ (iv) 82 kg 75 g ☐

b. 1020 min = ... hours.

(i) 15 ☐ (ii) 16 ☐ (iii) 17 ☐ (iv) 18 ☐

c. ₹ 2016 + ₹ 4153.56 = ₹ ..... .

(i) 6253.56 ☐ (ii) 6169.56 ☐ (iii) 6295.65 ☐ (iv) 6352.65 ☐

d. An acute angle is :

(i) = 90° ☐ (ii) < 90° ☐ (iii) > 90° ☐ (iv) = 180° ☐

e. 6, 8, 10, 12, ?

(i) 10 ☐ (ii) 13 ☐ (iii) 14 ☐ (iv) 16 ☐

Solve and answer :

a. Put the correct sign <, > or = : (i) DVIII ☐ DXIX (ii) 974 ☐ CMLXXIV

b. From the sum of the largest 6-digit number and the smallest 6-digit number, subtract the largest 5-digit number ..... .

c. The first five multiples of 21 are ..... .

d. 3127 × 300 = ...

3. Give the standard numeral.

a. Three thousand three hundred thirty-nine .....

b. Five thousand four hundred forty-two .....

c. Eight thousand six hundred ninety-one .....

d. Nine thousand eight .....

4. Arrange the sets of numbers in descending order.

a. 2239, 3229, 3922, 2329, 923, 3292

b. 5046, 5287, 728, 5659, 5829, 982

c. 4671, 716, 4528, 5284, 4761, 671

d. 7219, 749, 5953, 7129, 9721, 947

5. Ahaan started his train journey from Delhi at 7:30 a.m. He reached Ambala at 10:40 a.m. Calculate the time taken for his journey.

6. If  is the code for MAN and  is the code for PAT, then what will be for MAT.

7. If POOL is coded as 9775, then what will written for LOOP?

8. Which of the given patterns resembles the given pattern?

9. Which of the patterns given below is based on change in size?

a.  b.  c. 

10. There are 20 stars. A quarter of them are red. How many stars are red?

11. Fill in the blanks.

a. $\frac{1}{2}$ of litre = ... mL

b. $\frac{3}{4}$ of kilogram = ... gm

c. $\frac{1}{4}$ of a litre = ... mL

d. $\frac{3}{4}$ of litre = ... mL

12. Match the columns :

a. Kartile eats his breakfast.	(i) 6 : 30 hours
b. Radhika goes to bed at night.	(ii) 14 : 15 hours
c. Salman goes for a morning walk.	(iii) 8 : 00 hours
d. My mother cooks lunch.	(iv) 17 : 30 hours
e. David has his evening snacks.	(v) 21 : 00 hours

13. Sunil bought 1.5 kg of potatoes, 0.5 kg of onions, and 1 kg of tomatoes. Find the total weight of the vegetables he bought, in grams.

14. Sushant joined camp for 25 days. If the camp started on October 20, which was the last day of the camp?

15. This pictograph shows the different ways students from Class 8 come to school. Study the pictograph and answer the questions.

a. What is the title of the pictograph?

b. What does each symbol stand for?

c. How many students come to school by bus?

d. How many less students walk than cycle to school?

e. Which are the two equally used ways of coming to school?

Ways of coming to school	
Car	😊😊
Bus	😊😊😊😊😊😊
Cycle	😊😊😊
Walking	😊😊

😊 stands for 10 students

ANSWERSHEET

1. NUMBERS BEYOND 999

Progress Check-up-1

Progress Check-up-1 1598, 1599, 1600, 1601, b. 2846, 2847, 2848, 2849, 2850, 6, 7337, 7338, 7339, 7340, d. 8998, 8999, 9000, 9001, 9002; 1339, b. 5,442, c. 8,691, d. 9,008; 3. a. Three thousand three ed thirty nine, b. Four thousand two hundred ninety six, c. Five and five, d. Five thousand four hundred forty two, e. Eight and three hundred, f. Eight thousand six hundred ninety one.

Progress Check-up-2

Progress Check-up-2 <, b. >, c. >, d. =, e. <, f. <; 2. a. 674, 764, 3239, 3329, 5041, b. 546, 645, 2645, 5264, 5642, 6254, c. 1592, 1952, 5192, 5912, 9521, d. 1191, 1199, 1919, 9009, 9090, 9119; 3. a. 3922, 3292, 2329, 2239, 923, b. 5829, 5659, 5287, 5046, 982, 728, c. 5284, 4671, 4528, 716, 671, d. 9721, 7219, 7129, 5953, 947, 749; 4. a. , b. 10000, 99999, c. 100, 999, d. 1000, 9999; 5. a. 97650, 9. b. 8732, 2378, c. 910, 109, d. 75321, 12357; 6. a. 88654, b. 4, c. 86554, d. 86544, e. 45688, f. 45668.

2. ROMAN NUMERALS

Progress Check-up

Progress Check-up LXXIV, b. XCIX, c. CLXXVIII, d. CI, e. CX, f. CXLV, g. XCVI, XXII, i. CXII, j. CCVI, k. CCXXIX, l. CCCLXXXV, m. CLIV, CXCV, o. CCCLXX; 2. a. 24, b. 43, c. 61, d. 57, e. 76, f. 96, g. 77,), i. 95, j. 99, k. 126, l. 164, m. 220, n. 354, o. 380; 3. a. XCI, b. XXX, XVII, d. XXX, e. XLIV, f. XLIX; 4. a. XXIX, XXXI, b. XVIII, XX, LIX, LI, d. LXXXIX, XCI; 5. a. >, b. =, c. <, d. <, e. <, f. >; XXXI, b. XXVIII, XXIX, c. XXIV, d. LX;

3. ADDITION AND SUBTRACTION

Progress Check-up-1

Progress Check-up-1 35,799, b. 89,758, c. 1,02,285, d. 4,89,888; 2. a. Seven lakh sixty-e thousand six hundred thirty five; 7,69,635, b. One lakh four ousand one hundred fifty one; 1,04,151, c. Seven lakh seventy-one ousand two hundred sixty-eight; 7,71,268, d. Two lakh eleven ousand six hundred thirty-nine; 2,11,639; 3. a. 1,62,203 b. 4,33,113

a. 3 0 8 2 8 4
+ 3 7 0 5 1 2
6 7 8 7 9 6

b. 2 4 2 0 1 6
+ 3 5 7 4 8 0
5 9 9 4 9 6

8,26,171; 6. 6,28,119; 7. 7,10,509; 8. 19,30,452

Progress Check-up-2

Progress Check-up-2 . a. 33314, b. 2309, c. 41508, d. 241572, e. 343801, f. 77245; . a. 2,912, b. 20,343, c. 56,322, d. 4,73,278, e. 8,224, f. 4,08,340; . a. Nine lakh fifteen thousand; 9,15,000

a. 5 2 1 3 6
− 2 0 1 1 4
3 2 0 2 2

b. 6 7 5 8 9 1
− 4 3 2 5 6 1
2 4 3 3 3 0

c. 7 6 4 0 3
− 3 8 5 1 6
3 7 8 8 7

d. 8 7 6 3 2 4
− 4 5 7 4 6 0
4 1 8 8 6 4

5. (a) 33,767, (b) 12,314; 6. 1,47,520; 7. 5,13,878; 8. 38,409

4. MULTIPLICATION AND DIVISION

Progress Check-up-1

1. a. 10,936, b. 30,625, c. 41,340, d. 19,255 e. 41,536, f. 83,367, g. 17,148, h. 19,812; 2. a. 868, b. 2,616, c. 12,700, d. 3,150, e. 66,724, f. 48,270, g. 47,871, h. 30,795, i. 8,464; 3. a. 21,708, b. 17,366 4. a. 3,376, b. 5,535, c. 12,903, d. 26,368, e. 53,352, f. 13,008, g. 6,11,645, h. 4,50,495; 5. 2,760 km; 6. 3,15,000 meters; 7. 35,69,700 people; 8. 13,480 cookies

Progress Check-up-2

1. a. Q = 155 R = 0, b. Q = 1,468 R = 0, c. Q = 1,356 R = 1, d. Q = 1,243 R = 4, e. Q = 102 R = 2, f. Q = 98 R = 6, g. Q = 3004 R = 0, h. Q = 2,255 R = 3; 2. a. Q = 42 R = 8, b. Q = 21 R = 5, c. Q = 31 R = 10, d. Q = 49 R = 9, e. Q = 141 R = 22, f. Q = 235 R = 3, g. Q = 263 R = 21, h. Q = 202 R = 8; 3. a. Q = 145 R = 25, b. 120; 4. a. Q = 14 R = 3, b. Q = 12 R = 3, c. Q = 6 R = 4, d. Q = 16 R = 2, e. Q = 14 R = 0, f. Q = 11 R = 0, g. Q = 20 R = 1, h. Q = 13 R = 0 5. a. Q = 78 R = 1, b. Q = 145 R = 4, c. Q = 97 R = 2, d. Q = 75 R = 5, e. Q = 140 R = 7, f. Q = 1,257 R = 4, g. Q = 432 R = 1, h. Q = 808 R = 3; 6. a. Q = 877 R = 1, b. Q = 807 R = 0, c. Q = 259 R = 3, d. Q = 312 R = 0, e. Q = 955 R = 2, f. Q = 763 R = 6, g. Q = 422 R = 0, h. Q = 640 R = 8; 7. 108 scooters; 8. 138 classrooms 9. 120 sweets; ₹ 2; 10. 35 days; 38 pages.

5. FACTORS AND MULTIPLES

Progress Check-up-1

1. a. factors, b. 1, c. itself, d. finite; 2. a. Yes, b. No, c. Yes, d. No, e. No, f. No, g. Yes, h. Yes; 3. a. 1, 5, 11, 55, b. 1, 3, 7, 9, 21, 63, c. 1, 2, 37, 74, d. 1, 3, 5, 15; 4. a. 1, 41, b. 1, 3, 7, 9, 21, 63, c. 1, 2, 3, 6, 9, 18, 27, 54, d. 1, 3, 5, 15

Progress Check-up-2

1. a. 6, 12, 18, 24, 30, b. 3, 26, 39, 52, 65, c. 18, 36, 54, 72, 90, d. 7, 14, 21, 28, 35, e. 14, 28, 42, 56, 70, f. 21, 42, 63, 84, 105, g. 16, 32, 48, 64, 80, h. 12, 24, 36, 48, 60, i. 11, 22, 33, 44, 55, j. 45, 90, 135, 180, 225; 2 (a), (d); 3. a. 95, b. 7, 14, 21, 28, c. 32, 36, 40, 44, 48, 52, 56, d. 42, 49, 56, e. 14, 28, 42, 56, 70, 84, 98; 4. a. 8 and 3, b. 0, c. smallest, d. greater, e. infinite.

Progress Check-up-3

1. a. 1, 2, b. 1, 2, c. 1, 3, d. 1, 3, e. 1, f. 1, 5, g. 1, 2, h. 1, 2, 4; 2. a. 3, b. 5, c. 4, d. 10, e. 13, f. 15, g. 8, h. 11, i. 4; 3. b; 4. 1 × 36, 2 × 18, 3 × 12, 4 × 9; 5. a. 15, 30, 45, b. 24, 48, 72, c. 12, 24, 36, d. 24, 48, 72, e. 28, 56, 84, f. 30, 60, 90, g. 315, 630, 945, h. 30, 60, 90; 6. a. 20, b. 24, c. 15, d. 48, e. 90, f. 105, g. 30, h. 24

6. FRACTIONS AND DECIMALS

Progress Check-up-1

1. a. $\frac{1}{2}$, b. $\frac{2}{4}$; 2. $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$; 3. $\frac{2}{4}$, $\frac{2}{4}$, $\frac{2}{4}$; 4. $\frac{2}{5}$; 5. $\frac{3}{7}$; 6. $\frac{3}{4}$;

7. 

8. a. Half, (iii), b. Quarter, (iv), c. Whole, (ii), d. Three quarters (i).

Progress Check-up-2

1. a. 3, 8, b. 6, 9, c. 7, 8, d. 8, 9, e. 3, 5, f. 2, 6; 2. a. $\frac{4}{6}$, b. $\frac{7}{5}$, c. $\frac{6}{8}$, d. $\frac{8}{9}$; 3. a. $\frac{2}{5}$, $\frac{3}{5}$, b. $\frac{3}{7}$, $\frac{4}{7}$; c. $\frac{3}{9}$, $\frac{6}{9}$; 4. Do yourself; 5. b. 2, colour two butterflies, c. 9, colour nine hats; 6. a. ₹4, b. Cost of $\frac{1}{2}$ kg of onions is

more than $\frac{1}{4}$ kg of carrots, c. ₹ 9, d. $\frac{1}{2}$ kg potato = ₹ 6, 2 kg pumpkin = ₹8, $\frac{1}{4}$ kg carrot = ₹ 4, total ₹ 18. Yes, she can buy all the things in her shopping list. 7. b. 50 cm, 25 cm, 75 cm.

Progress Check-up-3

1. b. Four and six tenths c. One hundred fifty one and twenty six thousandths, d. Two and nine hundred thirty five thousandths; 2. Represent yourself; 3. 2 cm and 9 mm or 2.9 cm; 4. a. 0, 6, 5, 1, b. 2, 3, 7, 4, c. 4, 6, 8, 9, 0, 3; 5. a. Twenty six point seven three eight, $20 + 6 + \frac{7}{10} + \frac{3}{100} + \frac{8}{1000}$ b. 462.209, $400 + 60 + 2 + \frac{2}{10} + \frac{8}{1000}$, c. 65.063, sixty-five point zero six three, d. One hundred seventy-one point zero zero eight, $100 + 70 + 1 + \frac{8}{1000}$, e. 31.66, $30 + 1 + \frac{6}{10} + \frac{6}{100}$; 6. a. 60.23, b. 0.19, c. 520.02, d. 19.307, e. 420.72 f. 3002.075; 7. a. $74\frac{39}{100}$, b. $512\frac{651}{1000}$, c. $9\frac{99}{100}$, d. $108\frac{1}{10}$, e. $70\frac{3}{1000}$, f. $10\frac{8}{100}$; 8. a. 11.19, b. 7.3, c. 150.456, d. 13.47, e. 0.61, f. 0.923, g. 4.09, h. 85.7.

Progress Check-up-4

1. Like decimals : 3.46, 10.15, 713.13, 9100.69, 36.93
Unlike decimals : 28.032, 3.1356, 49.4, 18.01056;
2. a. 53.210, 60.072, 111.030, b. 10.007, 19.510, 9.340, c. 161.222, 310.201, 18,600; 3. a. 2.132 > 0.412, b. 0.75 < 0.952, c. 21.68 > 2.162, d. 4.001 = 4.0010, e. 390.82 > 339.82, f. 41.605 < 41.650, g. 33.333 > 33.330, h. 6.932 > 6.738, i. 99.362 < 99.370; 4. a. 23.06, 23.46, 38.97, 43.92, 46.528, b. 8.002, 8.702, 9.64, 9.644, 9.812 c. 4.1008, 41.008, 410.08, 4100.8; 5. a. 6.06, 6.006, 0.60, 0.06, 0.006 b. 7.220, 7.21, 7.201, 7.021, 7.002 c. 0.431, 0.314, 0.314, 0.143, 0.134.

7. BASIC GEOMETRY

Progress Check-up-1

1. a. line, b. line segment, c. ray; 2. a. both, b. two, c. one, d. c; 3. & 4. Do yourself.

Progress Check-up-2

1. a. ∠ABC or ∠CBA, b. BA and BC, c. B; 2. a. ∠LOT, ∠TOL b. ∠RST, ∠TSR (c) ∠CDE, ∠EDC; 3. a. right, b. acute, c. right, d. straight, e. obtuse f. acute; 4. a. L, M, b. Q, R.

Progress Check-up-3

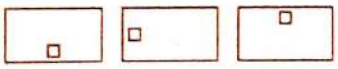
1. (b), (d); 2. a. LC, MC, PC b. XY, LM c. LM d. C; 3. a. 14 cm b. 100 cm c. 88 cm d. 70 cm; 4. a. 6 cm b. 12 cm c. 15 cm d. 22 cm.

8. SHAPES AND PATTERNS

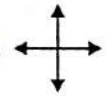
Progress Check-up-1

1. a. 12, b. 4, c. 1, d. 6, e. 8, f. 6, g. 6, h. 3, i. 3, j. 3. 2. a. 3, b. 2, c. 1, d. 2. 3.  ; 4. Second and fourth from left are drawings of a brick. 5. Do yourself;

Progress Check-up-2

1. a.  b. 

c.  d. 

2. a. JKL, MNO, PQR, b. 25 W, 24 V, 23 U, c. 564, 464, 364, d. 309, 409, 509; 3. a.  b.  c.  d.  4. a. 13, 21, 34 b. 19, 26, 34 c. 25, 36, 49 d. 54, 49, 43 e. 595, 496, 397 f. $\frac{10}{20}, \frac{13}{25}, \frac{16}{30}$ g. $\frac{4}{7}, \frac{5}{6}, \frac{6}{5}$

9. MEASURING LENGTH

Progress Check-up

1. and, 2. Do yourself, 3. a. cm, b. m, c. km, d. m, e. m, f. km, 4. a. 800 cm, b. 1400 cm, c. 520 cm, d. 1000 cm, e. 1675 cm, f. 230 cm, g. 999 cm, h. 2000 cm; 5. a. 8000 m, b. 6000 m, c. 6500 m, d. 2030 m, e. 9999 m, f. 1002 m, g. 3000 m, h. 4705 m; 6. a. 23 cm, b. 7 m, c. 6 m 50 cm, d. 7m 3 cm, e. 5m 12 cm, f. 56 cm, g. 4 m, h. 9m 34 cm; 7. a. 4 km 179 m, b. 6 km 877 m, c. 9 km 82 m d. 5 km 728 m, e. 3 km 306 m, f. 7 km 805 m, g. 1 km 3 m, h. 3 km 522 m. 8. a. 8 m 20 cm, b. 4 m 90 cm, c. 10 m 45 cm, d. 7 km 350 m, e. 14 km 700 m, 9. (i) 3 cm, (ii) 3 cm, (iii) 18 cm, (iv) not grown, a. Bamboo, b. Rose, c. Rose, d. Bamboo, e. Bamboo, Mango and Tulsi; 10. a. 11m 5 cm, b. 48 m, 80 cm; 11. 4 km, 100 rounds; 12. 70 km.

10. MEASURING WEIGHT (MASS)

Progress Check-up

1. a. Both are equal in weight, b. gram, c. 3000 grams, d. (i) 2000, (ii) 6000, (iii) 1004, (iv) 12, (v) 2, 500; 2. a. 1000, b. 500, c. 10 kg, d. 200, e. 5000, 3. a. 500 g + 250 g, b. 2kg + 500 g, c. 250 g + 100 g + 100 g, d. 2 kg + 1 kg + 250 g + 100 g; 4. a. Second pan, second pan, b. Second pan, first pan, c. First pan, second pan; d. Yes, the weight 700 g + 245 g + 55 g is equal to 1 kilogram, e. 1000 g; 5. 45 kg mangoes, 21 kg oranges, 34 kg apples; 6. 4 kg 750 g, 7. 10 packets, 8. 795 g.

11. MEASURING CAPACITY

Progress Check-up

1. a. mL, b. L, c. mL, d. L, e. mL, f. L, g. mL, h. L; 2. a. 1000, b. 4, c. 2, d. 750 mL, e. 10, f. 250 mL, g. 5, h. 500 mL; 3. a. more, b. less, c. same; 4. Do yourself; 5. a. 8000 mL, b. 3402 mL, c. 9500 mL, d. 7098 mL; 6. a. 6 L 500 mL, b. 4 L 763 mL, c. 5 L 508 mL, d. 3 L 63 mL; 7. Do yourself. 8. a. 1L, 1L b. 1½L, ½L, c. ¾L, 1¼L; 9. 70 L 700 mL 10. a. 500 mL + 250 mL + 250 mL, b. 100 mL + 300 mL + 300 mL + 300 mL, c. 800 mL + 200 mL, d. 500 mL + 250 mL + 250 mL, e. 500 mL + 500 mL; 11. 2L = 1500 mL guava juice, 500 mL water and 700 g sugar; 4L = 3000 mL guava juice, 1000 mL water and 1400 g sugar; 12. 5, 10, 2; 13. 600 mL, 14. 2000 mL or 2 L 15. 20 mL, 16. Do Yourself.

12. AREA AND PERIMETER

Progress Check up-1

1. a. 60 metres, b. 42 metre, c. 36 metre, 2. a. 20 cm, b. 28 cm, c. 40 cm; 3. a. 24 cm, b. 40 cm, c. 50 cm; 4. 2000 m or 2 km; 5. a. Boundary of shape 'B' is equal to the boundary of shape 'A' = 12 cm, b. The length of the boundary of 'c' is 14 cm; 6. 292 m 80 cm; 7. 2400 m; 8. Ram by 5m and 20 cm.

Progress Check up-2

1. a. 36 small squares, b. 6 × 6 = 36; 2. 32; 3. a. 8 sq. cm, b. 8 sq. cm, c. 8 sq. cm, d. 9 sq. cm, e. 7sq. cm, f. 6 sq. cm, g. 6 sq. cm, h. 9 sq. cm; 4. B is the biggest leaf; 5. a. 38 cm, 84 sq. cm, b. 32 cm, 64 sq. cm, c. 26 cm, 22 sq. cm, d. 11.2 cm, 8 sq. cm;

13. TIME

Progress Check up-1

1. Pinki is right;
2. a.  b.  c. 

d.  3. a.  b. 

c.  d. 

4. a. 15 minutes, b. 20 minutes, c. 10 minutes, d. 35 minutes; 5. a. 15 minutes, b. 30 minutes, c. 30 minutes, d. Yes; 6. a. 1 o'clock, b.  , c. 10:10, d. 6:15, quarter past six, e. 30 minutes past 4, f. 10:35; 7. a. 2:30hours, b. 45 minutes.

Progress Check up-2

1. 15 : 00 hours, 18 : 00 hours, 21 : 00 hours, 24 : 00 hours, 20 : 30 hours; 2. a. (iii), b. (iv), c. (i), d. (v), e. (ii); 3. a. 14 : 30 hours, b. 05 : 15 hours, c. 18 : 45 hours, d. 20 : 20 hours, e. 23 : 10 hours, f. 21 : 40 hours, g. 06 : 45 hours, h. 00 : 00 hours; 4. a. 12 p.m., b. 12 a.m., c. 4 : 45 p.m., d. 8 a.m.

14. MONEY

Progress Check up-1

1. a. ₹ 295, b. ₹ 1800, c. ₹ 4150, d. ₹ 4650; 2. a. ₹ 30, b. ₹ 10, c. Both have equal money; d. ₹ 2940

Progress Check up-2

1. a. 3528 p, b. 7612 p, c. 8232 p, d. 1647 p, e. 709 p, f. 1005 p, g. 2000 p, h. 7722 p, 2. a. ₹ 9.81, b. ₹ 65.19, c. ₹ 20.30, d. ₹ 7.01, e. ₹ 21.04, f. ₹ 37.61 g. ₹ 10.03 h. ₹ 40.30.

Progress Check up-3

1. a. ₹ 505.80, b. ₹ 4255.70, c. ₹ 10863.20, d. ₹ 1074.77; 2. a. ₹ 4392.85, b. ₹ 71.95, c. ₹ 6159.70, d. ₹ 1869.90; 3. a. ₹ 5159.50; 4. ₹ 3922.55

Progress Check up-4

1. a. ₹ 1821.20 b. ₹ 2155.56, c. ₹ 3736.32 d. ₹ 4283.2 e. ₹ 5426.50 f. ₹ 1389.60, 2. a. ₹ 66.32, b. ₹ 109.45, c. ₹ 49.22, d. ₹ 1024.88, e. ₹ 1018.34, f. ₹ 88.34

Progress Check up-5

1. ₹ 1883.75, 2. ₹ 1559, 3. ₹ 482.25, 4. ₹ 1020, 5. ₹ 275.10, 6. ₹ 175.42; ₹ 24.58

Progress Check up-6

1. a.

SUMIT KIRANA STORE
Cannaught Place, New Delhi

Ph. : .....

Name and Address : Ankur, J-17, R.K. Puram, Delhi

Bill No. : .....
Dated : .....

S.No.	PARTICULARS	Amount (₹)
1.	Rice	16.00
2.	Refined oil	55.50
3.	Sugar	17.50
4.	Soap	9.25
5.	Tooth paste	18.50
	TOTAL	116.75
	Sign.	

b.

SUMIT KIRANA STORE
Cannaught Place, New Delhi

Ph. : .....

Name and Address : Rajeev Kumar, G-174, Rohini, New Delhi

Bill No. : .....
Dated : .....

S.No.	PARTICULARS	Amount (₹)
1.	Notebook	14.50
2.	Pencil	3.75
3.	Pencil box	21.00
4.	Magazine	18.50
5.	Story book	12.25
	TOTAL	70.00
	Sign.	

2. a. ₹ 122.50, b. ₹ 292.50, c. ₹ 157, d. ₹ 140, e. ₹ 201, f. ₹ 269.

Progress Check up-7

1. ₹ 3.75; 2. ₹ 23; 3. ₹ 101.75; 4. ₹ 11.65; 5. ₹ 12.50; 6. ₹ 1278.45.

15. DATA HANDLING

Progress Check up-1

1. a. 9 children, b. Children those are acting, c. Playing music, d. 6 children; 2. Do yourself; 3. a. Ways of coming to school-class 8, b. 10 children, c. 60 children, d. 10, e. Walking and car; 4. a. 50, b. 75, c. 120; 5. April = 300, May = 600, June = 550, July = 500, August = 350; 6. a. Cartoons, b. 3 children, c. 9 children; 7. a. Biscuits, b. Wheat flour, pulses, c. Wheat flour, 10, d. soap bars sold are 5 more than shampoo.

Progress Check up-2

1. a. True, b. False, c. False, d. True, e. True; 2. a. Half, b. One-fourth, c. One-fourth, d. 50, e. 25, f. 25; 3. a. Outdoor games, b. $\frac{1}{4}$, c. $\frac{1}{2}$, d. Music; 4. a. Three-fourth, b. One-fourth, c. 21, d. 7; 5. a. Tennis, b. Football, c. Basketball and cricket; 6. Do yourself; 7. a. Class 9, b. 200, c. 10, d. Class 8, 50;

8.