## 1

## Numbers

## * Let us Learn

Hey kids, in this chapter you will learn about
(i) Introduction of numbers upto five digits,
(ii) Extension of numbers,
(iii) Place value of numbers,
(iv) Comparison of numbers,
(v) Ascending-Descending order of numbers.

## Introduction of Number upto Five Digits

In previous class, we have learnt numbers upto four digits.
We know that,
The largest four digit number is 9,999
On adding 1 to 9999 , we get, 10000

$$
\begin{array}{r}
9999 \\
+\quad+ \\
\hline 10,000 \\
\hline
\end{array}
$$

The number 10,000 is the smallest five digit number. We read it as ten-thousand.
Let us see,

| Ones $=1$ | One tens $=10$ ones |
| :--- | :--- |
| Ten ones $=10 \times 1=10$ | One hundred $=10$ tens |
| Hundred ones $=100 \times 1=100$ | One thousand $=10$ hundreds |
| Thousand ones $=1,000 \times 1=1,000$ |  |

Now, summerise the above
Ten thousands $=10 \times 1$ thousand $=10$ thousands

$$
\begin{aligned}
& =10 \times 10 \text { hundreds }=100 \text { hundreds } \\
& =10 \times 10 \times 10 \text { tens }=1000 \text { tens } \\
& =10 \times 10 \times 10 \times 10 \text { ones }=10,000 \text { ones }
\end{aligned}
$$

## Forming Numbers

Let us play a game, in which we enjoy as well as learn to make new numbers; See the following symbols

$$
\begin{array}{ll}
\boxtimes=\text { Ones }=1, \quad \#=\text { One tens }=10, & *=\text { One hundreds }=100 \\
\longleftarrow=\text { One thousand }=1,000, & \boxplus \quad=\text { Ten thousand }=10,000
\end{array}
$$

Now, we have to make various numbers using these symbols.
For example,
(i) One $*$ and one $4 \quad=100+1000=1100$
(ii) Five $\boxplus$ Four $*$ and five $\boxtimes=50,000+400+5=50,400+5=50,405$
(iii) Eight th five $*$ three \# and Nine $\boxtimes=8,000+500+30+9=8,539$
(iv) Seven $\boxplus$ and two $\boxtimes=70,000+2=70,002$
(v) Four $\boxplus$ seven ك two $*$ six \# and one $\boxtimes=40,000+7,000+200+60+1=47,261$

## Do and Learn

1. Complete the following table using the symbols given above:
2. Five $\boxplus$, three 5 , Eight \# and Two $\boxtimes=\ldots \ldots \ldots . .+$

3. Six $\boxplus$, Three $*$ and three $\boxtimes$
4. Seven $\boxplus$, Three \# and Five $\boxtimes$
5. Three ss, Two * Eight \# and Six $\boxtimes$
$=\ldots \ldots \ldots \ldots .+\ldots \ldots \ldots \ldots+\ldots \ldots \ldots .$.

Encircle symbols in groups in given larger circle and also write the numbers formed from these symbols. One is solved for your understanding.


| $\boxplus$ <br> Ten <br> Thousand | ↔ <br> Thousand | $*$ <br> Hundreds | $\#$ <br> Tens | $\boxtimes$ <br> Ones | Expanded form | Number |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 4 | 5 | 3 | 0 | $10,000+4,000+500+30+0$ | 14,530 |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

## Extension of Numbers

## Importance of Commas or Periods

Number having 5 or more digits can be read quickly and easily by putting them into groups using commas.

See the following :


## For Example,

1. 



85,240
$=80,000+5,000+200+40+0$
$=$ Eighty thousand + Five thousand + Two hundred + Forty + Zero
$=$ Eighty five thousand two hundred forty
2. $58,845=50,000+8,000+800+40+5$
$=$ Fifty thousand + Eight thousand + Eight hundred + Forty + Five
$=$ Fifty eight thousand eight hundred forty five
3. 50,032
$=50,000+0000+000+30+2$
$=$ Fifty thousand + Zero thousand + Zero hundred + Thirty + Two
$=$ Fifty thousand thirty two
4. 23,438
$=20,000+3,000+400+30+8$
$=$ Twenty thousand + Three thousand + four hundred + Thirty + Eight
$=$ Twenty three thousand four hundred thirty eight

## Have you noticed something?



Yes, we have noticed that numbers at ten thousands and thousands place should be added always.

## Do and Learn

1. Choose any five digits from $O$ to 9 and make any ten numbers using these five digits, write the expanded and word form for each number. One is done for you.

| S. No. | Number | Expended from | Word form |
| :---: | :---: | :---: | :---: |
| 0 | 54582 | $50,000+4,000+500+80+2$ | Fifty four thousand five hundred eighty two |
| 1 |  |  |  |
| 2 |  |  |  |
| 3 |  |  |  |
| 4 |  |  |  |
| 5 |  |  |  |


| 6 |  |  |  |
| :---: | :--- | :--- | :--- |
| 7 |  |  |  |
| 8 |  |  |  |
| 9 |  |  |  |
| 10 |  |  |  |

## Place Value of Numbers

See the following place value table

| Place | Ten Thousand | Thousand | Hundred | Tens | Ones |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Place Value | 10,000 | 1,000 | 100 | 10 | 1 |

In the number 29,314.
The place value of 4 is $4 \times 1=4$
The place value of 1 is $1 \times 10=10$
The place value of 3 is $3 \times 100=300$
The place value of 9 is $9 \times 1,000=9,000$
The place value of 2 is $2 \times 10,000=20,000$
Example 1. Find the place value of the encircled digits in each of the following numbers.
(a) 6 (2), 180
(b) (3) 2,650
(c) 59,6 (2) 4

Sol. (a) In 62,180, 2 is in thousands place, so place value of 2 in the given number is $2 \times 1000=2000$.
(b) In $32,650,3$ is in ten thousands place, so place value of 3 in the given number is $3 \times 10,000=30,000$.
(c) In $59,624,2$ is in tens place, so place value of 2 in the given number is $2 \times 10=20$.

## Do Yourself

Example 2. (i) Fill in the place value table for the following numbers according to the place value.

| Place value | T.Th | Th | H | T | O |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | 10,000 | 1000 | $\mathbf{1 0 0}$ | $\mathbf{1 0}$ | $\mathbf{1}$ |
| 48,769 |  |  |  |  |  |
| 14,050 |  |  |  |  |  |
| 38,290 |  |  |  |  |  |
| 15,845 |  |  |  |  |  |
| 10,000 |  |  |  |  |  |

(ii) Write the place value of encircled digit for the following numbers:
(a) 48,76 (9)
(b) 7 (1),405
(c) (8) 9,059
(d) 96,1 (2) 3
(e) 2 (8),142
(f) $46,(7) 98$
(iii) Find the place value of 9 and 6 in 59,264.

## Comparison of Numbers

We use the symbols >, < and = to compare any two numbers. There are two cases:
Case 1. When all numbers have different number of digits, For example,
(i) 20,563 and 9,456
(ii) 9,586 and 35,826
(iii) 8,467 and 67,352

## Rule to Compare these Numbers

Number with MORE number of digits is a larger number and number with a $L E S S$ number of digits is a smaller number.

| Number | Number of digits | Larger number |
| :---: | :---: | :---: |
| 20,563 | Five |  |
| 9,456 | Four | $9,586<35,826$ |
| 9,586 | Four |  |
| 35,826 | Five |  |
| 8,467 | Four | 8,40 |
| 67,352 | Five |  |

Case 2. When all number have same number of digits. For example,
(i) 78,846 and 78,546
(ii) 15,623 and 15,073
(iii) 24,569 and 24,659

## Rule to Compare these Numbers

We use place value chart to compare these numbers.
There are three steps to find the larger number out of two numbers having same number of digits.
Step 1 Write the number one below the other in place value chart.

| TTh | Th | H | T | O |
| :---: | :---: | :---: | :---: | :---: |
| 7 | 8 | 8 | 4 | 6 |
| 7 | 8 | 5 | 4 | 6 |

Step 2 Compare the columns from lelf to right

| Place | Comparison | Result | Remark |
| :---: | :---: | :---: | :--- |
| TTh | 7,7 | $7=7$ | Contd. Comparison |
| Th | 8,8 | $8=8$ | Contd. Comparison |
| H | 8,5 | $8>5$ | Stop Comparison |

Step 3 When we stop the comparison on the basis of last result, we decide the greatest or smallest number. Hence, $\quad 78,846>78,546$
Example 3. Compare 64532 and 64325.
Sol. Place value chart

| T Th | Th | H | T | O |
| :---: | :---: | :---: | :---: | :---: |
| 6 | 4 | 5 | 3 | 2 |
| 6 | 4 | 3 | 2 | 5 |


| Comparison | Result | Remark |
| :---: | :---: | :---: |
| 6,6 | $6=6$ | contd. |
| 4,4 | $4=4$ | contd. |
| 5,3 | $5>3$ | Stop |

Hence, $64,532>64,325$

## Do Yourself

Example 4. Circle the greatest and cross the smallest number:
(i) 4,$536 ; 4,892 ; 4,370 ; 4,452$
(ii) $15,623,15,073 ; 15,189 ; 15,800$
(iii) 25,$286 ; 23,245 ; 25,270 ; 25,210$
(iv) 6,$895 ; 23,787 ; 24,569 ; 24,659$
(v) 4,$685 ; 4,444 ; 3,847 ; 9,071$

- Trick : If two numerals contain the same number of digits, then compare them by their left most digit. If the left most digits are also the same, we compare by their next digits from the left and so on.
For example, (i) 45,679 < 45,789
(ii) $50,562>50,541$
(iii) $65,432<65,439$

Thus, numbers can be compared by the following :
(i) Counting the number of digits in the given number.
(ii) Checking their place value starting from the left to right.

## Do and Lear1p

Compare the following by using < , > and $=$ signs.

1. 4,506 $\qquad$ 56,780
2. 18,579 $\square$ 18,579
3. 57,939 $\qquad$ 87,399
4. 43,483 $\square$ 44,833
5. 35,703 $\qquad$ 2,308
6. 48,458
 46,358
7. 76,345 $\square$ 76,396
8. 47,346 $\square$ 47,634

## Ascending Descending Order of Numbers

## Ascending Order

Ascending order of numbers is writing the numbers from the smallest to the greatest.
See the folloiwng example
Arrange the given numbers in ascending order.
387, 4,462, 17,347, 986, 38,432
Ascending order of given number is following :
387, 986, 4,462, 17,347, 38,432

## Descending Order

Descending order of numbers is writing the numbers from the greatest to the smallest.

See the following example
Arrange the given numbers in descending order. 986, 6,421, 14,176, 979, 87,346
Descending order of given number is following : 87,346, 14,176, 6,421, 986, 979
Example 5. Arrange the given numbers in ascending and descending order. $44,565,36,735,37,536,44,655,7,400$
Sol. Ascending order :
$7,400,36,735,37,536,44,565,44,655$
Descending order :
$44,655,44,565,37,536,36,735, \quad 7,400$

## Do Yourself

Example 6. Arrange the following numbers in the ascending and descending orders.

| (i) 27,045, | 18,137, | 33,270 | 10,678 |
| :--- | ---: | ---: | ---: |
| (ii) 33,198, | 12,384, | 21,765, | 24,250 |
| (iii) 52,830, | 41,197, | 64,532, | 47,675 |
| (iv) 26,487, | 33,765, | 26842, | 38,482 |

## Exercise 1

1. Write the numerals for the following:
(i) One thousand six hundred.
(ii) Five thousand and forty two.
(iii) Seven thousand nine hundred and eighty six
(iv) Eighty thousand nine hundred and thirty.
(v) Ninety thousand seven thousand four hundred and eighty.
2. Write the word form of the following:
(i) 24056
(ii) 40009
(iii) 99999
(iv) 80511
(v) 67725
3. Write the expanded form of the following:
(i) 12372
(ii) 23434
(iii) 45302
(iv) 75004
(v) 68877
4. Write the following in numeral form
(i) $40000+5000+700+70+2$
(ii) $60000+0000+000+20+6$
(iii) $30000+9000+900+00+8$
(iv) $50000+2000+800+10+1$
(v) $80000+0000+000+00+8$
5. Give the place value for the encircled digits in the following numbers
(i) (5) 5074
(ii) 6 (3) 489
(iii) 75 (4) 02
(iv) 867 (5) 3
(v) 9143 (2)
(vi) 9931 (2) 4
6. Write the place value of 6 and 2 in the following numbers.
(i) 28506
(ii) 36265
(iii) 52266
(iv) 69242
(v) 82563
7. Use the symbol $>$, < or $=$ to compare the following numbers
(i) 2979
2932
(iii) 8952 8952
(ii) 5423 5432
(v) 3675 3675
(iv) 6850 6852
8. Using the given digits $4,1,0,5$ and 7 write the smallest and greatest five digit numbers without repetition of the digits.
9. Write the following numbers into ascending order.
(i) $26886,37725,30840,25975,40021$
(ii) 59307, 53907, 59703, 57039, 57903
(iii) 74443, 74434, 74344, 77444, 77555
10. Write the following numbers into descending order :
(i) $41525,51425,34152,42325,50925$
(ii) $86067,81316,85032,82511,81154$
(iii) 76543, 73456, 74356, 76435, 74353

## Examination Type <br> 4 Questions

1. Using the given digits $8,5,2,0$ and 1 write the smallest and the greatest five digit number without repetition of the digits.
Smallest number $\qquad$ .
Greatest number $\qquad$ .
2. State True or False :
(i) Forty eight thousand five hundred two can be written as 48502.
(ii) 1873 can be written as $10000+800+70+3$ in expanded form.
(iii) We read 4009 as four thousand nine in words.
(iv) Place value of 2 in number 73208 is 200.

3. Using the given digits $7,6,8,4$ and 3 write the smallest and the greatest five digit number without repetition of the digits.
Smallest number $\qquad$ .
Greatest number $\qquad$ .
4. State true or False
(i) $2979<2932$
(ii) $8952>8952$
(iii) $3675>3657$
(iv) $9821>9766$

5. Using the given digits $4,1,0,5$ and 7 write the smallest and the greatest five digit number without repetition of the digits
Smallest number $\qquad$ .
Greatest number $\qquad$ .
6. State True or False:
(i) 58024 can be written as fifty thousand eight houndred twenty four.
(ii) 71089 can be written as $70000+1000+000+80+9$ in expanded form.
(iii) We read 5001 as five thousand one in words.
(iv) Place value of 8 in number 5385 is 800.
7. Using the given digits $9,4,3,1$ and 2 write the smallest and the greatest five digit number wihtout repetition of the digits.
Smallest number $\qquad$ .
Greatest number $\qquad$ .
8. State true or false.
(i) 55050 can be written as 50 thousand +5 thousand +0 hundred +5 tens +0 ones.
(ii) 77397 can be written as 70 thousand +7 thousand +9 hundred +7 tens +3 ones.
(iii) 70091 will be in between 69999 and 70001 .
(iv) Place value of 6 in 45650 will be 600

9. Write the folloiwg in ascending order.
(i) $41839,41893,43981$
(ii) 19806, 1988, 19888, 19900
10. State true or false.
(i) Place value of 4 in 84760 is 4000 .
(ii) 87269 will be come before 87169 .
(iii) $273>378$.
(iv) 80045 can be written as $8000+400+5$.

## 2

## Addlition and Subtraction

## - Let us Learn

Hey kids, in this chapter you will learn about
(i) Use of understanding of place value in addition and subtraction of numbers
(ii) Use of carrying in addition and subtraction.

## Use of Understanding of Place Value in Addition and Subtraction of Numbers

In previous class, we have learnt addition and subtraction upto three digits. Now, here we will learn to add or subtract with or without carry upto four digits.

Let us revise the following as we have study in previous class.

## Practice Exercise

## Solve these :

1. 

| 406 |
| ---: |
| $+\quad 313$ |

2. 723

| $7 \quad 18$ |
| :--- |
| $+\quad 1$ |

3. 

| 653 |
| ---: |
| $+\quad 333$ |

6. $580+27+306=$ $\qquad$
7. $473-296=$ $\qquad$
8. $364+67-199=$ $\qquad$
9. $37-15+10=$

Sol.

$$
\text { 2. } \begin{array}{rrr}
1 & 1 & \\
+\quad 7 & 2 & 3 \\
+ & 1 & 8 \\
\hline & 9 & 1
\end{array} 22 .
$$

1. | 4 |
| ---: |
|  |
| $+\quad 3$ |
| 7 | 1 | 9 |
| :--- |
2. 

| 6 | 5 | 3 |
| ---: | ---: | ---: |
| + | 3 | 3 |
| 9 | 8 | 6 |


$\begin{array}{ll} &$| 9 |
| :---: |
| 6 |
| 10 |\end{array}

4. $ナ \quad 0 \quad 0$

$$
\begin{array}{ccc}
-5 & 9 & 9 \\
\hline 1 & 0 & 1
\end{array}
$$

$$
\begin{array}{lr}
5 & 15 \\
\hline
\end{array}
$$

5. 55
7

| 2 | 7 |
| ---: | ---: | ---: |
| 28 | 0 |

6. $580+27+306$

$$
\begin{array}{cc}
0+7+6=@ 3 \\
& (1)+8+2+0=11 \\
1 & 580+5+3=9 \\
& 58+306=913
\end{array}
$$

7. $473-296$

$$
\begin{aligned}
& \text { (13) } \not p-6=7 \\
& \text { (16) } \not \subset \neq 9=7 \\
& \text { (3) } 4-2=1
\end{aligned} \quad \begin{aligned}
& 473-296=177
\end{aligned}
$$

8. $364+67-199$

$$
\begin{aligned}
4+7-9 & =11-9=2 \\
6+6-9 & =12-9=3 \\
3-1 & =2 \\
\Rightarrow \quad 364+67-199 & =232
\end{aligned}
$$

9. $37-15+10$

$$
\begin{aligned}
7-5+0 & =2 \\
3-1+1 & =4-1=3 \\
\Rightarrow \quad 37-15+10 & =32
\end{aligned}
$$

10. Find the total number of students if there were 185 boys and 162 girl in a Government Senior Secondary School, Udaliyas.
Sol. No. of Boys $=185$

$$
\text { No. of girls = } 162
$$

$$
1
$$

$$
185
$$

$$
\begin{array}{r}
+162 \\
\hline 347 \\
\hline
\end{array}
$$

So, total number of students $=185+162=347$
Hence, total students are 347.
11. Find the total number of plants if there were 225 plants of rose, 156 plants of marigold and 178 plants of jasmine.
Sol. Number of plants of rose $=225$
Number of plants of marigold $=156$
Number of plants of jasmine $=178$
Total number of plants

$$
=225+156+178=559
$$

| 111 |
| ---: |
| 225 |
| 156 |
| +178 |
| 559 |

Hence, total number of plants are 559.
12. Geeta's father is a pat seller in haat market. Last sunday, he made 523 pots in which 484 were sold. Find how many pots does he have now?
Sol. Number of pots made $=523$
Number of pots sold $=484$
Number of pots remains $=523-484=39$

$$
\begin{array}{r}
11 \\
4713 \\
523 \\
-484 \\
\hline 039 \\
\hline
\end{array}
$$

Hence, he has 39 pots at last.
13. Add or subtract the following as required within Indial Numeral System.
1.

2.

3.


5.

6.

Sol.

|  | Q |  |
| :---: | :---: | :---: |
|  | く | 4 |
| $+$ | ३ | २ |
| $?$ | ? | く |

2. 


3.

4.

| $\iota \vartheta \rho$ |
| ---: |
| $-\quad \gamma \quad \zeta$ |
| $\gamma \gamma \gamma$ |

5. 

| 492 |
| ---: |
| $-\quad 8 \quad 1 \quad 9$ |
| 99 |

6. 

| $34 \%$ |
| ---: |
| $-\quad 9 \quad 8 \quad$ |
| 29 |

## Use of Carrying in Addition or Subtraction

## Addition

Maths teacher asked the students to solve the following problem. She also announced that,


The students were eagerly waiting for the question.
The teacher said, I bought a cot for ₹ 24,500 , a bureau for ₹ 7,800 and a table for $₹ 4,500$. What is the total cost of the things I have bought?

All the students tried to solve the sum. She saw Kumkum and Puneet two students completed the sum ahead of others. She called them to show their note books. Shockingly, they got two different answers.

Check the methods they followed and tell whose answer is correct.

| KUMKUM | Cost of the cost | $=₹ 24,500$ |
| :---: | :---: | :---: |
|  | Cost of the bureau | $=₹ 7,800$ |
|  | Cost of the table | = + ₹ 4,500 |
|  | Total Cost | = ₹ $2,51,800$ |
| PUNEET | Cost of the cost | $=₹ 24,500$ |
|  | Cost of the bureau | $=₹ 7,800$ |
|  | Cost of the table | = + ₹ 4,500 |
|  | Total cost | $=$ ₹ 36,800 |

Can you understand that, Kumkum did not follow the place value correctly, while writing the numbers. So she went wrong in her calculations. Let us learn how to write numbers using place values.
Example 1. Add the following numbers, by writing them one below the other 64,737+3,475+22,710 +276 .
Sol.

| TTh | Th | H | T | O |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 6 | 4 | 7 | 3 | 7 | + | Th | H | T | O | + | TTh | Th | H | T | O |  |  | H |
|  | T | 4 | 7 | O |  |  |  |  |  |  |  |  |  |  |  |  |  |  |


| TT <br> h | Th | H | T | O |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1 | 2 | 1 | 1 |  |  |
| 6 | 4 | 7 | 3 | 7 |  |
|  |  | 3 | 4 | 7 | 5 |
| + | 2 | 7 | 1 | 0 |  |
| + | 9 | 1 | 1 | 9 | 8 |$\quad$ Carry

## Do Yourself

## Example 2. Find the sum of $386,74,786,9$ and 59.

NOTE If you leave enough space between the numbers, you can avoid making mistakes, while adding the numbers

## Subtraction

"Why have you not completed your homework still?" asked Kaniska’s mother.
"Mother, I am not able to complete one particular problem", replied Kaniska.


Mother had a glance of Kaniska's problem.

$$
2763-267=?
$$

The mother saw, how she has written the number one below the other. She explained her daughter the mistake committed by her.

$$
\begin{array}{r}
2763 \\
-267 \\
\hline
\end{array}
$$

Now you would have understood why Kaniska was not able to get the correct answer.
Can you correct Kaniska's mistake yourselves? Do you need help to solve te problem?
Example 3. Subtract the following numbers, by writing them one below the other 7632-6,267.

| Th | H | T | O |  | Th | H | T | O |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 7 | 6 | 3 | 2 | - | 6 | 2 | 6 | 7 |


| Th | H | T | O |
| :---: | :---: | :---: | :---: |
|  |  | 12 |  |
|  | 5 | $\not 2$ | 12 |
| 7 | $\varnothing$ | $\not 2$ | 2 |
| -6 | 2 | 6 | 7 |
| 1 | 3 | 6 | 5 |

## Hints to Understand :

To subtract ones :
Since 2 is smaller than 7 , convert 1 ten from 3 and then regroup into ones $(10+2=12)$. Hence

$$
12-7=5
$$

## To subtract tens :

Since 2 is smaller than 6 , convert 1 hundred from 6 and then regroup into tens. $12-6=6$
To subtract hundreds :
Subtract 2 hundreds from 5 hundreds.

$$
5-2=3
$$

## Do Yourself

## Example 4. Subtract 5,860 from 6,985.

Example 5. The sum of two numbers is 5983. If one of them is 2178 , then find the other number.
Sol. Sum of two numbers $=5983$
First number $=2178$
Second number =?
Let second number is $A$.
then,
713

$$
\begin{aligned}
A+2178 & =5983 \\
\Rightarrow \quad A & =5983-2178 \\
& =3805
\end{aligned}
$$

$$
59 \not 8 \not 8
$$

$$
\begin{array}{r}
-2178 \\
\hline 3805 \\
\hline
\end{array}
$$

Hence, second number is 3805 .

## Do Yourself

Example 6. Mr. Vijay needs ₹ 9175 for repairing his house. He sold jute for $₹ 1225$, cow for $₹ 5025$ and goat for ₹ 1900 . How much more does he need?

Example 7. In town bus, ₹ 5,402 was collected in the first week and ₹ 6,424 was collected in the second week. By how much was the collection amount more in the second week compared to that of the first week?
Sol. First week collection $=₹ 5407$
Second week collection $=₹ 6,424$
Difference in both collections

$$
\begin{array}{r}
11 \\
647 \\
6424 \\
-5407 \\
\hline 1017 \\
\hline
\end{array}
$$

$$
\begin{aligned}
& =6424-5407 \\
& =1017
\end{aligned}
$$

Hence, ₹ 1017 was more in second week as compared to that of the first week.

## Do Yourself

Example 8. ₹ 3000 is needed for the picnic of the students of class third, fourth and fifth ₹ 1055 and ₹ 1200 have been collected from the class Four and Five respectively. How much taka will have to be collected from class Three?

## Exercise 2

1．Solve the following：


2．Add the following ：
（i） 8725 and 907
（ii） 7685 and 2108
（iii）5113， 1999 and 638
（iv） 8999 and 1001

3．Subtract the following：
（i） 840 from 3944
（ii） 2407 from 4817
（iii） 4999 from 6000
（iv） 7986 from 8344

4．Find the addition of largest number of four digits and largest number of three digits．
5．Ramesh deposited ₹ 2850 in January and ₹ 3650 in Febuary in his bank account． Find the total amount he deposited in both months．
6．Anshu bought a cycle for ₹ 2999 and Ruchi bought a cycle for ₹ 2650 ．Find the difference of amount of both cyles．
7．Sum of two number is 7678 and if one of then is 4613 and find the other number．
8．Mohan has an amount of ₹ 10,000 ．He bought wheat for ₹ 4500 and rice for ₹ 1600 ． How much money does he have now？

9．A total of 8976 children were given drops of pulse polio under Bagwas was Panhayat in three phases． 2780 children were given drops in first phase and 2925 children in second phase．State how many children were given the drops in the third phase？
10．Add or subtract the following within Indian Numeral System．
（i）
（ii）$२$ ३ $\downarrow$
（iii）乞 ६ २ ३
（iv）$३<$ Ł $७$



| （vi）६ | ३ | र | ४ |
| ---: | :--- | :--- | :--- |
| - | 丂 | 乙 | 9 |


（viii）४ ₹ 〕 ६
$\qquad$
11. Find the total amount that syam paid if he bought an almirah for ₹६५८० and a bed for ₹२६२૪.
12. Rama bought a table for ₹३४५० and Radha bought a table for ₹२९६०. State the difference in the cost of both.
13. Find the sum of greatest and smallest number of four digits
14. २६૪ students were participate in an examination. Out of them $\uparrow ९ \succ$ were passed. Find the students who were failed.
15. If sum of two number is ९७३२, where one of them is ३८૪६. Find the other.
16. $\uparrow २ ५ \mathrm{~m}$ cloth is required to make three curtains and २८६ m cloth is required to make five canopy. Find the total length of cloth.
17. Ritu has ₹ 575 . Sweta has ₹ 190 less than Ritu. If the rupee of the two is put together, it equals to Renu's rupee. How much rupee does Renu have?
18. Mr. Ajay went to market with ₹ 525 . He bought fish for ₹ 150 , oil for ₹ 90 and vegetables for ₹75. How much money was left with him?
19. A factory produced 6849 helicopters in 20146574 helicopters in 2015. How many total helicopters did the factory produce in the two years?
20. 1543 people appeared in an examination in a particular year. 893 more people appeared in the same examination in the next year. How many people appeared in the examination in the second year?
21. The sales turnover of a company in 2015 was ₹ 4748 crore. In the 2016 the turnover increased to ₹ 5847 crore. What is the increase in sales turnover in 2016?
22. The difference of two number is 891 . If the greater number is 1561 , find the other number.
23. In the year 2015 schools were planted in village. In first village government spent ₹2893; in second village ₹2713 were spent; in third village government spent ₹1745 and in fourth village ₹5712 were spent. How much money was spent in all four villages.
24. The population of a village was 7832 . During the flood 2807 people died and 1347 people moved to the neighbouring city. How many people were left in the village?

# Examination Type <br> Questions 

1. Match the following :

| Column 'A' | Column 'B' |
| :---: | :---: |
| $171+21$ | 135 |
| $165-30$ | 2080 |
| $2086-6$ | 132 |
| $19+113$ | 192 |

2. Solve :
(i) 7325
(ii) 7325
$+1963$

- 6581
$\qquad$
$\qquad$

3. Match the following :

| Column 'A' | Column 'B' |
| :---: | :---: |
| $144+15$ | 159 |
| $125+25$ | 334 |
| $216+118$ | 2580 |
| $2587-7$ | 150 |

4. Solve :
(i) 3758
(ii) 6372
+2637
-2863
5. There were 250 plants of rose, 165 plants of merigoldand 187 plants of jasmine. Find the total number of plants.
6. Match the following.

| Column 'A' | Column 'B' |
| :---: | :---: |
| १७,२४८ | Eigthy two thousand |
| ६६,२६४ | (३००० + ४ $0+$ १) |
| ८२,000 | Six ten thousand, six thousand two hundred, six tens, four ones. |
| ३,०४१ | १ Hundred, ४ tens, ८ ones, ७ thousands, १ ten thousand |

7. 264 students participated in an examination. Out of them 194 were passed. State the students who failed.
8. Match the following :

| Column 'A' | Column 'B' |
| :---: | :---: |
| $133-13$ | 2036 |
| $2018+18$ | 500 |
| $213+287$ | 42 |
| $50-8$ | 120 |

9. Find the sum of smallest four digit number and largest three digit number.
10. Match the following :

| Column 'A' | Column 'B' |
| :---: | :---: |
| $18+112$ | 130 |
| $2072-12$ | 200 |
| $162-22$ | 2060 |
| $170+30$ | 140 |

## 3

## Multipllication and Division

## * Let us Learn

Hey kids, in this chapter you will learn about
(i) Multiplication of three digit numbers by standard method.
(ii) Division of three digit number by two digit number by standard method.

## Multiplication of 3-digit numbers

See the following example and get the concept.

$$
\begin{aligned}
& 963 \\
& \times 347 \leftarrow(300+40+7) \\
& \cline { 1 - 4 } \leftarrow(963 \times 7) \\
& 38520 \leftarrow(963 \times 40) \\
& 288900 \leftarrow(963 \times 300) \\
& \hline
\end{aligned}
$$

Concept : Yes, we get the following concept :
Ist Number
$\times$ IInd Number (Expanded form of IInd number)


This method of multiplication is called as Standard Method.
Example 1. Heeralal earns ₹ 275 per day by doing work in field. He works for 312 days in a year.
Find how much money he will earn in the whole year.

Sol.
275
$\begin{array}{ll}\times 312 \\ 550 & (300+10+2) \\ \leftarrow(275 \times 2)\end{array}$
$2750 \leftarrow(275 \times 10)$

| +82500 |
| ---: |
| 85800 |
| $8075 \times 300)$ |

Hence, Heeralal earns ₹ 85,500 in the whole year.

## Do Yourself

Example 2. Cost of a ceiling fan is ₹ 735 . Find the cost of 125 ceiling fans.?
[Ans. ₹ 91,875]
Example 3. A factory produces 285 PVC pipes in a day. How many PVC pipes will it produce in the whole year, if the factory has 293 working days in the year?

Sol.

$$
\begin{aligned}
& 285 \\
& \times \frac{293}{855}(200+90+3) \\
& 25650 \leftarrow(285 \times 90) \\
& \begin{array}{ll}
57000 \\
\hline 83505
\end{array} \leftarrow(285 \times 200)
\end{aligned}
$$

Hence, factory will produce 83,505 PVC pipes in the whole year.

## Do Yourself

Example 4. A carton can hold 144 apples. 675 cartons of apples were brought to a market on a day. Find the total number of apples brought to the market on the day?
[Ans. 97,200 Apples]

## Exercise 3.1

1. Multiply the following :
(i) $286 \times 125$
(ii) $677 \times 212$
(iii) $637 \times 380$
(iv) $999 \times 400$
(v) $777 \times 222$
(vi) $609 \times 605$
(vii) $987 \times 321$
(viii) $845 \times 599$
(ix) $988 \times 514$
(x) $900 \times 888$
2. Multiply the following number written in devnagri script.
(i) ५६२ $\times$ ३८૪
(ii) ७१५ $\times$ २६०
(iii) $\gamma ३ ६ \times 400$
(iv) ६१६ $\times$ ६३૪
(v) ८२३ $\times$ ૪९२
3. A packet of toffees contains 225 toffees. How much toffees are contained in such 45 packets?
4. There are 165 students in government sen. Sec. School Tada. A donar donates ₹ 550 per student for uniform. State the amount donated by donar.
5. 220 litre oil can fill a drum. How much oil can be filled in such 340 drams?
6. Cost of a chair is ₹ 678 . Find the cost of 296 such chairs.
7. If 525 plants are in one bed, then find the number of plants in 213 beds.
8. 408 balls can be filled one box. Find the number of balls that can fill 634 boxes.
9. Price of a book is $₹ 250$. What is the amount needed to buy 140 such books?
10. In a boys hostel, the amount spent for the boys per day is ₹ 350 . Calculate the amount spent for 30 days.
11. There are 128 trees in a row of a garden. How many trees are there in 217 rows in that garden?
12. There are 112 guavas in a basket. How many guavas are there altogether in 190 baskets?

## Division of 3-Digit Number by 2-Digit Number

See the following example and get the concept.

## Method-I :

$$
\begin{aligned}
& 30+6=36 \\
& 12 \begin{array}{r}
432 \\
-360 \\
\hline 72 \\
\hline \frac{72}{7}
\end{array} \leftarrow(12 \times 30) \\
& \frac{00}{\square}
\end{aligned}
$$

Hence, $\quad 432 \div 12=36$
Method-II :

$$
\begin{gathered}
\frac{36}{432} \\
\frac{36}{72}
\end{gathered}
$$

Hence, $\quad 432 \div 12=36$
NOTE Here, we see two methods to solve the given example, method-II is more convenient for the students

Concept : Yes, we get the following concept :


See the following definition, which helps you to understand division operation.

- The number which divides is called the divisor.
- The number which is divided is called the dividend.
- The number that we get after dividing is the quotient.
- The number which remains after the division is called the remainder; remainder must be smaller than the divisor.
- If the remainder is zero, then dividend is thoroughly divisible by the divisor.


Hence, $\quad$ Dividend $=$ Divisor $\times$ Quotient
$\Rightarrow \quad 28=4 \times 7$
$\Rightarrow \quad 28=28$
Division is the opposite method of multiplication
8) $149(18$
$\frac{8}{69}$
-64
-5
Here, 149 Dividend
8 Divisor
18 Quotient
5 Remainder
Verification : $149=8 \times 18+5$
That is,
Dividend $=$ Divisor $\times$ Quotient + Remainder

## Some important results :

- When divisor and dividend is equal, quotient is 1 .
- When divisor is 1 , quotient equals to the dividend.
- When divisor is 0 , quotient is also 0 .
- When divisor is 0 , we cannot divide, for this reason divisor cannot be 0 in any situation. This results infinite $\infty$, as any number $\div 0=\infty$.
Example 1. Divide the following : $887 \div 19$
Sol. $887 \div 19$

$$
\begin{gathered}
46 \\
19 \lcm{887} \\
\frac{-76}{127} \\
\frac{-114}{13} \\
\hline
\end{gathered}
$$

Hence, Divisor = 19, divident $=887$,
Quotient $=46$, Remainder $=13$

## Do Yourself

Example 2. Divide : $789 \div 31$
[Ans. Q-25, R-14]
Example 3. Bhoopendra has 342 toffees and he wants to distribute these toffees among his 16 friends equally. State how much toffees will each friends get. How much toffees will remain.
Sol. $\quad 342 \div 16$

$$
\begin{array}{r}
21 \\
16 \lcm{342} \\
\frac{32}{22} \\
-\quad 16 \\
\hline-6 \\
\hline
\end{array}
$$

Here, dividend is 342 , divisor is 16 , Quotient is 21 and Remainder $=6$
Hence, 6 toffees will remain and each friends will get 21 toffees.

## Do Yourself

Example 4. Moni's father divided 455 lichies equally in thirteen parts. He gave two parts to Moni. How many lichies did get?
[Ans. $35 \times 2=70$ ]
Example 5. In a shelf there are 186 books. There are 194 books in another shelf. From these books if everyone is given 4 books then how many people can be given those books?
Sol. Number of books in a shelf $=186$
Number of books in another self $=\underline{194}$

$$
\text { Total books } \overline{=380}
$$

Now,

$$
\text { 4) } 380 \text { (95 }
$$

$$
\begin{array}{r}
\frac{36}{20} \\
20 \\
\hline 00
\end{array}
$$

Hence, 95 people can be given these books.

## Do Yourself

Example 6. There are 150 lozenges in a packet. From these, 14 lozenges are kept and remaining lozenges are distributed equally among 17 people. How many lozenges does each one get?
[Ans. 8]
NOTE We can verify the answer, by the following :
Dividend $=($ Quotient $\times$ Divisor) + Remainder

## Exercise 3.2

1. Solve the following :
(i) $255 \div 15$
(ii) $312 \div 12$
(iii) $640 \div 16$
(iv) $702 \div 13$
(v) $357 \div 21$
(vi) $770 \div 28$
(vii) $952 \div 34$
(viii) $847 \div 18$
(ix) $656 \div 23$
(x) $945 \div 35$
2. Divide the following written in devnagri script.
(i) $६ ८ \succ \div \stackrel{\uparrow}{ }$
(ii) ७२५ $\div$ २५
(iv) ૪३७ $\div$ १६
(v) ५६९ $\div$ २३
3. Chaya bought 20 copies for ₹ 360 . State the cost of one copy?
4. Dheeraj have 864 bananas. State how many dozen banana he has ?
5. If 702 people can sit in 27 buses, then state how many people can sit in a bus?

6 . Omkar has ₹ 400 . If the cost of one metre cloth is ₹ 30 , then how much cloth, he can bought and how much money, remains left with him?
7. How many garlands can be made using 648 flowers, when ever 24 flowers are needed to make one garland?
8. Find the number of years in 936 months.
9. Cost of 15 copies is $₹ 180$. Find the cost of one copy.
10. A total of 682 oranges are packed equally in 31 cartoons. How many oranges are packed in one carton?

## Examination Type <br> 4. Questions

1. There are 142 students in a class. Each one gave subscription of ₹ 325 for a tour. State the amount collected as subscription in all.
2. There are 445 mangoes in 5 baskets. How many mangoes are there in such 12 baskets?
3. A 171 metre long ribbon is divided into 19 parts equally. Find the length of each part.
4. Calculate the number of seconds in a day.
5. On an average, a healthy adult's heart beats 72 times in a minute. How many times does it beat in half of the day?
6. Each of 25 women gave $₹ 75$ as subscription. By putting this subscription together, it was distributed equally among 15 flood affected people. How many rupees did each get?
7. Puneet bought a packet of 125 apples. He kept in side 5 apples from the packet. He distribute the remaining apples equally among his 15 friends. How many apples were given to his each friend?

## 4

## Vedic Mathematics

## - Let us Learn

Hey kids, in this chapter you will learn about
(i) Subtraction operation,
(ii) Multiplication operation (base 10) using sutra Nikhilam.

## Subtraction Operation

In prveious class, we have learnt about Ekadhikena, Ekanyunena, Ekadhik Purvena, Ekanyunena Purvena and Complementary Digit.

Here, we revise these and understand the basics of vedic mathematics.

## (i) Ekadhikena ( एकाधिकेन )

Ekadhikena means one more digit or number.
To find ekadhik of a number, add one (1) to that number and mark on its unit digit as a dot (.).
e.g., Ekadhik of $12=12=12+1=13$

Ekadhik of digit 3 in 1534, the new number $=15 \dot{3} 4=1544$.
Example 1. Find the ekadhiken of the following numbers : 3, 9, 12, 28.
Sol.

| Numbers | Ekadhiken | Value of Edkadhiken |
| :---: | :---: | :---: |
| 3 | $\dot{3}$ | 4 |
| 9 | $\dot{9}$ | 10 |
| 12 | 12 | 13 |
| 28 | $2 \dot{8}$ | 29 |

## Do Yourself

Example 2. Complete the following table :

| Number | Ekadhikena | Value of Ekadhikena |
| :---: | :---: | :---: |
| 4 |  |  |
| 6 |  |  |
| 11 |  |  |
| 18 |  |  |

## (ii) Ekanyunena

It is opposite process of ekadhikena, i.e., in ekayunena, we decrease 1 from a particular digit or from a particular digit of a number and that particular digit has a dot (.) below it.
e.g., Ekanyunena of $12=12=12-1=11$

Edanyunena of digit 3 in 1534 the new number $=1534=1524$
Example 3. Find the ekanyunena of the following numbers : 5, 9, 20, 25.

| Number | Ekadhikena | Value of Ekadhikena |
| :---: | :---: | :---: |
| 5 | $\vdots$ | 4 |
| 9 | 9 | 8 |
| 20 | 20 | 19 |
| 25 | 25 | 24 |

## Do Yourself

## Example 4. Find the ekanyunena of 78, 69, 91, 99.

## (iii) Ekadhikena Purvena ( एकाधिकेन पूर्वेण )

Ekadhikena-Purvena is combined operation in which ekadhiken and purvena can be done simultaneously, see the following table carefully :

| Number | Purvena of | Purvena | Ekadhiken-Purvena | Value of <br> ekadhikena-purvena |
| :---: | :---: | :---: | :---: | :---: |
| 7 | 7 | 0 | $\dot{0} 7$ | 17 |
| 9 | 9 | 0 | $\dot{0} 9$ | 19 |
| 16 | 6 | 1 | $\dot{1} 6$ | 26 |

## (iv) Ekanyunena-Purvena

It means, when a number is given, then find out purvena digit of a particular digit or number. Now, find the ekanyuena of this digit or number. See the following table carefully :

| Number | Purvena of | Ekanyunena <br> Purvena | Value of ekanyuena <br> purvena |
| :---: | :---: | :---: | :---: |
| 15 | 5 | $!5$ | 05 |
| 23 | 3 | 23 | 13 |
| 159 | 9 | 159 | 149 |
| 351 | 1 | 351 | 341 |

## (v) Complementary Digit ( परममित्र अंक )

Sum of a digit or number is equal to 10 , so we can say that Number/Digit + Complementary digit $=10$
Now, see the following table,

| Number | Complementary Digit <br> (10-Number/Digit) | Value of Complementary <br> digit/number |
| :---: | :---: | :---: |
| 1 | $10-1$ | 9 |
| 2 | $10-2$ | 8 |
| 3 | $10-3$ | 7 |
| 4 | $10-4$ | 6 |
| 5 | $10-5$ | 5 |
| 6 | $10-6$ | 4 |
| 7 | $10-7$ | 3 |
| 8 | $10-8$ | 2 |
| 10 | $10-9$ | $10-10$ |

## 2. Subtraction using Ekanyunena Purvena and Complementary Digit

We can understand the subtraction using ekanyunena purvena and complementary digit by the following steps :
Step-1. When the digit at minuend (upper digit) is greater than subtracted digit (lower digit) normal subtract is to be done.
Step-2. In case if upper digit is less than lower digit, then we add complementary digit of lower digit to upper and write the sum in lower last place and put an ekanyunena mark on previous digit of upper digit.
Step-3. Repeat this process.
Example 5. Solve : 753-584=?
Sol.

$$
\begin{array}{r}
C_{3} C_{2} C_{1} \\
75 \\
-5 \\
-58 \\
\hline
\end{array}
$$

## Hint :

(i) $\because 3<4$
$\therefore$ Add 6 (complementary digit of 4) to 3 and put an ekayunena mark on 5 (purvena of 3 ), write $(3+6=) 9$ in total of $C_{1}$.
(ii) $\because 5<8$ or $4<8$
$\therefore$ Add 2 (complementary digit of 8 ) to 5 or 4 and put an ekanyunena mark on 7 (purvena of 5), write $(5+2=) 6$ in total of $C_{2}$.
$\because 7$ (ixijor $6>5$
$\therefore$ Write $(6-5=)$ lin total of $C_{3}$.

## Do Yourself

Example 6. Solve : 983-495=?
Example 7. Solve : 8185-2496=?

|  | $C_{4}$ | $C_{3}$ | $C_{2}$ | $C_{1}$ |
| :--- | ---: | ---: | ---: | ---: |
| Sol. | 8 | 1 | 8 | 5 |
|  | $\bullet$ | $\bullet$ | $\bullet$ |  |
|  | -2 | 4 | 9 | 6 |
| 5 | 6 | 8 | 9 |  |

Hint :
(i) $\because 5<6$
$\therefore$ Add 4 (complementary digit of 6) to 5 and put an ekanynena mark on 8 (purvena of 5) and write $(4+5=) 9$ in total of $C_{1}$.
(ii) $\because 8<9$ or $7<9$
$\therefore$ Add 1 (complementary digit of 9 ) to 8 or 7 and put an ekanyunena on 1 (purvena of 8 ) and write
$(1+7=) 8$ in total of $C_{2}$.
(iii) $\because \quad 1<4$ or $0<4$
$\therefore$ Add 6 (complementary digit of 4) to 1 or 0 and put on ekanyunena mark on 8 (purvena of 1) and write $(6+0)=6$ in total of $C_{3}$.
(iv) $\because 7>2$ or $6>2$
$\therefore$ Write (6-2 $=$ ) 4 in total of $C_{4}$.

## Exercise 4. 1

Subtract the following by using Ekanynena Purvena and Complementary digit.

82

1. -54

342
4. -143

4162
7. -2536

2757
10. -1565

## 3. Subtraction Using Ekadhikena Purvena and Complementary Digit

We can understand the subtraction using ekadhikena purvena and complementary digit by the following steps :
Step 1. When the digit at minuend (upper digit is greater than subtracted digit (lower digit) normal subtract is to be done.
Step 2. In case if upper digit is less than lower digit, then we add complementary digit of lower digit to upper and write the sum in lowest last place and put an ekadhik mark on previous digit of lower digit.
Step 3. Repeat this process.
Example 1. Solve : 700-432=?

Sol. | $C_{3}$ | $C_{2}$ | $C_{1}$ |
| ---: | ---: | ---: |
| 7 | 0 | 0 |
|  | $\bullet$ | $\bullet$ |
|  | 4 | 3 |
| 2 | 6 | 8 |

Hint : (i) $\because 0<2$
$\therefore$ Add 8 (complementary of 2) to 0 and put an ekadhik mark on 3 (purvena of 2), write $(0+8=) 8$ in total of $C_{1}$.
(ii) $\because 0<\dot{3}$ or $0<4$
$\therefore$ Add 6 (complementary digit of 3 ) to 0 and put an ekadhik mark on 4 (purvena of 3 ), write $(0+6=) 6$ in total of $C_{2}$.
(iii) $\because 7>4$ or $7>5$
$\therefore$ Write $(7-\dot{4}=7-5=) 2$ in total of $C_{3}$.
Do Yourself
Example 2. Solve : $800-389=$ ?
[Ans. 411]

## Exercise 4.2

Subtract the following by using Ekadhikena Purvena and complementary digit.

| 200 | 500 | 805 |
| :---: | :---: | :---: |
| 1. -132 | 2. -309 | 3. -608 |
| 1700 | 8305 | 4000 |
| 4. -973 | 5. -5281 | 6. -2736 |
| 9700 | 1000 | 9000 |
| 7. -4904 | 8. -854 | 9. -3896 |
| 1500 |  |  |
| 10. -785 |  |  |

## Multiplication Operation (base 10) using Nikhilam

## 4. Extreme Digit, Nikhilam Digit, Base and Deviation

## (i) Extreme Digit ( चरम अंक)

It is the digit of number placed at ones place.
For example-In 7856, 6 is at one's place, so it is called extreme digit.

## (ii) Nikhilam Digit ( निखिलम अंक )

It is the digit other than extreme digit. In above example 7,8 and 5 are nikhilam digits.


## (iii) Base

Here, the meaning of base is taking as number base or base of a number. Any real number more than one can be number base.

To make calculations easy and to obtain their answer in exact way, 10 is considered as base. Here, the base of decimal number system is also ten (10).

## (iv) Deviation

Deviation is the difference of given number and base i.e., if we subtract base from given number, then remainder is called as deviation.

So,
Deviation $=$ Number - Base
If number is greater than base, then deviation is positive. If number is less than base then deviation is negative. We put number of digits in deviation equal to number of zeros in base, e.g.,

Deviation of 18 w.r.t. base $10=+8$
See the table for deviation...

| Number | Base | Deviation |  | Value of <br> Deviation |
| :---: | :---: | :---: | :---: | :---: |
|  |  | Positive | Negative |  |
| 9 | 10 |  | $\checkmark$ | -4 |
| 6 | 10 |  | $\checkmark$ | +4 |
| 14 | 10 | $\checkmark$ |  | -15 |
| 85 | 100 |  | $\checkmark$ |  |

Example 1. Find the deviation of (i) 13 and (ii) 8 w.r.t. base 10.
Sol. (i) $13=13-10=3=+3$
(ii) $8=8-10=-2$

Hence, deviations are +3 and -2 respectively.

## Do Yourself

Example 2. Find the deviation of 18 and 7 w.r.t. base 10.
[Ans. $+8,-3$ ]

## Exercise 4.3

1. Write the deviation of the following w.r.t. base 10.
(i) 14, (ii) 11, (iii) 8, (iv) 9, (v) 13, (vi) 19, (vii) 7, (viii) 6.

## 5. Multiplication of Two Numbers (Sutra Nikhilam Base)

Multiplication of two numbers can be obtained by sutra nikhilam base if both numbers are near base 10 .

## Methods

1. According to number, choose its closest base 10 .
2. Write deviation w.r.t. base in front of base.
3. Divide the product place in two parts using slant (transversal) line.
4. Write product of deviation in right side.
5. In left side, write deviation of first number + second number.
6. Put digits in left side equal to number of zeros in base. Put zeros on right of a number to make equal number of digits. This technique can be applied to other numbers also.
7. If product of deviation is negative, then convert it into positive after taking one (1) from left. Remember that one (1) taken from left side is equal to base in right side. This is clear by the following examples :
Example 1. Find: $11 \times 15$.
Sol. $\quad 11 \times 15$, Base $=10$

$$
\begin{aligned}
& =11 \\
& 15 \\
& \hline=15 \\
& \hline=15+1 / 1 \times 5 \\
& =16 / 5 \\
& =165
\end{aligned}
$$

## Hint :

(i) Deviation $=+1,+5$
(ii) Write $11+5$ or $15+1$ in left side.
(iii) In right side, multiplication of deviations $=8$ (one digit).

## Do Yourself

Example 2. Find $13 \times 12$
[Ans. 156]
Example 3. Find $9 \times 11$.
Sol. $\quad 9 \times 11$, Base $=10$

$$
\begin{aligned}
& =9 \\
& \frac{11}{}+1 \\
& \hline=11-1 /(-1) \times 1 \\
& =10 /-1 \\
& =9+1 /-1 \\
& =9 / 10-1 \\
& =9 / 9 \\
& =99
\end{aligned}
$$

## Hint:

(i) Deviation $=-1,+1$
(ii) Write $11-1$ or $9+1$ in left side.
(iii) In right side, multiplication of deviations $=-1$ (one digit).

## Do Youself

## Example 4. Find : $8 \times 13$.

[Ans. 104]
Example 5. Find $14 \times 17$.
Sol. $\quad 14 \times 17$, Base $=10$

$$
\begin{aligned}
& =14 \\
& \frac{17}{} \quad+4 \\
& =17+4 /(+4) \times(+7) \\
& =21 / 28 \\
& =21 / 28 \\
& =23 / 8 \\
& =238
\end{aligned}
$$

## Hint :

(i) Base $=10$, Deviations $=+4,+7$
(ii) Write $14+7$ or $17+4$ in left side.
(iii) As one zero in base 10 , so more tens digit to one left side.
(iv) Write $21+2=23$.

## Do Yourself

Example 6. Find : $13 \times 19$.
[Ans. 247]

## Exercise 4.4

Find the following by using Nikhilam sutra.

1. $12 \times 9$
2. $15 \times 12$
3. $13 \times 17$
4. $8 \times 9$
5. $14 \times 11$
6. $9 \times 16$
7. $12 \times 13$
8. $13 \times 10$
9. $15 \times 16$
10. $18 \times 12$

## Examination Type <br> 4 Questions

1. Find the value of $12 \times 14$ w.r.t. base 10 by using sutra Nikhilam.
2. Subtract the following by using ekadhikena purvena and Complementary digit.

$$
805-608=?
$$

3. Find the following by using ekanyunena purvena and Complementary digit :

$$
800-543
$$

4. Find the deviation of the following number w.r.t. 10 .
(i) 5
(ii) 8
(iii) 13
5. Find the following complementary digit of the following digit : 3, 5, 9 .
6. Find the value of $15 \times 17$ w.r.t. base 10 by using sutra Nikhilam.
7. Find the value of $11 \times 16$ w.r.t. base 10 by using sutra Nikhilam.

## 5

## Multiples and Factors

## Let us Learn

Hey kids, in this chapter you will learn about
(i) Multiples
(ii) Factors

## Multiples

Let there are two numbers $A$ and $B$, then product of both is called multiple of $A$ or multiple of $B$ See the following example :
Example 1. Make a multiplication table for 2, 5 and 8.
Sol.

| Multiples of 2 | Multiples of 5 | Multiples of 8 |
| :---: | :---: | :---: |
| $1 \times 2=2$ | $1 \times 5=5$ | $1 \times 8=8$ |
| $2 \times 2=4$ | $2 \times 5=10$ | $2 \times 8=16$ |
| $3 \times 2=6$ | $3 \times 5=15$ | $3 \times 8=24$ |
| $4 \times 2=8$ | $4 \times 5=20$ | $4 \times 8=32$ |
| $5 \times 2=10$ | $5 \times 5=25$ | $5 \times 8=40$ |
| $6 \times 2=12$ | $6 \times 5=30$ | $6 \times 8=48$ |
| $\ldots \ldots \ldots$ | $\ldots \ldots \ldots$ | $\ldots \ldots \ldots$ |
| $\ldots \ldots \ldots \ldots \ldots \ldots \ldots$ |  |  |

## Do Yourself

Example 2. Make a multiplication table for the following numbers.
(i) 7
(ii) 13
(iii) 16
(iv) 18

From the multiplication we can say "Every multiple of a number is completely divisible by that number."

## Properties of Multiples

1. Every number is a multiple of 1 .
2. Every number is a multiple of itself.
3. Zero is a multiple of every number (except zero).
4. Every multiple of a number is greater than or equal to the number itself.
5. There are infinite multiples for every number. That is there is no end to the multiples of any particular number.
Example 3. Find the first five multiples of 12.
Sol. To find the multiples of 12 , we multiply it with $1,2,3,4$ and 5 .
$12 \times 1=12 ; \quad 12 \times 2=24 ; \quad 12 \times 3=36 ; \quad 12 \times 4=48 ; \quad 12 \times 5=60$

Thus, the first five multiples of 12 are $12,24,36,48$ and 60 .

## Do Yourself

## Example 4. Find the first five multiples of 3 and 6.

Example 5. Check whether 4222 is a multiple of 36 or not.
Sol. If 4222 is exactly divisible by 36 , then it is a multiple of 4222 otherwise not.
Since, 4222 is not divisible by 36 exactly.
Therefore, 4222 is not a multiple of 36 .

$$
\text { 36 } \begin{gathered}
117 \\
\frac{4222}{-36} \\
\hline \frac{-36}{262} \\
\hline 252 \\
\hline 10
\end{gathered}
$$

## Do Yourself

Example 6. Check whether 2632 is a multiple of 28 or not.

## Common Multiples

Example 7. See the following number chart. Draw $\square$ on multiples of 3 and $\bigcirc$ on multiples of 4.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |
| 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |
| 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 |
| 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 |
| 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 |
| 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |

Answer the following questions based on chart given below:
(i) Which is the smallest multiple of 3?
(ii) Which is the smallest multiple of 4?
(iii) Write three numbers which are multiple of both 3 and 4?
(iv) Which number is the smallest same multiple of 3 and 4?
(v) Which is the largest same multiple of 3 and 4?
(vi) Which is the first multiple of 3 and 4 greater than 100?
(vii) Write the smallest number in chart which is multiple of at least two number and write these numbers also, which is multiple.
(viii) Which number is the smallest multiple of 5 and 8.

Sol.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 11 | $(12)$ | 13 | 14 | 15 | 16 | 17 | 18 | 19 | $(20)$ |
| 21 | 22 | 23 | $(24)$ | 25 | 26 | 27 | 28 | 29 | $\boxed{30}$ |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | $(48)$ | 49 | 50 |
| 51 | $(52)$ | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |
| 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 |
| 71 | $(72)$ | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 |
| 81 | 82 | 83 | $84)$ | 85 | 86 | 87 | 88 | 89 | 90 |
| 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |

(i) 3 , (ii) 4, (iii) $12,24,36$, (iv) 12 , (v) 96
(vi) Numbers greater than 100 are not included in the chart.
(vii) 2 is the multiple of 1 and 2 .
(viii) The smallest multiple of 5 and $8=40$.

## Do Yourself

Example 8. See the following number chart. Draw $\square$ on multiples of 4 and $O$ on multiples of 6 .

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |
| 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |
| 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 |
| 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 |
| 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 |
| 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |

Answer the following questions based on chart given below:
(i) Which is the smallest multiple of 4 ?
(ii) Which is the smallest multiple of 6?
(iii) Write three numbers which are multiple of both 4 and 6 ?
(iv) Which number is the smallest same multiple of 4 and 6 ?
(v) Which is the largest same multiple of 4 and 6 ?
(vi) Which is the first multiple of 3 and 6 greater than 100?
(vii) Write the smallest number in chart which is multiple of at least two number and write these numbers also, which is multiple.
(viii) Which number is the smallest multiple of 4 and 7 .

Example 9. Write first three common multiples of 5 and 2.
Sol. Multiples of $5=5,10,15,20,25,30,35,40$
Multiples of $2=2,4,8,10,12,14,16,20,22,24,26,28,30,32, \ldots \ldots$
Common multiples of 5 and $2=10,20,30$

## Do Yourself

Example 10. Write first four common multiples of 3 and 4.
[Ans. 24, 36, 48]
Example 11. Write two common multiples of 8,6 and 4, also write the smallest common multiple.
Sol. Multiples of $8: 8,16,24,32,40,48,56, \ldots$
Multiples of $6: 6,12,18,24,30,36,42,48,54, \ldots$
Multiples of $4: 4,8,16,20,24,28,32,36,40,44,48,52, \ldots$
Common multiples of 8,6 and $4=24,48, \ldots$
Smallest common multiple of 8,6 and $4=24$.

## Do Yourself

Example 12. Write three common multiples of 9,6 and 3 , also write the smallest common multiple.
[Ans. 18, 36, 54; 18]

## Exercise 5.1

1. Write first four multiples of the following :
(i) 4
(ii) 7
(iii) 14
(iv) 19
2. Encircle on the multiples of given numbers.
(i) $3-5,9,3,13,18$
(ii) $5-45,11,10,22,55$
(iii) 12 - $12,36,32,48,18$
(iv) $15-25,35,15,40,45$
3. Encircle on the multiples of both 3 and 4 in the following : 6, 12, 15, 18, 24, 30.
4. Write the multiples of 7 between 10 and 30 .
5. Write the multiples of 4 greater than 25.
6. Write the smallest multiple of 2 and 5.
7. Write the smallest multiple of 8 and 12 .
8. Write the smallest multiple of 6,9 and 15 .
9. Write five multiples of 3 which is greater than 20.
10. Find out the common multiples of 5 and 6 . Write the smallest multiple.
11. Find the four multiples of the following :
(i) 6 ,
(ii) 8 ,
(iii) 15,
(iv) 19
12. Write 18 multiples of 9 and 6 and also write common multiples.

## Factors

A factor is a number which divides the number completely and leaving no remainder behind itself.
e.g., $3 \times 4=12.3$ and 4 are factors of 12

## Do You Know? 1 is a factor of every number.

Every number except 1 is a factor of itself. Thus, every number have atleast two factors, 1 and the number itself. i.e., the factors of 8 are $1,2,4$ and 8 .
Interesting Fact A number has limited number of factors but unlimited number of multiples.

## Properties of Factors

1. 1 is a factor of every number. In fact 1 is the smallest factor of any number.
2. A number (except zero) is a factor of itself. In fact the number is the greatest factor itself.
3. Every non-zero number is a factor of 0 .
4. A factor of a number is less than or equal to the number.
5. Every number (except 1) has at least two factors. That is 1 and the number itself.

Example 1. Find all the factors of 12.
Sol. We know that
$1 \times 12=12 \quad 12 \times 1=12$
$2 \times 6=12 \quad$ or $\quad 6 \times 2=12$
$3 \times 4=12 \quad 4 \times 3=12$
Hence, 1, 2, 3, 4, 6 and 12 are the factors of 12 .

## Do Yourself

## Example 2. Write all the factors of 8 and 15.

Example 3. Write all the factors of 18 and 24. Is there any number which is factor of both 18 and 24.
Sol. Factors of $18=1,2,3,6,9,18$

Factors of $24=1,2,3,4,6,8,12,24$
Yes, there are 4 numbers, which are factors for both 18 and 24 . These factors are called common factors.

## Do Yourself

Example 4. Write all the factors of 24 and 32 . Write all the common factors of both.
Example 5. Find out all factors of 9 and 27. Write their common factors. Identify the largest common factor.
Sol.


## Do Yourself

Example 6. Find out all factor of 4 and 36 , write their common factors. identify the largest common factor.

Example 7. Find the largest number by which 20, 40 and 60 are completely divisible.
Sol. Factors of $20=1,2,4,5,10,20$
Factors of $40=1,2,4,5,8,10,20,40$
Factors of $60=1,2,3,4,5,6,10,12,15,20,30,60$
So, common factors $=1,2,4,5,10,20$
Hence, the required number is 20 .

## Do Yourself

Example 8. Find the largest number by which 36, 48 and 56 are completely divisible.
[Ans. 4]

## Exercise 5.2

1. Find the factors of the following :
(i) 7
(ii) 9
(iii) 16
(iv) 25
(v) 48
(vi) 63
2. Find the common factors of the following :
(i) 8 and 12
(ii) 10 and 20
(iii) 7 and 16
(iv) 18 and 32
3. Find the largest factor of 21 and 28.
4. Find the largest number by which 45 and 75 are divisible completely.
5. Find the largest factor of 12,18 and 24 .
6. Find the largest common factor of 15,27 and 36 .
7. Two cans of milk contain 20 and 30 litre milk respectively. What is the measure of the largest utensils so that which can measure both cans completely.
8. Find the largest common factor of the following :


## Examination Type <br> 4 Questions

1. Two cans of water contain 25 and 45 liter water respectively. What is the measure of the largest utensils so that which can measure both cans completely.
2. Find the largest common factor of 12,18 and 24 .
3. Find the largest number by which 30,50 and 70 are divisible completely.
4. Write the multiples of 5 between 10 and 30 .
5. Write three multiples of 3 greater than 22.
6. Find the largest number by which 15, 45 and 60 are divisible completely.

## 6

## Understanding Fractions

## Let us Learn

Hey kids, in this chapter you will learn about
(i) Fraction as a part of whole
(ii) Fraction on number line

## Fraction as a Part of Whole

Let us see,
Mohan and Sneha were eating food and they finish their chapati at same time, then their mother chapped the chapati from the middle and gave one part to Mohan and other part to Sneha.

Now you tell what was the distribution of chapati between Mohan and Sneha.


Mohan's Part
Sheha's Part

Similarly, if a chapati is distributed between 3 person, then


Now see, the following table,

| Number of person in which chapati to be <br> distributed | Part of whole give to <br> each person |
| :---: | :---: |
| 2 Persons |  |
| 3 Persons |  |
| 4 Persons |  |

8 Persons 10 Persons 12 Persons

From the above table, we conclude that number of persons in which a whole is to be distributed are equal to number of parts of whole.

Hence, each person gets equal part of whole.

## Concept of Fraction



One


One


One

| $\frac{1}{2}$ or, Half or, Half parts or, one part out of two | $\frac{1}{2}$ or, Half or, Half parts or, one part out of two | $\frac{1}{2}$ or, Half or, Half parts or, one part out of two |
| :---: | :---: | :---: |
| $\frac{1}{3}$ or, one-third or, one part out of three | $\frac{1}{3}$ or, one-third or, one part out of three | $\frac{1}{3}$ or, one-third or, one part out of three |
| $\frac{2}{3}$ or two-third or two parts out of three | $\frac{2}{3}$ or two-third or two parts out of three | $\frac{2}{3}$ or two-third or two parts out of three |
| $\frac{1}{4}$ or, one-fourth or, one part out of four | $\frac{1}{4}$ or, one-fourth or, one part out of four | $\frac{1}{4}$ or, one-fourth or, one part out of four |
| $\frac{3}{4}$ or, three-fourth or, three parts out of four | $\frac{3}{4}$ or, three-fourth or, three parts out of four | $\square$ <br> $\frac{3}{4}$ or, three-fourth or, three parts out of four |
| $\frac{4}{5}$ or, four-fifth or four parts out of five | $\frac{4}{5}$ or, four-fifth or four parts out of five | $\frac{4}{5}$ or, four-fifth or four parts out of five |

NOTE A line (-) has been drawn to write simple fraction. The total number of parts have been written below the line and the parts under consideration have been written above the line.

## Naming of Fraction

A fraction is always written with one number on top of a line and another number underneath that line. The numerator of a fraction is the top number. It is the "part" of the "whole" that we are talking about.

For example : In the fraction $\frac{1}{4}, 1$ is the numerator. The fraction indicates on part of a whole that has four part.

$$
\frac{1}{4} \rightarrow \text { Numerator }
$$

The denominator is the bottom number of the fraction and represents te "whole". It is the number of parts the whole is divided into. To remember the denominator think "down"-ominator.

For example, in the fraction $\frac{1}{4}, 4$ is the denominator. This whole has been divided into four equal parts.

$$
\frac{1}{4} \rightarrow \text { Dinominator }
$$

If Numerator < Denominator,
Then fraction is known as proper fraction.
For example-

$$
\frac{3}{10}, \frac{5}{7}, \frac{6}{19}, \ldots \ldots \ldots
$$

If Numerator > Denominator,
The fraction is known as improper fraction.
For example$\frac{12}{7}, \frac{9}{4}, \frac{15}{6}, \ldots \ldots \ldots$
If fraction is added to a whole number, then this simplified fraction is known as mixed fraction.

$$
\underset{\substack{\text { Proper } \\ \text { fraction }}}{\frac{1}{4}}+\underset{\substack{\text { Whole } \\ \text { number }}}{1}=\underset{\substack{\text { Improper } \\ \text { fraction }}}{\frac{5}{4}} \text { or } \quad 1 \frac{1}{4}
$$

## Mixed Fractions

## (Also called "Mixed Numbers")

A Mixed Fraction is a whole number and a proper fraction combined.
Such as $1 \frac{3}{4}$

(One and three quarters, $13 / 4$ )

## Examples

$$
2 \frac{3}{8}, 7 \frac{1}{4}, 1 \frac{14}{15}, 21 \frac{4}{5}
$$

See how each example is made up of a whole number and a proper fraction together? That is why it is called a "mixed" fraction (or mixed number).

## Names

We can give names to every part of a mixed fraction :

$$
\text { Whole number } \longrightarrow 2 \frac{1}{3} \longleftarrow \text { Numerator }
$$

## Three Types of Fractions

There are three types of fraction:

$$
\frac{3}{5} \longleftarrow \text { Smaller } ; \frac{9}{5} \longleftarrow \text { Larger } ; 2 \frac{1}{3} \underset{\text { Smaller }}{\text { Mixed }} \text { fraction }
$$

## Mixed Fractions or Improper Fractions

You can use either an improper fraction or a mixed fraction to show the same amount.
For example : $1 \frac{3}{4}=\frac{7}{4}$, as shown here:


Example 1. (i) A chapati is distributed equally among five children. State the share of each children.
(ii) Four chapaties are distributed equally among three children. State the share of each children.
Sol. (i)


Each will get $\frac{1}{5}$ chapati.
(ii)


Each will get one and one-third $\left(1 \frac{1}{3}\right)$ chapati.

## Do Yourself

Example 2. Shade $\frac{2}{3}$ portion of the following figures:

(ii) Look at the shaded part of the picture give below. Write in number and words how much a shaded part it?


## Fraction on Number Line

Once, Ruby and Chetan was discussing about the position of a fractional number on number line.
Chetan-Where will be $1+\frac{1}{2}$ situated on the number line?
Ruby-The number $1+\frac{1}{2}$ is such that $1<\left(1+\frac{1}{2}\right)<2$, hence, it will lie between 1 and 2 on number line.
Chetan-Can you show me this on number line?
Ruby-Yes, sure.


In $1+\frac{1}{2}, 1$ is complete or whole number. So, 1 will lie on $A$, and $\frac{1}{2}$ after $A$ is the mid point between $A$ and $B$, so $1+\frac{1}{2}$ will lie in between $A$ and $B$, showing in figure given below.

## Representation of Fractions on a Number Line

In representations of fractions on a number line we can show fractions on a number line. In order to represents $\frac{1}{2}$ on the number line, draw the number line and mark a point $A$ to represent 1 .

Step 1: Divide the gap between $O$ and $A$ into two equal parts. Let $T$ be the point of division. Then, point $T$ represents $\frac{1}{2}$.


Step 2: To represent $\frac{1}{3}$ on a number line, we divide the gap between $O$ and $A$ into 3 equal parts. Let $T$ and $Q$ be the points of division. Then, $T$ represents $\frac{1}{3}$ and $Q$ represents $\frac{2}{3}$,


Step 3: By using the same procedure, point $O$ represents $\frac{0}{3}$ and point $A$ represents $\frac{3}{3}$.
Thus, we have $\frac{0}{3}=0$ and $\frac{3}{3}=1$.


Step 4: In order to represent $\frac{3}{5}$ on a number line, we divide the gap between 0 and 1 into 5 equal parts and take first 3 parts from 0 as shown below.


Fraction $\frac{3}{5}$ on a Number Line.

Equivalent Fractions Number Line


Example 3. Show the position of $5+\frac{1}{4}$ on number line.
Sol.


## Do Yourself

Example 4. Show the position of $4+\frac{1}{3}$ on number line.

## Decimal Numbers

| Thousands | Hundreds | Tens | Ones |
| :---: | :---: | :---: | :---: |
| $(1000)$ | $(100)$ | $(10)$ | $(1)$ |

The table given above signifies that the value increase 10 times as we move one step left from right and the value reduces to $1 / 10$ times as we move a step right from left. Accordingly we can understand :

1. Hundreds is one tenth parts of thousands. It comes next right to thousands.
2. Tens is one tenth part of hundreds. It comes next right to hundred.
3. Ones is one tenth part of tens. It comes is next right to tens.

Thus, the place value of one tenth of it is immediately right to it. The above table can be extended as :

| Thousands | Hundreds | Tens | One tenth | One hundredth | One thousandth |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 1000 | 100 | 10 | $\frac{1}{10}$ | $\frac{1}{100}$ | $\frac{1}{1000}$ |

It is clear from the above table that :
One tenth part of unit (ones) is placed on the immediate right of ones and it is called tenths which is $\left(\frac{1}{10}\right)$ part of unit.

1. One tenth part of tenths is placed on the immediate right of tenth and it is called hundredths which is $\left(\frac{1}{100}\right)$ part of ones (unit).
2. One tenth part of hundredths is placed on the immediate right of hundredths and it is called thousandth which is $\left(\frac{1}{1000}\right)$ part of ones (unit).
In the initial numbers, to show the tenth place which comes immediately right to the unit place, a point (.) is put between the unit place and the tenth place which is called the decimal point.

| Thousands | Hundreds | Tens | Ones | Decimal | (Tenths) | (Hundredths) | (Thousandths) |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 2 | 4 | 3 | 1 | - | 4 | 4 | 6 |
|  | 5 | 2 | 2 | - | 4 | 5 | 2 |
|  |  | 3 | 4 | - | 7 | 7 | 3 |
|  |  |  | 5 | - | 1 | 5 | 6 |
|  |  |  |  | - | 0 | 2 | 5 |

The digits after the decimal point are read separately one by one. For example :

1. 2431.446 is read as two thousand four hundred thirty one point four four six.
2. 522.452 is read as five hundred twenty two point four five two.
3. 34.773 is read as thirty four point seven seven three.
4. 5.156 is read as five point one five six.
5. 0.025 is read as zero point zero two five.

Conversion of Fraction to Decimal Value

$$
\frac{5}{10}, \frac{7}{10}, \frac{12}{10}, \frac{68}{10}, \frac{125}{10}
$$

The denominator of all the above given fractions is 10 , i.e., all the factors have tenth value. In a decimal number the place of tenth is immediately right of the decimal point. On this basis the above given factors can be expressed in decimal numbers as follows :

1. $\frac{5}{10}=0.5$
2. $\frac{7}{10}=0.7$
3. $\frac{12}{10}=1 \frac{2}{10}=1+\frac{2}{10}=1.2$
4. $\frac{68}{10}=6 \frac{8}{10}=6+\frac{8}{10}=6.8$
5. $\frac{125}{10}=12 \frac{5}{10}=12+\frac{5}{10}=12.5$

The above given examples show, "Every fraction with the denominator 10 can be changed in decimal number by putting the decimal point after leaving one digit from the right in the numerator." Some more examples are given below:

## Examples :

1. $\frac{4}{10}=0.4$
2. $\frac{73}{10}=7.3$
3. $\frac{834}{10}=82.4$
4. $\frac{2358}{10}=235.8$

Similarly "every fraction with 100 as denominator can be changed in decimal number by placing a decimal point after leaving two digits from the right of the numerator."

Examples :

1. $\frac{38}{100}=0.38$
2. $\frac{158}{100}=1.58$
3. $\frac{3428}{100}=34.28$
4. $\frac{5}{100}=0.05$

Likewise "a fraction with denominator 1000 can be converted to a decimal value by placing a decimal point leaving three digits from the right of the numerator".

1. $\frac{1245}{1000}=1.245$
2. $\frac{328}{1000}=0.328$
3. $\frac{66}{1000}=0.066$
4. $\frac{8}{1000}=0.008$

Above examples clarify that while changing the fractions into decimal numbers with denominators 100 and 1000, put as many zeros which are less while counting the digits from the right of the numerator to put a decimal point."

Let's change the following fractions into decimal numbers : $\frac{4}{5}, \frac{6}{2}, \frac{3}{4}, \frac{15}{25}, \frac{25}{8}, \frac{52}{20}$
If the denominators of the fractions are 2,5 or their multiples, then they can be easily converted to equivalent fractions with denominator 10,100 or 1000 . Then these fractions can be converted to decimal numbers by the above mentioned methods.

Examples : 1. $\frac{4}{5}=\frac{4 \times 2}{5 \times 2}=\frac{8}{10}=0.8 \quad$ 2. $\frac{6}{2}=\frac{6 \times 5}{2 \times 5}=\frac{30}{10}=3.0 \quad$ 3. $\frac{3}{4}=\frac{3 \times 25}{4 \times 25}=\frac{75}{100}=0.75$
4. $\frac{15}{25}=\frac{15 \times 4}{25 \times 4}=\frac{60}{100}=0.60$
$5 . \frac{25}{8}=\frac{25 \times 125}{8 \times 125}=\frac{3125}{1000}=3.125$
6. $\frac{52}{20}=\frac{52 \times 5}{20 \times 5}=\frac{260}{100}=2.60$

## Conversion of Decimal Numbers into Fractions

To convert a decimal number into a fraction we count the number of digits at the tenth, hundredth, or the thousandth place after decimal point and accordingly put the 10,100 or 1000 respectively in the denominator and remove the decimal point.

## Examples :

(1) $2.5=\frac{25}{10}$
(2) $12.3=\frac{123}{10}$
(3) $6.68=\frac{668}{100}$
(4) $14.81=\frac{668}{100}(5) 2.565=\frac{2565}{1000}$
(6) $0.025=\frac{25}{1000}$

## Exercise 6

1. See the following distributions and state the relation between both with the help of symbols $>_{,}<,=$.
(i) $\frac{1}{4} \square \frac{3}{4}$
(ii) $\frac{1}{2} \square \frac{1}{2}$
(iii) $\frac{1}{3} \square \frac{1}{2}$
(iv) $\frac{1}{4} \square \frac{2}{3}$
2. Write the following fractions in the form of distribution.
(i) $\frac{1}{5}$
(ii) $\frac{13}{6}$
(iii) $\frac{3}{2}$
(iv) $\frac{7}{4}$
3. Write the following in words.
(i) $\frac{3}{4}$
(ii) $1 \frac{2}{5}$
(iii) $2 \frac{3}{5}$
4. Shade $\frac{1}{2}$ portion of the following figures

5. Shade $\frac{1}{4}$ portion of the following figures

6. Look at the shaded part of each picture. Write in number and word how much a shaded part is?
(i)

(ii)

7. Show the following fractions on number line.
(i) $4 \frac{1}{2}$
(ii) $3 \frac{3}{4}$
(iii) $\frac{2}{3}$
8. Fill number as fraction inside the balloon.

9. Write the given decimal numbers in words:
(a) 42.356
(b) 7.02
(c) 0.409
(d) 309.001
(e) 15.205
(f) 0.002
(g) 1.073
(h) 415.38
10. Write in numbers :
(a) Five point seven two
(b) sixty point three zero nine
(c) Zero point zero eight
(d) Nine hundred and five point zero zero seven
(e) Seven point two five
11. Convert the given fractions into decimal numbers:
(a) $\frac{5}{10}$
(b) $\frac{28}{10}$
(c) $\frac{1037}{1000}$
(d) $\frac{59}{100}$
(e) $\frac{8}{10}$
(f) $\frac{1}{4}$
(g) $\frac{3}{5}$
(h) $\frac{7}{25}$
(i) $\frac{15}{1000}$
(j) $\frac{21}{1000}$
(k) $\frac{125}{100}$
(l) $\frac{235}{1000}$
12. Convert the given decimal numbers into fractions:
(a) 2.9
(b) 0.37
(c) 5.309
(d) 0.005
(e) 6.04
(f) 16.35
(g) 2.386
(h) 17.75
(i) 182.81
(j) 285.37

## Examination Type <br> Questions

1. Fill in the blank by using appropriate symbol $\left(3+\frac{1}{2}\right) \ldots\left(3+\frac{1}{3}\right)$
(a) $=$
(b) $>$
(c) <
(d) none of these
2. Each will get $\qquad$ chapati, if one chapati is distributed among three persons.
(a) $\frac{2}{3}$
(b) $\frac{1}{4}$
(c) $\frac{1}{2}$
(d) $\frac{1}{3}$
3. Each will get $\qquad$ chapati, if 13 chapaties is distributed among 4 children.
(a) 4
(b) $3 \frac{3}{4}$
(c) $3 \frac{1}{2}$
(d) $3 \frac{1}{4}$
4. How much numbers can be shown on number line?
(a) 5
(b) 10
(c) 100
(d) infinite
5. $2 \frac{1}{5}$ can be written in words as
(a) two and one-fifth
(b) five and one-half
(c) two and one-third
(d) one and five-half
6. $5 \frac{2}{3}$ can be written in words as
(a) three and five half
(b) five and two-third
(c) two and five-third
(d) five and three-half
7. Write the fraction for the shaded part :

(a) $\frac{3}{8}$
(b) $\frac{3}{3}$
(c) $\frac{3}{6}$
(d) $\frac{6}{3}$
8. Two and three fifth can be written as :
(a) $2 \frac{3}{5}$
(b) $5 \frac{2}{3}$
(c) $3 \frac{2}{5}$
(d) $2 \frac{3}{5}$
9. Shaded part in the following figure can be written as :
(a) $\frac{5}{4}$
(b) $\frac{4}{8}$
(c) $\frac{5}{8}$
(d) $\frac{6}{8}$

10. Four and three-fifth can be written as :
(a) $3 \frac{3}{5}$
(b) $4 \frac{1}{5}$
(c) $4 \frac{3}{5}$
(d) $3 \frac{4}{5}$
11. Shade $\frac{1}{3}$ portion of the following figures :

12. Look at the shaded part of following picture given below. Write in number and word how much a shaded part is?


## 7

## Equivalent Fractions

## - Let us Learn

Hey kids, in this chapter you will learn about
(i) Comparing fractions
(ii) Concept of equivalent fractions
(iii) Comparing fractions with equivalent fractions

## Comparing Fraction

See the following figures, in which shading part of each figure, we have to compare,

Figure 1
Figure 2


3
4

$\underline{2}$

3 parts out of 4 parts $=\frac{3}{4}$ is bigger than $\frac{2}{4}$; i.e., $\frac{3}{4}>\frac{2}{4}$
Again, 2 parts out of 4 parts $=\frac{2}{4}$ is smaller than $\frac{3}{4}$; i.e., $\frac{2}{4}<\frac{3}{4}$
Example 1. Compare the fractions : $\frac{3}{8}$ and $\frac{5}{8}$.
Sol.

$\underline{3}$
8


5
8

3 parts out of 8 parts $=\frac{3}{8}$ is smaller than $\frac{5}{8}$; i.e., $\frac{3}{8}<\frac{5}{8}$
5 parts out of 8 parts $=\frac{5}{8}$ is bigger than $\frac{3}{8}$; i.e., $\frac{5}{8}>\frac{3}{8}$

## Do Yourself

Example 2. Compare the fractions: $\frac{4}{9}$ and $\frac{7}{9}$, give figure in favour of your answer.

## Concept of Equivalent Fractions

Equivalent fractions are those fractions which are equal to each other, when simplified. Now, we will understand this concept with the help of figures, as follows :


The fractions $\frac{1}{2}, \frac{2}{4}, \frac{3}{6}, \frac{4}{8}, \frac{5}{10}$ are equivalent.
Because, the portions $\frac{1}{2}, \frac{2}{4}, \frac{3}{6}, \frac{4}{8}, \frac{5}{10}$ are equal to each other.


Hence, $\frac{1}{2}, \frac{2}{4}, \frac{3}{6}, \frac{4}{8}, \frac{5}{10}$ are equivalent fractions.
Example 3. Show that $\frac{1}{3}, \frac{1}{6}$ and $\frac{1}{9}$ are equivalent fractions by figures.
Sol.


## Do Yourself

Example 4. Show that $\frac{2}{3}, \frac{4}{6}$ and $\frac{6}{9}$ are equivalent fractions by figures.

## Recognising Equivalent Fractions

We can recognise equivalent fractions by divide the same number to the numerator and denominator as follows.

Example 5. Show that the following fractions are equivalent fraction.

$$
\frac{1}{2}, \frac{2}{4}, \frac{3}{6}, \frac{4}{8}, \frac{5}{10}, \frac{10}{20}
$$

Sol. $\quad \frac{1 \times 2}{2 \times 2}=\frac{2}{4} \quad \frac{1 \times 3}{2 \times 3}=\frac{3}{6} \quad \frac{1 \times 4}{2 \times 4}=\frac{4}{8}$

## $10=1$

$2 \theta_{2} 2$
divide by 3
divide by 2
divide by $23 \theta \quad 5$
divide by 35

$$
\frac{1 \times 5}{2 \times 5}=\frac{5}{10} \quad \frac{1 \times 10}{2 \times 10}=\frac{10}{20} \quad \therefore \quad \frac{1}{2}=\frac{2}{4}=\frac{3}{6}=\frac{4}{8}=\frac{5}{10}=\frac{10}{20}
$$

## Do Yourself

Example 6. Fill in the blanks.

$$
\frac{1}{2}=\overline{6} \quad \frac{2}{3}=\overline{6} \quad \frac{3}{4}=\overline{8} \quad \frac{1}{5}=\frac{1}{10} \quad \frac{4}{10}=\frac{5}{5} \quad=\frac{2}{12}
$$

Example 7. $\frac{1}{2}$ and $\frac{3}{4}$ are equivalent fractions or not?
Sol. Here, in $\frac{1}{2}$ and $\frac{3}{4}$

$$
\begin{aligned}
& \quad \begin{aligned}
& \frac{1}{2} \quad \begin{aligned}
3 & \rightarrow \times 3=6 \\
4 & \rightarrow 4
\end{aligned} \\
& 1 \times 4 \neq 2 \times 3
\end{aligned} \\
& \therefore \\
& \text { Hence, } \frac{1}{2} \text { and } \frac{3}{4} \text { are not equivalent fractions. }
\end{aligned}
$$

## Do Yourself

Example 8. Check whether $\frac{1}{3}$ and $\frac{2}{6}$ are equivalent fractions or not.

## Formation of Equivalent Fractions

To form equivalent fractions, we have to multiply or divide to numerator and denominator by the same number.
Example 9. Form the equivalent fractions of $\frac{1}{2}$ using multiplication operation.
Sol. Equivalent fractions of $\frac{1}{2}$ :

$$
\frac{1}{2}=\frac{1 \times 2}{2 \times 2}=\frac{2}{4} \quad \frac{1}{2}=\frac{1 \times 3}{2 \times 3}=\frac{3}{6} ; \quad \frac{1}{2}=\frac{1 \times 4}{2 \times 4}=\frac{4}{8} \quad \frac{1}{2}=\frac{1 \times 5}{2 \times 5}=\frac{5}{10}
$$

$\frac{2}{4}, \frac{3}{6}, \frac{4}{8}, \frac{5}{10}$ etc. are equivalent fractions of $\frac{1}{2}$.

## Do Yourself

Example 10. Form five equivalent fractions of $\frac{2}{3}$ using multiplication operation.
Example 11. Form the equivalent fraction of $\frac{6}{9}$ using division operation.
Sol. $\quad \frac{6}{9}=\frac{6 \div 3}{9 \div 3}=\frac{2}{3}$


## Do Yourself

Example 12. Form the equivalent fraction of $\frac{2}{4}$ using division operation.
Example 13. Check whether shaded part of the following figure size equivalent.

(i)

(ii)

Sol. In first figure, shaded part is $\frac{1}{2}$.
We see that, $\quad \frac{4}{8}=\frac{1 \times 4}{2 \times 4}=$ equivalent to $\frac{1}{2}$

## Do Yourself

Example 14. Check whether the given shaded parts are equivalent or not.


Example 15. Shade the given figure as that can show the fraction given below each figure.


1/2


2/4

Sol.

$1 / 2=2 / 4$

## Do Yourself

Example 16. Shade the given figure as that can show the fraction given below each figure.


## Exercise 7

1. Find the equivalent fractions of the following by multiplying 2 to numerator and denominator:
(i) $\frac{1}{2}$
(ii) $\frac{2}{3}$
(iii) $\frac{1}{5}$
(iv) $\frac{2}{5}$
(v) $\frac{2}{7}$
2. Write the answer by identifying whether each fractions below equivalent or not.
(a) $\frac{3}{4}, \frac{6}{8}$
(b) $\frac{4}{6}, \frac{1}{3}$
(c) $\frac{3}{6}, \frac{4}{8}$
(d) $\frac{1}{7}, \frac{2}{14}$
(e) $\frac{3}{6}, \frac{6}{12}$
(f) $\frac{2}{3}, \frac{3}{6}$
3. Find the equivalent fractions of the following by multiplying 3 to numerator and denomi- nator:
(i) $\frac{1}{4}$
(ii) $\frac{3}{5}$
(iii) $\frac{2}{5}$
(iv) $\frac{2}{7}$
(v) $\frac{1}{6}$
4. Find the equivalent fractions of the following by multiplying 2, 3 and 4 to numerator and denominator:
(i) $\frac{1}{4}$
(ii) $\frac{2}{3}$
(iii) $\frac{2}{5}$
(iv) $\frac{3}{4}$
5. Write equivalent fractions of the following: $\frac{1}{3}$ and $\frac{2}{3}$.
6. Show the given fractions by shading the figures.
(i)


$\frac{2}{6}$
(ii)

$\underline{3}$
7. Fill in the blanks:
(i) $\frac{1 \times 3}{3 \times 3}=\frac{\square}{9}$
(ii) $\frac{2}{5}=\frac{\square}{15}$
(iii) $\frac{5}{\square}=\frac{15}{9}$
(iv) $\frac{3}{4}=\frac{18}{\square}$
(v) $\frac{14 \div 7}{21 \div 7}=\frac{\square}{3}$
(vi) $\frac{12 \div 4}{16 \div 4}=\frac{3}{\square}$
8. Find out 4 equivalent fractions of each of the following fractions:
(a) $\frac{2}{3}$
(b) $\frac{3}{4}$
(c) $\frac{3}{5}$
(d) $\frac{5}{6}$
(e) $\frac{2}{7}$
9. Give such examples in which $\frac{1}{4}$ part obtained by distributing equally:

$$
\frac{1}{4}=\frac{2}{8}=\frac{3}{12}=\ldots \ldots
$$

10. Write any four equivalent fractions of $\frac{1}{5}$.
11. Kumkum bought a ribbon of 6 m length from the market. She want to distribute it among her four friends, then find how long ribbon will each of her friend get?
12. Saraswati needs $1 \frac{1}{4} \mathrm{~m}$ cloth to make a shirt. Find the length of cloth to make 2 such shirts.

## Examination Type <br> 4. Questions

1. Write three equivalent fractions each of the following $: \frac{2}{3}, \frac{1}{7}$.
2. Multiplying by 3, form the equivalent fractions and fill in the blanks
(i) $\frac{1}{4}=$ $\qquad$ (ii) $\frac{3}{5}=\ldots \ldots \ldots$
(iii) $\frac{2}{5}=$
(iv) $\frac{2}{7}=$ $\qquad$ (v) $\frac{1}{6}=$ $\qquad$
3. Fill in the blanks.
(i) $\frac{1 \times 3}{3 \times 3}=\frac{\square}{9}$
(ii) $\frac{2}{5}=\frac{\square}{15}$
(iii) $\frac{5}{\square}=\frac{15}{9}$
(iv) $\frac{3}{4}=\frac{18}{\square}$
(v) $\frac{14 \div 7}{21 \div 7}=\frac{\square}{3}$
(vi) $\frac{12 \div 4}{16 \div 4}=\frac{3}{\square}$
4. Find three equivalent fractions of the following : (i) $\frac{1}{4}$ (ii) $\frac{2}{3}$.

## 8

## Pattern

## Let us Learn

Hey kids, in this chapter you will learn about
(i) Pictorial Patterns
(ii) Number Patterns

A pattern constitutes a set of numbers or objects in which all the members are related with each other by a specific rule. Pattern is also known as sequence. There can be finite or infinite number of members in a pattern.

Example : The adjoining pattern contains 2 identical group with each group having 3 different images, a star followed by a bar, which is followed by 3 circles.


Example Find the next three terms of the following pattern, 81, 79, 77,
Sol. Step 1: The rule for the pattern is to count down by 2 repeatedly and continue the sequence to find the next 3 terms.
Step 2: So, the next three terms in the sequence are 75,73 and 71 .

## Pictorial Pattern

Example 1. Complete the following pattern and make an other pattern using these shapes.

$$
\mathbb{A} \otimes \nabla \boxtimes \Delta \boxtimes \nabla \boxtimes
$$

Sol. Complete pattern is as follow : $\Delta \triangleright \nabla \triangleleft \Delta \triangleright \nabla \triangleleft \Delta \triangleright \nabla \triangleleft \Delta \triangleright$

Other pattern is as follow.


We can make other patterns also.
Do Yourself
Example 2. Complete the following pattern and maker an other pattern using these shapes.


Example 3. Complete the table by generalising the pattern.

| $\oplus$ | $\bullet$ | $\oplus$ | $\oplus$ |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| $D$ | $\sigma$ | $\ddots$ | $\frown$ |  |  |  |  |  |  |
| $\wedge$ | $>$ | $\vee$ | $<$ |  |  |  |  |  |  |
| $S$ | $\infty$ | $S$ |  |  |  |  |  |  |  |
| $\uparrow$ | $\rightarrow$ | $\downarrow$ | $\leftarrow$ |  |  |  |  |  |  |

Sol. Pattern rotates $90^{\circ}$ clockwise.

## $\oplus \oplus \oplus \oplus \oplus \oplus \oplus \oplus \oplus \oplus$

Pattern rotates $90^{\circ}$ clockwise.

Pattern rotates $90^{\circ}$ clockwise.


Pattern rotates $90^{\circ}$ clockwise.


Pattern rotates $90^{\circ}$ clockwise.

$$
\begin{array}{|l|l|l|l|l|l|l|l|l|l|}
\hline \uparrow & \rightarrow & \downarrow & \leftarrow & \uparrow & \rightarrow & \downarrow & \leftarrow & \uparrow & \rightarrow \\
\hline
\end{array}
$$

## Do Yourself

Example 4. Generalising the following pattern.

| $\boldsymbol{*}$ | $\boldsymbol{*}$ | $\boldsymbol{*} \boldsymbol{*}$ |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

## Number Patterns

Example 5. Write appropriate number in the blank boxes of the following number pattern.

| 2 | 4 | 6 | 8 |  | 12 |  | 16 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

Sol.


## Do Yourself

Example 6. Find the next two term of 3, 5, 7, 9.

Example 7. Identify and generalise the number pattern.

| 2 | 5 | 8 | 11 |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 145 | 125 | 105 |  |  |  |  |  |  |  |
| 2 | 4 | 8 | 16 |  |  |  |  |  |  |
| 7 | 14 | 21 | 28 |  |  |  |  |  |  |

Sol. Add 3 to previous pattern,

| 2 | 5 | 8 | 11 | 14 | 17 | 20 | 23 | 26 | 29 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

Subtract 20 from the previous number.

| 145 | 125 | 105 | 85 | 65 | 45 | 25 | 5 | -15 | -35 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

Twice the previous number.

| 2 | 4 | 8 | 16 | 32 | 64 | 128 | 256 | 512 | 1024 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

Add 7 to previous number.

| 7 | 14 | 21 | 28 | 35 | 42 | 49 | 56 | 63 | 70 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

## Do Yourself

Example 8. Complete the table by understanding it and generalise the pattern.

| 3 |  | 9 | 12 |  |  |  |  |  |  |
| :---: | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| 6 |  |  |  | 30 | 36 |  |  |  |  |
| 15 |  | 25 |  | 35 |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |

Example 9. Generalise the following pattern.
$1 \times 1=1$
$11 \times 11=121$
$111 \times 111=12321$
$1111 \times 1111=$
$11111 \times 11111=$ $\qquad$
$111111 \times 111111=$
$1111111 \times 1111111=$ $\qquad$
Sol. Product is repeatition of digits in increasing order upto same number of digits as in Ist number then in decreasing order. For example,
$\underbrace{111}_{3 \text { digit }} \times 111=\underbrace{123}_{3 \text { digit }} \underbrace{21}_{\begin{array}{c}\text { Reverse } \\ \text { order }\end{array}}$
$1111 \times 1111=1234321$
$11111 \times 11111=123454321$
$111111 \times 111111=12345654321$
$1111111 \times 1111111=1234567654321$

## Do Yourself

Example 10. Study the pattern given below and generalise it. Also write the next three steps of the pattern.

$$
\begin{aligned}
& 1 \times 9+2=11 \\
& 12 \times 9+3=111 \\
& 123 \times 9+4=1111 \\
& 1234 \times 9+5=11111
\end{aligned}
$$

## Number Game (Think and Play Yourself)

1. Think a number, then
2. Add 5 to this number, then
3. Multiply by 2 then
4. Subtract 10 from it, then

5 . Divide it by 2 , then
Find the obtained number.

Example 11. Observe the pattern and generalise it to complete the boxes.


Sol. $2 \times 3=(6, \quad 3 \times 1=(3), 1 \times 5=5$

$6 \times 3=18,3 \times 5=15,$| 270 |  |
| :---: | :---: |
|  | 18 15 <br> $18 \times 15=270$  |
|  6 3 5 <br> 2 3 1 5 |  |.

## Do Yourself

Example 12. Find the missing number:
[Ans. 36]


Example 13. Observe and generalise the pattern by using addition operation.


Sol. $\quad 5+8=13,8+7=15,7+6=13$,

$$
\begin{aligned}
& 13 \times 15=28,15+13=28 \quad \begin{array}{c}
\mid 56 \\
\hline
\end{array} \begin{array}{|l|l|l|}
\hline 56 \\
\hline 28 \times 28=\text { (56 }
\end{array} \\
& \begin{array}{|l|l|l|l|}
\hline 13 & 15 & 13 \\
\hline 5 & 8 & 7 & 6 \\
\hline
\end{array}
\end{aligned}
$$

## Do Yourself

Example 14. Find the missing number.

[Ans. 105]

## Patterns on a Calendar

| November 2017 |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|  |  |  | 1 | 2 | 3 | 4 |
| 5 | 6 | 7 | 8 | 9 |  |  |
| 12 | 13 | 14 | 15 | 16 | 17 | 18 |
| 19 | 20 | 21 | 22 | 23 | 24 | 25 |
| 26 | 27 | 28 | 22 | 30 | 31 |  |

We can find a lot of patterns on a calendar.
Rena, Sonu, Ajay, Karuna and Sanjay discussing on patterns on a calendar. Their discussion is as follow.

Reena : [The dark-gray box] I noticed that the sum of any two adjacent dates is always odd $(19+26=45)$.

Sonu: [The three-box light-gray rectangle] I noticed that the sum of any three dates in a row is always even $(29+30+31=90)$.

Ajay: [The L shape] I noticed that the sum of the 4 dates in an L shape is $48(6+13+14+15=48)$. The sum is 8 times as large as the smallest date in the shape ( $8 \times 6=48$ ).

Karuna : [The stripped boxes] I noticed that the products of the diagonals of any $2 \times 2$ square are always 7 apart $(3 \times 11=33,4 \times 10$ and $40-33=7)$.

Sanjay : [The diagonal stair steps] I noticed that the sum of three dates in a diagonal is a multiple of $3(1+9+17=27=3 \times 9)$.

## Do and Learn

See the following calendar of Dec. 2015 and answer the following questions.

| Sun. | Mon. | Tue. | Wed. | Thu. | Fri. | Sat. |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 1 | - 2 | 3 | 4 | 5 |
| 6 |  | --8-1 | - 9 | 10 | 11 | 12 |
| 13 | 14. | 15 | 16 | 17 | 18 | 19 |
| 20 | - ${ }^{1}$ | 22 | 23 | 24 | 25 | 26 |
| ,27- | 28 | 22 | L 30- | 31 |  |  |

1. Which pattern can be seen in the block in calendar ?
2. Generalise the pattern $2,9,16,16,23,30, \ldots \ldots$
3. Add the numbers written in squared block in all possible patterns.
4. Write the sum of all 9 numbers in the block. Is it equal to $9 \times 14$ ?
5. Identify the patterns in squared block and generalise these.
6. Make a block of $4 \times 4$ in calendar. Now identify and generalise the pattern.

## Exercise 8

1. Observe and generalise the pattern.

2. Observe and generalise the pattern.
(i) $7,12,17,22$
(ii) $10,20,30,40$
(iii) $29,24,19,14$ $\qquad$
3. Identify the pattern and complete the block.
(i)

(ii)

4. Complete the next block in same pattern.
(i)

(ii)

(iii)

5. Fill the blank box using approximate number.

6. What will be come in the missing character.

7. By observing the given patterns, write the next three patterns.

$$
\begin{aligned}
& 9+7=16 \\
& 16+9=25 \\
& 25+11=36 \\
& \ldots \ldots \cdots \cdots \cdots \\
& \ldots \ldots \ldots \cdots \cdots \\
& \ldots \ldots \ldots \cdots \cdots
\end{aligned}
$$

## Examination Type <br> 4. Questions <br> "三人

1. Observe and generalise the following pattern.

2. Observe and generalise the following number pattern upto two terms.
(i) $6,10,14,18$,
(ii) $35,29,23,17$, $\qquad$

3 . Observe and generalise the following pattern.

4. Generalise the following number pattern upto two terms.
(i) $15,12,9,6$, $\qquad$ (ii) 7, 9, 11, 13, $\qquad$
5. Observe and generalise the figure-pattern.

6. Fill in the blanks.

$$
\begin{aligned}
& 1+3=4=2 \times 2 \\
& 1+3+5=9=3 \times 3 \\
& 1+3+5+7=16=4 \times 4 \\
& 1+3+5+7+9=\square=5 \times 5 \\
& \ldots+\ldots+\ldots+\ldots+\ldots+\ldots=\square=\ldots \times \ldots
\end{aligned}
$$

7. Observe and generalise the pattern

8. Fill in the blanks
(i) $7,12,17,22$,
(ii) $10,20,30,40, \ldots \ldots, \ldots$.
9. Observe and generalise the pattern.

10. Observe and generalise the pattern using suitable numbers.


## 9 <br> Data

## Let us Learn

Hey kids, in this chapter you will learn about
(i) Use of tally marks to prepare a table of collected data
(ii) Representation of data by bar graph.
(iii) Representation of data by picto graph.

Data is a collection of information in the form of numerical figures.

## Tabular Form of Data

Fruits are given to the students every monday in a school. Teacher wants to known the choices of students of class 5 .

Teacher make a table for the number of students with their choices, which is as follow:

| Fruit | Mark | Number of students who like this fruit |
| :--- | :---: | :---: |
| Banana | $\checkmark \checkmark \checkmark \checkmark \checkmark \checkmark \checkmark \checkmark \checkmark \checkmark$ | 10 |
| Guava | $\checkmark \checkmark \checkmark \checkmark \checkmark$ | 5 |
| Sapodilla | $\checkmark \checkmark \checkmark$ | 3 |
| Orange | $\checkmark \checkmark \checkmark \checkmark \checkmark \checkmark \checkmark \checkmark$ | 8 |

See the following questions and their answer.

1. State the total number of students, whose choice is noted to the teacher.

Sol. $10+5+3+8=26$
2. Which fruits is liked mostly by the students?

Sol. Banana
3. Which fruit is liked least by the students?

Sol. Sapodilla

Now, we will learn to make a table using tally mark.

| Fruit | Tally Mark | Number of students who <br> liked this fruit |
| :--- | :---: | :---: |
| Banana | H\| |X| | 10 |
| Guava | H\| | 5 |
| Sapodilla | \||| | 3 |
| Orange | H\| ||| | 8 |

## Activity

Do the same as above for the choices of games of your classmates.
Example 1. Neha and Ashu want to know number of vechicles passing through their house between 5 to 6 pm.
They make a table for the number of vechicles counted by them

| Vehicle | Tally Mark | Number of Vehicles |
| :--- | :---: | :---: |
| Motor Cycle | H\| ||| |||| | 14 |
| Jeep | H\| || | 7 |
| Bus | \||| | 3 |
| Car | H\| ||| | | 11 |

Answer the following questions :

1. Find the number of motor cycles passing through their house between 5 to 6 pm .
2. Due to this time, find the total number of vehicles, passed through their house.
3. Which vechicle passed least?

Sol.

1. 14,
$2.14+7+3+11=35$
2. Bus

## Do Yourself

Example 2. See the following pictorial data and answer the questions :
The number of animals of different types in a park is shown :

| Animals | Pictorial Data |
| :---: | :---: |
| Elephant |  |
| Tiger |  |
| Lion | -25xasan |

1 symbol respresents 50 animals.
(i) Which animal is highest in number?
(ii) Which animal is least in number?
(iii) What is the number of elephants in the park?
[Ans. (i) Tiger, (ii) Lion, (iii) 4]

## Activity

Make a table, that shows the number of members in the family of your friends. Use tally marks to show the same as follow in the table given below:

| Member | Tally Mark | Number of friends |
| :--- | :--- | :--- |
| 3 Members |  |  |
| 4 Members |  |  |
| 5 or more than 5 Members |  |  |

Also answer the following:

1. Find the number of friends in which there are only 3 members.
2. Find the number of friends in which there are 4 members.
3. Which category has the maximum tally marks ?
4. Find the number of friends in which there are 5 or more than 5 members.

## Exercise 9.1

1. Which game is like most by all the studetns of your class. To know this make a tally mark table and find it.
2. How many siblings have each of the student of your class? To find this, fill the table given below by asking to your classmates.

| Brother/Sister | Tally mark | Number |
| :--- | :--- | :--- |
| No any |  |  |
| 1 Brother/Sister |  |  |
| 2 Brothers/Sisters |  |  |
| 3 or more than 3 |  |  |

Answer the following questions :
(i) How many children does not have no any siblings?
(ii) How many children does have only one siblings?
(iii) Write the number of siblings, in front of them the largest tally marks are marked.
(iv) How many children have 3 or more than 3 siblings?

## Bar Graph

A bar graph is a pictorial representation of numerical data by drawing a number of bars (rectangles) of uniform width with equal spacing between them.

To draw a bar graph we draw two lines perpendicular to each other on a paper. The horizontal line is called $X$-axis and the vertical line is called $Y$-axis. The bars drawn on $X$-axis and $Y$-axis will represent the scale of height of the bars. The bars can be shaded, hatched or coloured.

Example 3. The table given below shows the number of students in 4 sections of class V. Draw a bar graph by selecting suitable scale.

| Class V | Ganga | Kaveri | Yamuna | Saraswati |
| :---: | :---: | :---: | :---: | :---: |
| Number of Students | 65 | 50 | 45 | 58 |

Sol. First choose the scale i.e. $1 \mathrm{~cm}=5$ students.
Step 1: Draw 2 lines $O X$ and $O Y$, perpendicular to each other. (horizontal $O X$ and vertical $O Y$ )
Step 2: On $Y$ axis mark equal distance of 1 cm each as $5,10,15,20 \ldots \ldots$.
Step 3: On $X$ axis draw points for all sections at the distance of 2 cm each.
Step 4: Starting from section Ganga, draw a vertical block on $X$ axis till 65 in the direction of $Y$ axis. Then another block for section Kaveri till 50, section Yamuna till 45 and section Saraswati till 58.


## Do Yourself

Example 4. The following table represents the number of toys sold by a shop in first six months.

| Months | July | August | September | October | November |
| :--- | :---: | :---: | :---: | :---: | :---: |
| No. of toys | 150 | 200 | 350 | 300 | 400 |

Draw the bar graph of the above data and answer the following.
(a) How many toys were produced in September?
(b) How many toys were produced in July?
(c) In which month maximum number of toys sold by the shop?

## Activity

Draw a bar graph for the holidays from july to december of this year and answer the following:

1. In which month, there are maximum holidays?
2. In which month, there are minimum holidays?
3. In which month, there are more holidays: August or December?

## Pictograph

To represent the data in a shorter and convenient way, we show them by picture.
To represernt a data pictorially, we use a picture as a symbol. The symbol shows a certain number of any particular object.
Example 5. If there are 50 animals in a farmhouse, then let $\checkmark$ shows 10 animals. So, we will draw 5 symbols ( $\downarrow$ ) to show 50 animals.


Now see another example:
The marks obtained by a student in different subjects are given below:

| Subject | Hindi | English | Maths | Science |
| :--- | :---: | :---: | :---: | :---: |
| Marks | 50 | 60 | 90 | 80 |

See the pictorial representation:
Sol. Let $\star$ represent 10 marks

| Subject |  | Marks obtained |
| :--- | :--- | :--- |
| Hindi | $\star \star \star \star \star$ |  |
| English | $\star \star \star \star \star \star$ |  |
| Maths | $\star \star \star \star \star \star \star \star \star$ |  |
| Science | $\star \star \star \star \star \star \star \star$ |  |

Example 6. See the following pictograph and answer the questions given below:

| Sports | Number of Students, |
| :---: | :---: |
| Cricket |  |
| Hockey |  |
| Football |  |
| Baseball |  |
| Basketball |  |

(i) Which sport children like the most?
(ii) How many students play cricket?
(iii) Which game is not much popular in the school?
(iv) How many more children play basketball than hockey?

Sol.
(i) Cricket
(ii) 60 Children
(iii) Baseball
(iv) 10

## Do Yourself

Example 7. Study the given pictures in which number of trees in a garden are given and answer the questions.

| Trees | Number of trees |
| :---: | :---: |
| Apple |  |
| Mango |  |
| Guava |  |
| Orange |  |

(i) Which trees are least in number?
(ii) Which trees are highest in number?
(iii) What is the number of apple trees in the garden?
(iv) What is number of orange trees in the garden?
(v) Write the number of Guava trees in the garden.
(If one symbol represents 10 trees).
Example 8. The following pictograph shows the number of students using various modes of transportation for going to their schools.

| Modes | No. of Student |
| :---: | :---: |
| On foot | EM EM EM EM EM EM |
| On bicycle | * r $^{\circ}$ |
| By Car | 7 T |
| By Bus |  |

If each picture represents 50 students using that mode, answer the questions given below:
(i) How many students go to school on foot?
(ii) How many students use school bus?
(iii) How many students use cycles to go to their school?
(iv) How many students are there in all in the school?
(v) What mode is adopted by maximum number of students?

Sol.
(i) 350 students,
(ii) 150 students,
(iii) 200 students,
(iv) 800 students,
(v) On foot.

## Do Yourself

Example 9. Given below is a pictograph showing boys of a class and months in which they born.

| Months | Number of boys born $\because \bullet \square=25$ boys |
| :---: | :---: |
| January |  |
| February |  |
| March |  |
| April |  |
| May |  |

Now, answer the following questions:
(i) How many boys were born in April?
(ii) In which month were the maximum number of boys born?
(iii) In which month were the minimum number of boys born?
(iv) How many boys were born from January to May?

## Activity

Collect the number of presents in class 5 of your school for a week. Represent this information with the help of a bar graph and pictograph.
Example 10. See the following attendance table of a school.

| Class |  |  |
| :--- | :--- | :--- |
| Class I | $\ddots$ | Presents |
| Class II | $\ddots$ |  |
| Class III | $\ddots$ | $\ddots$ |
| Class IV | $\ddots$ |  |
| Class V I | $\ddots$ |  |

Answer the following question
(i) Draw a table for number of students present in the class.
(ii) In which class, maximum number of students are present?

Sol. (i) Required table is following

| Class | Presents | Number of students |
| :---: | :---: | :---: |
| Class I | (ن) $\because 1$ | 22 |
| Class II |  | 26 |
| Class III |  | 30 |
| Class IV | $\because \because \ddots_{\\|}$ | 33 |
| Class V | $\because$ | 13 |

(ii) Class IV.

## Do Yourself

Example 11. The number of student from Class-I to V is shown in the picture.

| Class | Number of Students <br> $(\%=5$ students $)$ |
| :---: | :---: |
| I | $\% \% \% \% \% \% \% \%$ |
| II | $\% \% \% \% \% \%$ |
| III | $\% \% \% \% \%$ |
| IV | $\% \% \% \% \%$ |
| V | $\% \% \% \%$ |

Now answer the given questions:
(i) In which class the number of students is maximum?
(ii) In which class the number of students is minimum?
(iii) What are the number of students in class II?
(iv) Which two classes have the equal number of students?
(v) What is the number of students in class $V$ ?

## Triangular Numbers and Patterns




Pattern of Square Numbers

| $\bullet$ | $\bullet$ | $\bullet$ | $\bullet$ | $\bullet$ | $\bullet$ | $\bullet$ | $\bullet$ | $\bullet$ | $\bullet$ | $\bullet$ | $\bullet$ | $\bullet$ | $\bullet$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  | $\bullet$ | $\bullet$ | $\bullet$ | $\bullet$ | $\bullet$ | $\bullet$ | $\bullet$ | $\bullet$ | $\bullet$ | $\bullet$ | $\bullet$ | $\bullet$ | $\bullet$ |
|  |  | $\bullet$ | $\bullet$ | $\bullet$ | $\bullet$ | $\bullet$ | $\bullet$ | $\bullet$ | $\bullet$ | $\bullet$ |  |  |  |
|  |  |  | $\bullet$ | $\bullet$ | $\bullet$ | $\bullet$ | $\bullet$ | $\bullet$ | $\bullet$ |  |  |  |  |
|  |  | $\bullet$ | $\bullet$ | $\bullet$ | $\bullet$ |  |  |  |  |  |  |  |  |
| $1^{2}$ | $2^{2}=4$ | $3^{2}=9$ | $4^{2}=16$ | $5^{2}=25$ |  |  |  |  |  |  |  |  |  |

You can also practice to find patterns of numbers that make various shapes.

## Exercise 9.2

1. Make a bar chart, which shows the number of holidays coming in the months from July to December of this year. See the calender and make carefully.
Answer the following questions :
(i) In which month, most holidays falls?
(ii) In which month, least holiday falls?
(iii) Out of August or December, which month have more holidays?
2. A group of women make papad at a particular place. Here a pictograph given below showing the number of papad made per day, which as follows:

| Day | $\bigcirc$ = 10 Papad |
| :---: | :---: |
| Monday | $\bigcirc \bigcirc \bigcirc \bigcirc \bigcirc$ |
| Tuesday | $\bigcirc \bigcirc \bigcirc \bigcirc \bigcirc \bigcirc$ |
| Wednesday | $\bigcirc \bigcirc \bigcirc \bigcirc{ }^{\circ}$ |
| Thursday | $\bigcirc \bigcirc \bigcirc \bigcirc \bigcirc \bigcirc \bigcirc$ |
| Friday | $\bigcirc \bigcirc \bigcirc \bigcirc \bigcirc$ |
| Saturday | $\bigcirc \bigcirc \bigcirc \\|$ |
| Sunday | $\bigcirc \bigcirc \bigcirc \bigcirc \bigcirc \bigcirc$ |

Answer the following questions.
(i) Find the number of maximum papad made. Also state the day on which maximum papad were made.
(ii) On which day out of Monday and Friday more papad were made and how much?
3. If $\because=5$ children and tally mark $\mid=1$, then make a table for the presence of students in one week and answer the following questions :
(i) On which day, most of the student were present?
(ii) What is the sum of presences of the students in one complete week?
(iii) On which day, least students were present in the school?
4. The following table shows the number of match-boxes produced by a factory during the following six month of the year 2016. Show it by a pictograph and answer the question that follow :

| Month | March | April | May | June | July | August |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| No. of match-boxes | 2000 | 3000 | 5000 | 4000 | 6000 | 7000 |

(a) How many match-boxes were produced in July?
(b) How many more or less match-boxes were produced in April than August?
(c) How many match-boxes were produced in May?
(d) How many more match-boxes were produced in May than June?
5. A bar graph shows the temperatures of various cities of Rajasthan in 1st June. Study the bar graph and answer the following questions :
(i) Which city has the highest temperature?
(ii) Which two cities have equal temperature?
(iii) What is the temperature of Jaipur?


## Examination Type <br> Questions

3. Tally mark for 12 will be
(a) HI
(b) HI II
(c) HH HI
(d) $\mathrm{HI} \mathrm{HH} \|$
4. Tally mark |H| |H| |||| represents
(a) 12
(b) 13
(c) 14
(d) 10
5. Tally mark for 9 will be
(a) HI
(b) HH IIII
(c) ||||| ||||
(d) $\cup \cup \|$
6. Table given below shows the number of absentees in a school during first 5 days of the week :

| Day | Ist | IInd | IIIrd | IVth | Vth |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Number of Absentee | 40 | 50 | 30 | 40 | 60 |

Draw a bar graph for the given data.
7. Make a bar graph to show the following information regarding the favourite snack of children in a school:

| Snack | Sandwiches | Cakes | Apples | Waffers | Icecreams |
| :---: | :---: | :---: | :---: | :---: | :---: |
| No. of children | 450 | 800 | 900 | 600 | 500 |

8. Make a pictograph to show the following information regarding the number of students absentees 5 days of the week.

| Days | Monday | Tuesday | Wednesday | Thursday | Friday |
| :---: | :---: | :---: | :---: | :---: | :---: |
| No. of children | 45 | 10 | 20 | 9 | 25 |

9. Rajesh scored the following marks in the annual exam in different subjects. Read carefully the bar graph and answer the given questions :

(i) How many marks did he get in English?
(ii) How many marks did he get in Science?
(iii) In which subject he got the maximum marks?
(iv) In which subject he got the minimum marks?
10. The marks that Kumkum got in various subjects in annual exam are given :

| History | 35 |
| :--- | :--- |
| Civics | 40 |
| English | 30 |
| Maths | 25 |

Show the given data with the help of a bar graph.

## 10

## Curpency

## * Let us Learn

Hey kids, in this chapter you will learn about
(i) Currency
(ii) Algebraic operation of money
(iii) How to make a bill
(iv) Indian numerals, used for algebraic operation of money and also used for making a bill.

## Currency

A currency in the most specific use of the word refers to money in any form when in actual use or circulation as a medium of exchange, especially circulating bank notes and coins,

Hence, a currency is a system of money.

## Indian Currency

Indian currency is rupee (₹). Symbol ₹ was adopted in 2010.

## Banknotes Used




## Coins Used



## Money

## Conversion of Money

We know that
1 rupee $=100$ paise

## Currency

Example 1. Convert 7 rupees and 35 paise into paise.
Sol. 7 rupees and 35 paise $=7.35$

$$
\begin{aligned}
& =7 \times 100 \text { paise }+35 \text { paise } \\
& =700 p+35 p=735 p
\end{aligned}
$$

Hence, 7 rupees and 35 paise $=735$ paise.

## Do Yourself

Example 2. (i) Convert $₹ 33.51$ in paise.
(ii) Convert 74 rupees and 50 paise into paise.

Example 3. Convert 5437 paise into rupees.
Sol. $\quad 5437 \mathrm{p}=5400 \mathrm{p}+37 \mathrm{p}$

$$
\begin{aligned}
& =54 \times 100 \mathrm{p}+37 \mathrm{p} \\
& =54 \text { rupees }+37 \mathrm{p} \\
& =₹ 54.37
\end{aligned}
$$

Hence,

$$
5437 \text { paise }=₹ 54.37 .
$$

## Do Yourself

Example 4. Convert 2689 paise into rupees.

## Addition of Money

Example 5. Add ₹ 9.50 and ₹ 12.75 .

Sol.
₹ Paise
950
$\begin{array}{r}12 \quad 75 \\ +12225 \\ \hline\end{array}$
Add the paise

$$
=50+75=125
$$

Convert the paise into rupees

$$
125 \div 100=₹ 1 \text { and } 25 \text { paise }
$$

Add the rupees

$$
=9+12+1=₹ 22
$$

Hence,
₹ 9.50 ₹ ₹ 12.75 =₹ 22.25

## Do Yourself

Example 6. Add ₹ 25.75 and ₹ 13.69 .

## Subtraction of Money

Example 7. Subtract ₹ 9.90 from ₹ 12.40 .
₹ Paise
Sol. $\begin{array}{r}12 \quad 40 \\ -\quad 9 \quad 90 \\ \hline 2 \quad 50 \\ \hline\end{array}$
When we subtract 90 paise from 40 paise, convert $₹ 1$ into paise add with 40 paise and then subtract.

$$
\begin{aligned}
12-1 & =₹ 11 \\
₹ 1 & =100 \text { paise } \\
100+40 & =140 \text { paise } \\
140-90 & =50 \text { paise }
\end{aligned}
$$

Subtract the rupees

$$
₹ 11 \text { - ₹ } 9=₹ 2
$$

Hence,

$$
\text { ₹ } 12.40 \text { - ₹ } 9.90=₹ 2.50
$$

## Do Yourself

Example 8. Subtract ₹ 36.87 from ₹ 52.95 .

## Multiplication of Money

Example 9. Multiply ₹ 7.25 by 5.
₹ Paise
Sol.
725
$\begin{array}{r}\times 5 \\ \hline 36 \quad 25 \\ \hline\end{array}$
Multiply the paise

$$
25 \times 5=125
$$

Convert into rupees

$$
125 \div 100=₹ 1 \text { and } 25 \text { paise }
$$

Multiply the rupees

$$
7 \times 5=35
$$

Add the rupees

$$
=35+1=36
$$

## Do Yourself

Example 10. Multiply ₹ 32.05 by 6.

## Division of Money

Example 11. Solve the following : ₹ $47.32 \div 7$

## Currency

Sol. Divide the rupees

$$
₹ 47 \div 7=₹ 6
$$

6
$7 \longdiv { 4 7 }$
42
Convert the remainder 5
₹ 5 into paise and add with 32 paise

$$
\begin{gathered}
5 \times 100=500 \text { paise } \\
500+32=532 \text { paise }
\end{gathered}
$$

Divide the paise
paise $552 \div 7=76$ paise
$\therefore \quad ₹ 47.32 \div 7=₹ 6.76$

## Do Yourself

Example 12. Solve the following :

$$
₹ 87.58 \div 8
$$

## Our Daily Activities

Example 13. A student bought books for₹ १३૪.६० and copies for₹ २८०.५०. Find the total amount he paid.
Sol.
$\begin{array}{cr}₹ & \text { Paise } \\ \text { Expense on books }=\uparrow ३\rangle \quad \text { ६० }\end{array}$
Expense on copies $=\frac{2 ८ 0}{\gamma \uparrow \gamma} \frac{40}{9 १ 0}$
Total expense $\frac{+q}{8 q 4 \quad \uparrow 0}$
Hence, he paid ₹ $૪ \uparrow 4.90$.

## Do Yourself

Example 14. In a bus, the collection made for three days are ₹ ૪७७५.५० ₹ ५३५०.40 and ₹ ૪७८५.५० respectively. Find the total collection for three days?
[Ans. ₹ १४९११.4०]

## Example 15. Ram went to market to purchase vegitables carrying ₹५३७.६०. He purchased potato for ₹ १५८.८० and tomato for ₹ २૪६.९०. Find the amount he hade now.

Sol.
₹ Paise

$$
\text { Potato }=2 ५ ८ ८ \circ
$$

$$
\text { Tomato }=\text { २४६ } \rho_{0}
$$

Total expense $=$ ४०५ $७ 0$
Amount he had $=$ ५३७ ६०
Total expense $=-\gamma \circ \zeta \quad \vartheta 0$
Balance amount $=$ १३१ ९०
Hence, he had ₹ १३१.९०.

## Do Yourself

Example 16. A person bought a television set worth of ₹ २५०००. He paid ₹ १२३६५. Find the balance amount he has to pay.
[Ans. ₹ १२६३५]
Example 17. Cost of a table is ₹ ८२६.४০ and a chair ₹५૪५.७০. Find the cost of ५ tables and \& chairs.
Sol. Cost of a table =₹ ८२६ ૪०


## Do Yourself

Example 18. The cost of one packet of toffee is ₹ १२५.૪० and one packet of ice-creame is ₹ ८५.५०. Riya Prchased ३ packets of toffees and २ packets of ice-creame. How much she paid?
[Ans. ₹ ५૪७.२०]
Example 19. Cost of $१ ४$ packets of pen is ₹ ९८३.२२. Find the cost of one packet.
Sol.

$$
\begin{aligned}
& \frac{-9 ८}{\text { ₹ } 00 \text { § }} \\
& \text { ₹ ३ = ३०० Paise } \\
& \text { ३०० Paise + २२ Paise } \\
& \text { ३२२ Paise } \\
& \frac{-२ ८ \text { Paise }}{\gamma २} \\
& \frac{-४ २}{\times}
\end{aligned}
$$

Hence, cost of one packets is ₹ ७०.२३.

## Do Yourself

Example 20. Cost of १६ books is ₹ १४६२.५२. Find the cost of one book.
[Ans. ₹ ९१.૪०]

## Exercise 10.1

1. A farmer sold wheat for 2058 rupees and 25 paise and Maize for 1154 rupees and 50 paise. Find the total amount for which he sold wheat and maize.
2. A vendor went to city carrying 8575 rupees and 75 paise. He purchase cloth for 5052 rupees and 25 paise and grocery for 2070 rupees and 25 paise. Find the amount of remains with him now.
3. Solve:
(i) ₹ 525 and 25 Paise $\times 13$
(ii) ₹ 507 and 75 Paise $\times 16$
(iii) ₹ 899 and 50 Paise $\times 17$
(iv) $₹ 726$ and 72 Paise $\times 19$
4. An amount of $₹ 35755.20$ is given to the 13 women of gorela vallage under the planning of Prime Minister Self Employment Scheme. State the amount given to each women.
5. Sujal purchase 4 kg rice @ ₹ $\Varangle 4 . ५ 0$ and ३ kg sugar @ ₹ २८.६०. If balance amount with him is ₹ २૪५.६० then find the total amount with him.
6. Cost of a shirt is ₹ ३२६.५० and a trouser ₹ ७८૦.६० then find the cost of ३ shirt and ५ trouser.
7. A fruit merchant went to fruit market carrying ₹ 35916. He purchase apples for ₹ 12763.30, grapes for ₹ 13243.30 and fruit bananas for ₹ 947 . State the amount remains with him.
8. Meera had ₹ 20974.80 with her. She invested ₹ 10544.40 and balanced amount is distributed between her both children. Find the amount obtained by both children.
9. Cost of one cycle is ₹ 1075.50 , then find the cost of such 52 cycles.
10. Add : ₹ 25081.75 , ₹ 70860.60 and ₹ 9876.42 .

## How to Make a Bill

## What is a Bill?

Whenever we purchase any thing from the market the shopkeeper gives us a slip. On it the shopkeeper note down the items, quantity of each item and the price of each item. The page on which the entries of the items with their quantity and the total cost of the items is known as a bill.

## Steps to Make a Bill

Step-1. Write the name and address of shop.
Step-2. Write the date.
Step-3. Make five columns for
Serial number, Description, Quantity, Rate per unit, Amount.
Step-4. Enter each item carefully, taking note of quantity and rate per item.
Step-5. Fill the amount carefully.
Step-6. Do the total correctly.
Step-7. Mention discount if any.

Example 1. Mr. Ajay went to Big Bazar and bought.
10 kg flour @ ₹ $20,5 \mathrm{~kg}$ rice @ ₹ $35,3 \mathrm{~kg}$ sugar @ ₹ $22,500 \mathrm{gm}$ butter @ ₹ 86,6 pieces soap (Nirma) @ ₹ 30 and 2 tubes tooth paste class up @ ₹ 50. Prepare the bill for Mr. Ajay.


Sol.
Big Bazar
Jaipur, Phone No. 123456
Bill No. 1150
Date:
Customer Name : Mr. Ajay
Phone Number : $x \times x \times x \times x \times x \times$

| S. No. | Description | Quantity | Cost per unit | Total cost |
| :---: | :---: | :---: | :---: | :---: |
| 1. | Flour | 10 kg | ₹ 20 | ₹ 200 |
| 2. | Rice | 5 kg | ₹ 35 | ₹ 155 |
| 3. | Sugar | 3 kg | ₹ 22 | ₹ 66 |
| 4. | Butter | 500 gm | ₹ 86 | ₹ 43 |
| 5. | Soap Nirma | 6 pieces | ₹ 30 | ₹ 180 |
| 6. | Tooth paste Closeup | 2 tubes | ₹ 50 | ₹ 100 |
|  |  |  |  | Total ₹ 744 |

## Do Yourself

Example 2. Puneet went to a toy shop and bought following things:
(i) 9 toys at 45.50 each.
(ii) 16 packets of balloons at @ ₹ 7.50 each.
(iii) 5 packets of noodles at @ ₹ 14 each.
(iv) 3 bottles of juice at @ ₹ 20 each, and
(v) 12 packets of coffee at @ ₹ 45 each.

Make a bill for Puneet.
Example 3. Roopchand purchase some stationary from Rajasthan stationers, Krishan ganj, Ajmer.

1. १८copies@ ₹ $\begin{aligned} & \text {.७५ }\end{aligned}$
2. १ Geometry box @ ₹ ३२
3. १o pencils @ ₹ १.२५

4．$\{$ litre gum＠₹ 90. २५
5．१२ register＠₹ ३०
6．ヶpen＠₹ १く
7．ヶ diary＠₹ \＆o
Prepare a bill for the same．
Sol．

| Bill No． १२४ | Rajasthan Stationers Krishan Ganj，Ajmer |  |  | Date－ २९／१०／१५ |
| :---: | :---: | :---: | :---: | :---: |
| Name and Address：Roopchand，Ajmer |  |  |  |  |
| S．No． | Description | Rate | Quantity | Amount |
| 1. | Copy | ₹ $૪ . ७ ¢$ | १८ | $₹<4.40$ |
| 2. | Geometry box | ₹ ३२ | १ | ₹ ३२ |
| 3. | Pencil | ₹ १．२५ | १० | ₹ १२．40 |
| 4. | Gum | ₹ $90 . २ 4$ | १ litre | $₹ 90 . २ ५$ |
| 5. | Register | ₹ ${ }^{\circ}$ | १२ | ₹ ३६० |
| 6. | Pen |  | 4 | $₹ ९ \bigcirc$ |
| 7. | Diary | ₹ ¢० | 4 | ₹ ३०० |
| Nine hundred seventy and twenty five |  |  | Total | ₹ ९७०．२५ |
| Errors and Omissions accepted |  |  |  | Sign． |

## Activity

Prapare a list of grocery items and make a bill for previous month with the help of your mummy．

## Exercise $\mathbf{1 0 . 2}$

1．Hemant purchase the following items from Vasudeva Milk dairy as per bill number 428 on dated 29／1／15．
1． 8 litre Milk＠₹ 40.25
2． 3 kg Curd＠₹ 60.00
3.2 kg Ghee＠₹ 450.00

4． 5 litre Butter milk＠₹ 20.75
Make a bill for the same．
2．Bheemraj purchase the following items from Unnat Beej Bjandar，Kanvas on date 30／10／15 as per bill no． 108 ．
1.5 kg Maize seeds＠₹ 37.25

2． 35 kg Urea＠₹ 45
3． 1 litre Insecticide＠₹ 235
Make a bill for the same．Find the amount paid by Bheemraj．
3. Manu purchase some items from Mamta General Store, Mahaveer Nagar, Karauli. But there are some mistakes in the bill given to Manu. Identify and rectify the errors.

Bill/Cash Memo

| Bill No.-568 |  |  |  | -25/10/15 |
| :---: | :---: | :---: | :---: | :---: |
| Mamta General Store, <br> Mahaveer Nagar, Karauli |  |  |  |  |
| Name and Address-Manu, Karauli |  |  |  |  |
| S.N. | Item | Quantity | Rate | Amount |
| 1. | Candle | 3 Packet | ₹ 20.25 | ₹ 60.75 |
| 2. | Soap | 5 Packet | ₹ 40.15 | ₹ 210.75 |
| 3. | Sugar | 4 kg | ₹ 33 | ₹ 132.00 |
| 4. | Gram Flour | 2 kg | ₹ 55.50 | ₹ 111.00 |
| Five hundred fourteen and fifty only. |  |  | Total | ₹ 514.50 |
| 1. Errors and Omissions accepted. <br> 2. Goods once sold not be taken back. |  |  |  |  |
|  |  |  |  | ign. |

4. Check the following bill and correct it :

Bill/Cash Memo

| Bill No.-547 |  |  |  | -22/10/15 |
| :---: | :---: | :---: | :---: | :---: |
| Manoj Provision Store, Kanvas, |  |  |  |  |
| Name and Address-Smt. Meera |  |  |  |  |
| S.N. | Items | Quantity | Rate | Amount |
| 1. | Washing Powder | 2 kg | ₹ 77.25 | ₹ 150.50 |
| 2. | Namkeen | 3 kg | ₹ 140.00 | ₹ 140.00 |
| 3. | Salt | 5 kg | ₹ 25.20 | ₹ 126.00 |
| 4. | Oil | 2 litre | ₹ 75.40 | ₹ 140.80 |
| Five hundred fifty seven and sixty. |  |  | Total | ₹ 557.60 |
| 1. Errors and Omissions accepted. <br> 2. Goods once sold not be taken back. |  |  |  |  |
|  |  |  |  | Sign. |

# Examination Type <br> 4. Questions 

1. Subham purchase the following items from Raj Kirana Store, Badgaon, Udaipur.
2. Flour 10 kg @ ₹ 15
3. Rice 2 kg @ ₹ 30
4. Maize 5 kg @ ₹ 12
5. Wheat 8 kg @ ₹ 16
6. Salt 3 kg @ ₹ 12
7. Sugar 4 kg @ ₹ 35

Make a bill for the following and state the amount paid by Subham.
2. Meera purchase the following items from Raj Provision Store, Jaipur.

1. Washing powder $12 \mathrm{~kg} @$ ₹ 77.25
2. Namkeen 13 kg @ ₹ 25.20
3. Salt 25 kg @ ₹ 25.20
4. Oil 20 litre @ ₹ 75.40

Make a bill for the following and state the amount paid by Meera.
3. Find the error and correct them, in the given bill.

| Bill No.-38 |  |  |  | Date-17/7/17 |
| :---: | :---: | :---: | :---: | :---: |
| Meera Grocery-Store |  |  |  |  |
| Khetri |  |  |  |  |
| Name and Address-Mohit Saxena, Khetri |  |  |  |  |
| S.N. |  | Quantity | Rate | Amount |
| 1. | Kedney-bean | 2 kg | ₹ 30 | ₹ 60 |
| 2. | Worse- bean | 1 kg | ₹ 20 | ₹ 20 |
| 3. | Green- Grams | 2 kg | ₹ 17 | ₹ 34 |
| 4. | Cumin Seed | 1 kg | ₹ 100 | ₹ 100 |
| 5. | Soap | 3 bars | ₹ 6 | ₹ 11 |
| 6. | Butter ( 500 gm ) | 2 Packet | ₹ 32 | ₹ 32 |
| Three hundred seventeen. |  |  | Total | ₹ 327 |
| 1. Errors and Omissions accepted. |  |  |  |  |

4. Rajesh purchase some items from sab-kuch Kirana Store. A bill is given to Rajesh in which he found some mistakes. Find these mistakes and correct them.


## 11 <br> Time

## Let us Learn

Hey kids, in this chapter you will learn about
(i) Units of Time Measurement,
(ii) Relation between Hour, Minute and Second,
(iii) Addition and subtraction of Hour, Minutes and Seconds.

## Introduction

All of us have seen the clock mounted on a wall. Before going to school, office or in any party we see the clock. Have you observe that your parents by seeing the clock they send you to school. What that clock tell us? That is time, let us discuss about the time.

## Units of Time Measurement

Have your observe the digits written on the clock and have you observe the motion of hands of clock. When the position of these clock hands are changed, then time is also changed.


We know that the dial of clock or watch is divided into twelve (12) parts which are represented by numbers $1,2,3,4, \ldots \ldots . .12$, these numbers are written on the dial of clock or watch. Every big part is divided into five (5) small parts. So, we can say that the dial of clock or watch is divided into sixty (60) small parts. On this dial there are three hands which represent hour, minutes and seconds.

By the above conclusion we can say that time has three units Hour, minute and second. Let us discuss about the relation between these three.

## Relation between Hour, Minute and Second

Carefully observe the motion of second hand and minute hand of clock. When second hand of clock covers 60 (sixty) small division then minute hand moves one division. This one division is measurement of sixty second or one minute.

On the basis of this we can say that

$$
1 \text { Minute }=60 \text { seconds }
$$

Similarly if you observe the minute hand and hour hand of clock carefully then you will observe that the time duration in which minute hand of clock covers 60 (sixty) small divisions in the same time hour hand covers one big division.

Hence one big division is measurement for hour hand of clock.
On the basis of this we can say

$$
1 \text { Hour }=60 \text { minutes }
$$

Let us understand this

$$
\begin{array}{rlrl}
1 \text { Hour } & =60 \text { minutes } \\
& 1 \text { Minute } & =60 \text { seconds } \\
\therefore \quad 1 \text { Hour } & =60 \times 60=3600 \text { seconds }
\end{array}
$$

## Conversion of Hour into Minutes

$$
\begin{aligned}
4 \text { Hour } & =1 \text { Hour }+1 \text { Hour }+1 \text { Hour }+1 \text { Hour } \\
& =60 \text { minutes }+60 \text { minutes }+60 \text { minutes }+60 \text { minutes } \\
& =240 \text { minutes }=4 \times 60 \text { minutes }
\end{aligned}
$$

Hence to convert hour into minute we multiply by 60 .
Example 1. How many minutes in 3 Hour.

$$
\text { Sol. } \quad \begin{aligned}
1 \text { Hour } & =60 \text { minutes } \\
\therefore \quad 3 \text { Hour } & =3 \times 60 \\
& = \\
& =180 \text { minutes }
\end{aligned}
$$

## Do Yourself

## Example 2. Convert 540 minutes into hour.

Example 3. Convert $3 \frac{1}{2}$ hour into minutes.
Sol. $\quad 3 \frac{1}{2}$ Hour $=\frac{7}{2} \times 60$ minutes

$$
=7 \times 30 \text { minutes }=210 \text { minutes }
$$

## Do Yourself

Example 4. Convert 390 minutes into hours.

## Exercise 11.1

1. Convert hour in to minutes in the following question:
(i) $1 \frac{1}{4}$ Hour $=$ $\qquad$ minutes
(ii) $2 \frac{1}{2}$ Hour $=$ $\qquad$ minutes
(iii) $5 \frac{3}{4}$ Hour $=$ $\qquad$ minutes
(iv) $3 \frac{1}{5}$ Hour $=$ $\qquad$ minute
(v) $4 \frac{1}{2}$ Hour $=$ $\qquad$ minutes
(vi) $6 \frac{1}{2}$ Hour $=$ $\qquad$ minutes

## (vii) 490 minutes $=$ <br> $\qquad$ hour <br> (viii) 280 Minutes $=$ <br> (ix) 175 Minutes $=$ <br> hour <br> Conversion of Minutes into Seconds

$\qquad$ hour
(x) 860 Minutes $=$
hour

$$
\begin{aligned}
3 \text { minute } & =1 \text { minute }+1 \text { minute }+1 \text { minute } \\
& =60 \text { seconds }+60 \text { seconds }+60 \text { seconds } \\
& =180 \text { seconds } \\
& =3 \times 60 \text { seconds }
\end{aligned}
$$

Hence to convert minute in to seconds multiply by 60 .

## Example 1. How many seconds in 7 minutes.

Sol. $\because \quad 1$ minute $=60$ seconds
$\therefore \quad 7$ minutes $=7 \times 60$ seconds
$\Rightarrow$ In 7 minutes $=7 \times 60$ seconds $=420$ seconds

## Do Yourself

Example 2. Convert the following in seconds

1. 9 minutes 2. 11 minutes 3. 12 minutes

## Conversion of Hour into Seconds

$$
\begin{aligned}
1 \text { Hour } & =60 \text { minutes } \\
& =60 \times 1 \text { minutes } \\
& =60 \times 60 \text { seconds } \\
& =3600 \text { seconds }
\end{aligned}
$$

Hence to convert 1 hour in to seconds we multiply by 3600 .

## Example 3. Convert 3 hour into seconds

Sol. 1 hour $=3600$ seconds
3 hours $=3 \times 3600=10800$ seconds

## Do Yourself

Example 4. Convert following into seconds :

1. 2 Hour
2. $2 \frac{1}{2}$ Hour

## Exercise 11.2

1. Convert the following time units
(i) 20 minutes $=$ $\qquad$ seconds
(iii) $15 \frac{1}{4}$ minutes $=$ $\qquad$ seconds
(ii) $6 \frac{1}{2}$ minutes $=\ldots \ldots \ldots$ seconds
(v) $2 \frac{3}{4} \mathrm{Hour}=$ $\qquad$ seconds
(iv) 4 Hour $=$ $\qquad$ seconds
(vi) $7 \frac{1}{2}$ Hour $=$ $\qquad$ seconds
(vii) 29500 Seconds $=$ $\qquad$ hour
(viii) 26200 Seconds $=$ $\qquad$ hour
(ix) 1255 Seconds = $\qquad$ minutes
(x) 2478 Seconds = $\qquad$ minutes

## Addition of Time

We have learned the addition of numbers where we add unit digit in unit digit and if total in more than 10 then we add Ten in Tenth digit. Same process is used in Tenth and Hundredth digits. The same process is used in addition of time, second is added in seconds if total in exceeds more than 60 then convert this in minutes same process is also used for than 60 than convert this in hours and carry is added in Hour.

Let us understand this :
Example 1. Add 4 Hour 30 Minutes and 3 Hour 15 Minutes.
Sol.

| 4 Hour | 30 Minutes |
| :--- | :--- |
| + | 3 Hour | | 15 Minutes |
| :--- |
| 7 Hour |

Example 2. Add 7 Hour 50 Minutes and 5 Hour 40 Minutes
Sol. (i) 7 Hour 50 Minutes

| $+$ | 5 Hour | 40 Minutes |
| :---: | :---: | :---: |
|  | 12 Hour | 90 Minutes |
| (ii) | 7 Hour | 50 Minutes |
| (i) | 5 Hour | 40Minutes |
|  | 13 Hour | 30 Minutes |

## Do Yourself

Example 3. (i) Add 4 Hour 37 minutes and 3 Hour 23 minutes
(ii) Add 3 Hour 53 minutes and 2 Hour 17 minutes

## Substraction of Time

In the subtraction of Time we subtract second and minute from minute. If subtracted seconds are more then we take borrow from the minutes means we add 60 seconds in seconds. By this upper seconds become more than lower second.

Similarly if minutes are less than we take borrow from hour and we add 60 in minute.
Let us understand this process
Example 4. Subtract 11 Minute 24 seconds from 15 Minute 38 seconds.

Sol. | Minutes | Seconds |
| :---: | :---: |
| 15 | 38 |
| -11 | 24 |
| 04 | 14 |

Hence answer is 4 minute 14 seconds.
Example 5. Subtract 1 minute 40 second from 3 minute 10 second.
Sol. Minutes Second

| 2 | 70 |
| ---: | ---: |
| -1 | 40 |
| 1 | 30 |

Here we subtract 1 minute from 3 minutes and add 10 seconds ( 1 minute +10 seconds

$$
=60+10=70 \text { seconds) }
$$

Now subtract 1 minute 40 seconds from 2 minute 70 seconds.
Example 6. Subtract 4 hour 55 minute from 9 hour 20 minutes.
Sol.

| Hours | Minutes |
| :---: | :---: |
| 8 | 80 |
| 9 | 20 |
| 4 | 55 |
| 4 | 25 |

Here we add 1 hour in 20 minutes ( 1 Hour +20 minute $=60+20=80$ minutes)
Now subtract 4 hour 55 minute from 8 hour 80 minute.

## Do Yourself

Example 7. Subtract the following :
(i) Subtract 4 Hour 40 Minute from 7 Hour 20 Minutes.
(ii) Subtract 5 Hour 37 Minutes from 6 Hour 20 Minutes.

## Exercise 11.3

1. Convert the following time units
(i) $10 \frac{3}{5}$ Hour $=\ldots \ldots \ldots$ minutes
(ii) $2 \frac{1}{4}$ Hour $=\ldots \ldots \ldots$ seconds
(iii) $\frac{1}{5}$ Minutes $=\ldots \ldots \ldots$ seconds
(iv) $1 \frac{2}{3}$ Minutes $=\ldots \ldots \ldots$ seconds
2. Add the following
(i) 2 Hours 42 Minutes and 4 Hours 10 Minutes
(ii) 10 Minutes 50 seconds and 8 Minutes 20 Seconds
(iii) Add 4 hours 25 minutes 45 seconds and 7 hours 12 minutes 5 seconds
(iv) Add 9 hours 36 minutes 2 seconds and 5 hours 40 minutes 52 seconds
3. Subtract the following
(i) 9 Hours 32 minutes from 12 Hours 18 minutes
(ii) Subtract 25 minutes 49 seconds from 29 minutes 39 seconds
(iii) Subtract 7 hour 35 minutes from 14 hour 8 minute
(iv) Subtract 10 hours 50 minutes from 20 hours 40 minutes
4. Yogesh study 5 hour 30 minutes in school and 3 hours 45 minutes at home. How much time yogesh study.
5. The distance between Bharatpur and Dholpur is 90 km . Rakesh covers this distance by car in 2 hours 12 minutes and Firoz travel this distance in 3 hours 8 minutes. Compare the time taken by both
6. Mohan runs for 3 hour 27 minutes and Rakesh runs 2 hour 45 minute who runs for more time and how much.
7. The distance between Jaipur and Bharatpur is 250 km and a bus travels this in 4 hour 20 minutes and another bus travels this distance in 2 hour 45 minutes. How much total time both buses takes to reach.
8. Add 2 hours 45 minutes and 3 hours 16 minutes.
9. State True or False
(i) To convert minute in to second we devide by 60.
(ii) There are 3600 seconds in one Hour.
(iii) Minute hand of clock covers 60 small division in same duration hour hand of clock covers one big division.
(iv) Half hour is equal to 15 minute.

## Examination Type <br> 4. Ouestions

## 1. Objective Type Questions

(i) How many hours in a day
(a) 12 hour
(b) 18 hour
(c) 24 hour
(d) 20 hours
(ii) When we subtract 7 hour 59 minutes from 8 hours 10 minutes then our result is
(a) 10 minutes
(b) 11 minutes
(c) 15 minutes
(d) 20 minutes
(iii) Ramesh awake at 7 hour 30 minutes in the morning and goes to school at 9 hours 15 minutes in the morning then what is the difference in these time intervals
(a) 1 hour 10 minutes
(b) 1 hour 45 minutes
(c) 2 hour 30 minutes
(d) None of these
(iv) seconds in 2 hours
(a) 3600
(b) 2400
(c) 7200
(d) 4000

## 2. State True or False :

(i) There are 1440 minutes in a day. [True/False]
(ii) 310 minutes $=5$ hours 10 minutes.
(iii) 2 hours 15 minutes $=235$ minute.
(iv) 645 seconds $=645 \div 60$ minutes $=10$ minutes 45 minutes
(v) 18 minutes $=18 \times 60$ seconds $=1080$ seconds
(vi) Midnight 12:00 in Railway is written as 00:00
(vii) There will be 3 minutes in 120 seconds.
(viii) 1 hour is having 36 minutes.
(ix) There are 60 seconds in one minutes.
(x) In one day there are 24 hours.
(xi) At $6: 00 \mathrm{O}^{\prime}$ clock the minute hand of clock will be at 8 .
(xii) $2 \frac{1}{4}$ hour $=135 \times 60$ seconds
[True/False]
[True/False]
[True/False]
[True/False]
[True/False]
[True/False]
[True/False]
[True/False]
[True/False]
[True/False]
[True/False]
(xiii) $10 \frac{3}{5}$ hour $=630$ minutes
(xiv) There will be 4 hours in 180 minutes.
(xv) There will be 10 minutes in 360 seconds.

## 3. Fill in the Blanks :

(i) 1 hour $=$ $\qquad$ seconds
(ii) 24 hour $=$ $\qquad$ seconds
(iii) 6 hour $=$ $\qquad$ minutes
(iv) 24 hour $=$ $\qquad$ minutes


## 12

## Weight

## - Let us Learn

Hey kids, in this chapter you will learn about
(i) Introduction of weight,
(ii) Relation between kilogram and gram,
(iii) Addition and Subtraction of Weight

## Introduction of Weight

In previous classes we have learned the weighing the things and studied their weight, one kilogram weight and its various parts such as quarter, half and three fourth of one kilogram.

$$
1 \mathrm{~kg}=1000 \mathrm{gram}
$$

1 Quarter $\mathrm{kg}=$ one fourth of an kilogram

$$
\begin{aligned}
& =\frac{1}{4} \mathrm{~kg}=\frac{1000}{4} \text { gram } \\
& =250 \text { gram } \\
\text { Half } \mathrm{kg} & =\frac{1}{2} \mathrm{~kg}=\frac{1000}{2} \text { gram }=500 \mathrm{gm}
\end{aligned}
$$

Three fourth kilogram $=\frac{3}{4} \mathrm{~kg}=\frac{3}{4} \times 1000=750 \mathrm{gm}$
In really quarter kg , three fourth kg is frequently used and standard units are not used. In international system kilogram is used for weighing.

## Relation between Kilogram and Gram

## Conversion of Kilogram in Gram

We have studied that 1 kilogram $=1000 \mathrm{gm}$
Many times we have to express the weight of two things in same units.

To express the weight of two things in same quantity. Let us understand this.

$$
\begin{aligned}
4 \text { kilogram } & =\ldots \ldots \ldots . . \text { gram } \\
4 \text { kilogram } & =1 \text { kilogram }+1 \text { kilogram }+1 \text { kilogram }+1 \text { kilogram } \\
4 \text { kilogram } & =1000 \mathrm{gm}+1000 \mathrm{gm}+1000 \mathrm{gm}+1000 \mathrm{gm} \\
& =4000 \mathrm{gm}=4 \times 1000 \mathrm{gm}
\end{aligned}
$$

To convert kilogram into gram we multiply the quantity by 1000 .

## Conversion of Gram into Kilogram

$$
\begin{aligned}
3000 \mathrm{gm} & =\ldots \ldots . . \text { kilogram } \\
3000 \mathrm{gm} & =1000 \mathrm{gm}+1000 \mathrm{gm}+1000 \mathrm{gm} \\
& =1 \mathrm{~kg}+1 \mathrm{~kg}+1 \mathrm{~kg}=3 \text { kilogram } \\
& =\frac{3000}{1000}=3 \text { kilogram }
\end{aligned}
$$

To convert gram into kilogram we divide the quantity by $=1000$.
In other words gram is one thousand part of kilogram $\left(\frac{1}{1000}\right)$.
Example 1. Convert 1 kilogram 500 gm into kilogram.
Sol. 1 kilogram $500 \mathrm{gm}=1$ kilogram +500 gm

$$
\begin{aligned}
& =1 \text { kilogram }+\frac{500}{1000} \text { kilogram } \\
& =1 \text { kilogram }+\frac{1}{2} \text { kilogram }=1 \frac{1}{2} \text { kilogram }
\end{aligned}
$$

## Do Yourself

Example 2. Express the following in kilogram
(i) 2 kg 500 gm
(ii) 5 kg 750 gm
(iii) 3 kg 250 gm

## Exercise 12.1

1. Fill in the blank :
(i) $200 \mathrm{gm}=$ $\qquad$ kilogram
(ii) $400 \mathrm{gm}=$ $\qquad$ kilogram
(iii) $1250 \mathrm{gm}=$ $\qquad$ kilogram (iv) $750 \mathrm{gm}=$ $\qquad$ kilogram
(v) $1500 \mathrm{gm}=$ $\qquad$ kilogram
2. Convert $1 \frac{1}{4}$ kilogram into gram
3. Convert $5 \frac{1}{2}$ kilogram into gram
4. Convert $1 \frac{3}{4}$ kilogram into gram
5. Convert $1 \frac{1}{2}$ kilogram into gram.

## Addition and Subtraction of Weight

When we goes to a grocery store, sweet store we find that there are following weights $10 \mathrm{~kg}, 5 \mathrm{~kg}, 2 \mathrm{~kg}, 1$ $\mathrm{kg}, 500 \mathrm{gm}, 200 \mathrm{gm}, 100 \mathrm{gm}$ and 50 gm .


1 kilogram $600 \mathrm{gm}=1$ kilogram $+500 \mathrm{gm}+100 \mathrm{gm}$
Can you measure following weights.

## Try these

| Weight | Types of Weights |
| :---: | :---: |
| $3 \mathrm{~kg} \mathrm{600gm}$ | $2 \mathrm{~kg}+1 \mathrm{~kg}+500 \mathrm{gm}+100 \mathrm{gm}$ |
| $4 \mathrm{~kg} \mathrm{750gm}$ | $2 \mathrm{~kg}+2 \mathrm{~kg}+500 \mathrm{gm}+200 \mathrm{gm}+50 \mathrm{gm}$ |
| $2 \mathrm{~kg} \mathrm{800gm}$ |  |
| 7 kg 450 gm |  |

## Let Try Something New

Many times we do not have sufficient weights to measure the quantity if available weights are used carefully then we can measure the quantity. Let us see this.

Ramesh has a weight of 5 kg and a weight of 500 gm if we wants to measure 4 kg 500 gm . Carefully observe the position of balance is the sugar in bag is 4 kg 500 gm .

$\because$ Bag and 500 gm weight is equal to 5 kg weight. Hence sugar is 500 gm less than 5 kg .
Hence, weight of sugar

$$
\begin{aligned}
& =5 \mathrm{~kg}-500 \mathrm{gm} \\
& =4 \mathrm{~kg} 500 \mathrm{gm}
\end{aligned}
$$

## Do Yourself

Example 1. (i) With the weight of 500 gm and 200 gm measure 300 gm .
(ii) With the help of weight of $1 \mathrm{~kg}, 200 \mathrm{gm}$ and 100 gm measure 700 gm .

## Exercise $\mathbf{1 2 . 2}$

1. Reena purchase 1 kg 400 gm tomato, 750 gm chilli and 2 kg 600 gm potato from the market and kept them in a bag. What is total weight in the bag.
2. Manoj purchase 10 kg sugar bag from market at the time of returning to home. A hole took place in the bag and sugar remaining in the bag is 8 kg 750 gm . How much sugar is shattered.
3. Sheela has a packet of 5 kg 470 gm and a box of weight 3 kg 690 gm . How much weight of packet is more than the weight of box.
4. A shop keeper milling 6 kg spices and pack them in 250 gm packets. Then find out the number of packets, if 4 packets are packed from 01 kg spices.
5. In the mid day meal for every student 150 gm wheat and 100 gm rice in given then how much wheat and rice is required for 60 students?
6. Savita purchased 2 kg cauliflower and 4 kg cucumber, 3 kg 700 gm yam and 2 kg 900 gm other vegetables find out the weight in her beg.
7. Harish purchased 2 kg 500 gm turmeric, 5 kg 200 gm chilli, 4 kg 700 gm corinder and 10 kg salt. What is the weight of total items.
8. Find out the following in gram.
(i) $3 \frac{1}{2} \mathrm{~kg}=$
gm
(ii) $3 \frac{2}{5} \mathrm{~kg}=$ $\qquad$ gm
(iii) $4 \frac{3}{4} \mathrm{~kg}$
gm
(iv) $2 \frac{1}{5} \mathrm{~kg}=$ $\qquad$ gm
9. Find the value of following
(i) $1500 \mathrm{gm}=$
kg
(ii) $2250 \mathrm{gm}=$ $\qquad$ kg
(iii) $100 \mathrm{gm}=\ldots \ldots \ldots \ldots \ldots \mathrm{kg}$
(iv) $4750 \mathrm{gm}=$
kg
10. State True/False
(i) 1 gm is hundredth part of 1 kg .
(ii) To convert kilogram into the gram we multiply the quality by 1000 .
(iii) From 1 kg salt 4 packet of 250 gm salt can be packed.
(iv) The weight of iron and wood piece is equal.
11. The weight of cement is 250 kg 500 gm and weight of sand is 150 kg 750 gm . Find out the total weight.
12. Reena purchased 2 kg 300 gm potato and 3 kg 500 gm wheat. How much weight she should buy to make it 9 kg .
13. Geeta's bag weight is 3 kg 500 gm and her brother's bag weight is 4 kg 750 gm , then find the total weight of both the bags.

## Examination Type <br> Questions

## 1. Objective Type Questions

(i) 250 gm is equivalent to
(a) $\frac{1}{2} \mathrm{~kg}$
(b) $\frac{1}{4} \mathrm{~kg}$
(c) 250 kg
(d) 1 kg
(ii) 500 gm is equivalent to
(a) half kilogram
(b) $\frac{3}{4} \mathrm{~kg}$
(c) $\frac{5}{4} \mathrm{~kg}$
(d) 5 kg
(iii) $\frac{3}{4} \mathrm{~kg}$ is equivalent to
(a) 500 gm
(b) 750 gm
(c) 900 gm
(d) 850 gm
(iv) $1 \frac{1}{2} \mathrm{~kg}$ is equivalent to
(a) 1000 gm
(b) 1250 gm
(c) 1500 gm
(d) 2000 gm
(v) $1 \frac{3}{4} \mathrm{~kg}$ is equivalent to
(a) 1750 gm
(b) 1850 gm
(c) 1250 gm
(d) None of the above

## 2. Fill in the Blanks :

(i) 1 kilogram $=$ $\qquad$ gm
(ii) $2500 \mathrm{gm}=$ $\qquad$ kilogram
(iii) $1500 \mathrm{gm}=$ $\qquad$ kilogram
(iv) $2 \frac{1}{5} \mathrm{~kg}=$ $\qquad$ gram
(v) $3100 \mathrm{gm}=$ $\qquad$ kilogram
(vi) $7 \mathrm{~kg} 450 \mathrm{gm}=$ $\qquad$ gm

## 3. State True or False :

(i) 10 kg 800 gm is equal to 1080 gm .
(ii) 1 gram is thousandth part of kilogram.
(iii) 0.070 kg is equavalent to 700 gm .
(iv) 1000 gm is equivalent to one kilogram.
(v) 0.5 kg is equivalent to $\frac{1}{2} \mathrm{~kg}$.

## 13

## Measurement (Length)

## Let us Learn

Hey kids, in this chapter you will learn about
(i) Introduction of length measurement,
(ii) Relation in meter and centimeter,
(iii) Measurement of length,
(iv) Conversion of units.

## Introduction

In the previous class we are already familiar with the scale, With the help of scale we can measure the length of lines of short length. We can draw the line with the help of scale. At the cloth store you have, seen that the shopkeeper measure clothes from an Iron scale. At the time of construction of house and road, measurement of length is done by Tape.


Scale


Iron scale (meter)


Tape

Have you ever think that how much long length can be measured by Iron scale and Tape? If we want to measure more distance such as distance between two cities. Does the Iron scale meter or Tape can be used to measure long distance. Some units can be used to measure more lengths.

$$
\begin{aligned}
1 \text { kilometer } & =1000 \text { meter } \\
1 \text { meter } & =100 \mathrm{~cm} \\
1 \text { centimeter } & =10 \text { millimeter }
\end{aligned}
$$

Let us understand the above relationship with a problem.
Measurement of long jump of class 5 students are following.

$$
\begin{aligned}
\text { Laxmi } & =1 \text { meter } 20 \mathrm{~cm} \\
\text { Ankita } & =1 \text { meter } 10 \mathrm{~cm} \\
\text { Chanchal } & =1 \text { meter } 70 \mathrm{~cm} \\
\text { Gurupreet } & =1 \text { meter } 50 \mathrm{~cm} \\
\text { Suhani } & =1 \text { meter } 30 \mathrm{~cm}
\end{aligned}
$$

Who jumped more distance?
Who jumped less distance?
By seeing the problem you can judge that Chanchal jumped more distance where Ankita jumped less.

## Conversion of Units

(i) Conversion of meter into centimeter

$$
\begin{aligned}
3 \text { meter } & =\ldots \ldots . . \text { centimeter } \\
3 \text { meter } & =1 \text { meter }+1 \text { meter }+1 \text { meter } \\
& =100 \mathrm{~cm}+100 \mathrm{~cm}+100 \mathrm{~cm} \\
& =300 \text { centimeter }=3 \times 100 \text { centimeter }
\end{aligned}
$$

$$
\because \quad 3 \text { meter }=1 \text { meter }+1 \text { meter }+1 \text { meter }
$$

Hence to convert meter into centimeter, we multiply the given quantity by 100 .
(ii) Conversion of centimeter into millimeter

$$
\begin{aligned}
4 \text { centimeter } & =\ldots \ldots \ldots \text { millimeter } \\
4 \mathrm{~cm} & =1 \mathrm{~cm}+1 \mathrm{~cm}+1 \mathrm{~cm}+1 \mathrm{~cm} \\
& =10 \mathrm{~mm}+10 \mathrm{~mm}+10 \mathrm{~mm}+10 \mathrm{~mm} \\
& =40 \mathrm{~mm}=4 \times 10 \mathrm{~mm}
\end{aligned}
$$

$\because \quad 4 \mathrm{~cm}=1 \mathrm{~cm}+1 \mathrm{~cm}+1 \mathrm{~cm}+1 \mathrm{~cm}$

Hence, to convert centimeter into millimeter we have to multiply the quantity by 10 .
(iii) Conversion of kilometer into meter.

$$
\begin{aligned}
5 \text { kilometer } & =\ldots \ldots \ldots \text { meter } \\
\because \quad 5 \text { kilomerter } & =1 \mathrm{~km}+1 \mathrm{~km}+1 \mathrm{~km}+1 \mathrm{~km}+1 \mathrm{~km} \\
& =1000 \text { meter }+1000 \text { meter }+1000 \text { meter }+1000 \text { meter } \\
& \\
& =5000 \text { meter }=5 \times 1000 \text { meter }
\end{aligned}
$$

Therefore, to convert kilometer into meter, we have to multiply the quantity by 1000 .

## Example 1. How many meter are in 8 kilometer?

Sol. $\quad \because 1 \mathrm{~km}=1000$ meter
Therefore, $\quad 8 \mathrm{~km}=8 \times 1000$ meter $=8000$ meter

Example 2. How many meter are in $2 \frac{1}{2} \mathrm{~km}$ ?
Sol.

$$
\begin{aligned}
2 \frac{1}{2} \text { kilometer } & =2 \mathrm{~km}+\frac{1}{2} \mathrm{~km} \\
& =2 \times 1000 \text { meter }+\frac{1}{2} \times 1000 \text { meter } \\
& =2000 \text { meter }+500 \text { meter }=2500 \text { meter }
\end{aligned}
$$

Example 3. How many centimeter are in $\frac{1}{4}$ meter?
Sol. $\because 1$ meter $=100$ centimeter

$$
\text { Therefore, } \quad \frac{1}{4} \text { meter }=\frac{1}{4} \times 100=25 \text { centimeter }
$$

Example 4. How many meter are in $1 \frac{1}{2}$ kilometer?
Sol. $\quad 1 \frac{1}{2} \mathrm{~km}=1 \mathrm{~km}+\frac{1}{2} \mathrm{~km}=1 \times 1000$ meter $+\frac{1}{2} \times 1000$ meter

$$
=1000 \text { meter }+500 \text { meter }=1500 \text { meter }
$$

## Do Yourself

1. Convert $7 \frac{1}{2} \mathrm{~km}$ into meter and centimeters
2. Convert 950 meter into km and millimeters

## Exercise 13

1. Change the units of following measurements.
(i) $12 \mathrm{~km}=$ $\qquad$ meter
(ii) $10 \frac{1}{2} \mathrm{~km}=$ $\qquad$ meter
(iii) $25 \frac{1}{4}$ meter $=$ $\qquad$ centimeter
(iv) $15 \frac{3}{4}$ meter $=$ $\qquad$ centimeter
(v) $4 \frac{1}{5} \mathrm{~cm}=$ $\qquad$ millimeter
(vi) $1 \frac{4}{5} \mathrm{~cm}=$ $\qquad$ millimeter
2. Change the units of following measurements.
(i) 120 centimeter $=$ $\qquad$ meter
(ii) 2250 meter $=$ $\qquad$ kilometer
(iii) 50 millimeter $=$ $\qquad$ centimeter
(iv) 9500 meter $=$ $\qquad$ kilometer
(v) 150 centimeter $=$ $\qquad$ meter
(vi) 175 millimeter $=$ $\qquad$ centimeter
3. The distance of school from Kavita's home is 7 kilometer 300 meter. How much distance, she covers to go to school and return to home?
4. Manju's village is 46 km far away from city. After travelling a distance of 32 km 600 meter, her bus is out of order. How much distance is remaining to travel?
5. Kavita travels 32 km 400 meter on first day and after that she travels 35 km 700 meter on second day. How much that total distance traveled by Kavita?
6. Raman's school is 4 km 600 meter away from home and after goining and returning to home, he goes to coaching classes which is 3 km 200 meter away from home. He goes to coaching classes and return to home. How much distance travelled by Raman?

## Examination Type <br> Questions

1. Objective Type Questions
(i) 1 centimeter is equal to
(a) 1 meter
(b) 10 mm
(c) 100 mm
(d) 1 km
(ii) 1 km is equal to
(a) 100 meter
(b) 1000 meter
(c) 1500 meter
(d) None
(iii) 1500 meter is equal to
(a) 1500 mm
(b) 1.5 km
(c) 1800 cm
(d) None
(iv) $2 \frac{1}{2} \mathrm{~km}$ is equivalent to
(a) 1500 meter
(b) 200 meter
(c) 2500 meter
(d) 3500 meter
2. Fill in the blanks :
(i) 15 kilometer $=$ $\qquad$ meter
(ii) 100 centimeter $=$ $\qquad$ meter
(iii) 12 centimeter $=$ $\qquad$ millimeter
(iv) 2250 meter $=$ $\qquad$ kilometer
(v) 12 kilometer $=$ $\qquad$ centimeter
3. State True or False.
(i) 1 kilometer is equal to 1000 meter.
(ii) 10 cm is equal to 1 mm .
(iii) 10 millimeter is equal to 1 centimeter.
(iv) 1 millimeter is bigger unit of measurement than one centimeter.
(v) 100 meter is equivalent to 100000 centimeter.
4. Gopal purchased 3 meter 400 cm cloth for shirts and 1 meter 750 cm for trousers. How much cloth he has purchased?
5. Rishi walked 2 km 750 cm distance and Bhavya walked 1 km 150 meter distance. How much distance they have walked?
6. Mohan's height is 1 m 350 mm and Ravi's height is 1 m 50 cm . What is their total height?
7. Prakash purchased a inch tap of 3 m 50 cm long and Rohan purchased a inch tape of 1 m 50 mm . What is total length of their tapes.
8. Geeta purchased 4 m 750 cm cloth from market. To make it 15 meter how much cloth she should buy more?

## 14

## Perimeter and Area

## - Let us Learn

Hey kids, in this chapter you will learn about
(i) Introduction of perimeter and area.
(ii) Concept of perimeter and area.
(iii) Relation between perimeter and area.
(iv) To find out area and perimeter of rectangle.

## Introduction

In the previous class we have understand the concept of length and breadth. Let us see this with an example.

Rahul's plot in 30 meter long and 20 meter wide his father want to make fencing with wire.


How much wire is required to fence it?

## Concept of Perimeter

To find out the length of wire to fence, we need perimeter of plot. Perimeter is the total length of all sides.
$\therefore$ Perimeter $=$ sum of all side

$$
=30+20+30+20=100 \text { meter }
$$

Hence, 100 meter wire is required to hence.
Similary you have seen the people to measure the all sides of photo frame, field and many more.
Think around you where you feel that there is necessity to measure all sides.

From the above observation it is clear in a closed figure measurement of all sides is known as perimeter. In Nirmal's math's book there are few questions to find out perimeter.


Can you find the perimeter of all three figures.
We know that perimeter is only of a closed figure. Figure (B) and (C) are not closed figures. Therefore perimeter of figure (B) and (C) can not be find such figures are known as open figures.

## Activity

Find out the perimeter of figure given here.
As you have seen that such figures can not be measured by scale therefore Nirmal kept a thread on side of figure and after that measure the thread by scale. This way we can measure the perimeter of given figure.

## Perimeter of Regular Shapes



Few figures are given below

(A)

(B)

(C)

To find out the perimeter of above figures. We can use the following methods.
Perimeter of figure (A) $=10 \mathrm{~cm}+10 \mathrm{~cm}+10 \mathrm{~cm}=30 \mathrm{~cm}$
Because all three sides are equal therefore this can be solved this way also.
Perimeter $=3 \times 10=30 \mathrm{~cm}$
Such shapes whose sides are equal in measurement and their all angles are same is known as regular shapes.

For all regular shapes
perimeter of regular shapes $=$ Number of sides $\times$ measurement of a side
On the basis of this perimeter of shape (B) and (C)
Number of sides $=4$, Measurement of a side $=12 \mathrm{~cm}$
Therefore, perimeter of figure $(B)=4 \times 12=48 \mathrm{~cm}$
Number of sides $=5$, measurement of a side $=7 \mathrm{~cm}$
Perimeter of figure $(C)=5 \times 7=35 \mathrm{~cm}$

## Perimeter of Rectangle



This is a rectangle (regular shape) we want to make a formula for its perimeter.

$$
\text { Perimeter rectangle }=15 \mathrm{~m}+5 \mathrm{~m}+15 \mathrm{~m}+5 \mathrm{~m}
$$

Which means perimeter of rectangle $=$ length + width + length + width

$$
=2 \times \text { length }+2 \times \text { width }
$$

$$
=2(\text { length }+ \text { width })
$$

Therefore, perimeter of rectangle $\quad=2$ (length + width $)$

## Concept of Area

You have learned to find out the area of closed figures of certain portion. Let us Recall that Rajani and Jyoti think to find out area of their pam of their hand by keeping the pam on graph paper.

(i) Full covered blocks in number :
(ii) Half or more covered blocks in number : $\qquad$
Hence, the area of pam is : (i) $\qquad$ + (ii) $\qquad$

## Acitivity

On grid paper draw the cover line of pam and find out the area.
Some rectangles and square shapes are given below on graph paper :

(iii)

For figure, (i) Let length of each sqaure is 1 cm .
Then the length of rectangle is 5 cm .

$$
\text { Breadth }=2 \mathrm{~cm}
$$

Then the covered block by $A B C D=10$ blocks
Hence area of rectangle $A B C D=10 \mathrm{sqcm}$
Are you able to find any rule between the length, breadth and area
Yes, we recognised well

$$
\begin{aligned}
\text { Length } \times \text { Breadth } & =\text { Area } \\
5 \mathrm{~cm} \times 2 \mathrm{~cm} & =10 \mathrm{~cm}^{2}
\end{aligned}
$$

Similarly we can find the area of figure (ii) and (iii). Area calculated by both method is equal. Hence we can say that area of rectangle is Length $\times$ Breadth.

## Do Yourself

Example 1. (i) Find the Area of rectangular, whose length is 4 , and breadth is 4 m .
(ii) Find the perimeter of square whose side is 10 m
(iii) Find the area of square whose side is 15 m .

## Exercise 14

1. Find the perimeter of given figures.
(
(A)

(B)

(C)
2. Find the perimeter of following rectangle shape.
(A) Lenght $=30 \mathrm{~cm}$
(B) Length $=20 \mathrm{~cm}$ Breadth $=34 \mathrm{~cm}$
(C) Length $=60 \mathrm{~cm}$
Breadth $=20 \mathrm{~cm}$
(D) Length $=30 \mathrm{~cm}$ Breadth $=12 \mathrm{~cm}$
3. Find the perimeter of given regular shapes with the help of formula.
(A)

(B)

(C)

(D)

4. Vijay has drawn rectangle on the graph then find its perimeter and area.

|  |  |  |  |  |  |  |  |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
|  |  |  |  |  |  |  |  |
|  |  | 5 | cm |  |  |  |  |
|  |  |  |  |  |  |  |  |
| 3 cm |  |  |  |  |  | 3 cm |  |
|  |  |  |  |  |  |  |  |
|  |  | 5 | cm |  |  |  |  |
|  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |

Can you increase or dicrease length and breadth so that its perimeter and area are same.
5. Find the area of a rectangular field whose length and breadth are 25 meter and 30 metre respectively.
6. A rectangle shape towel has a length of 125 cm and breadth 60 cm . Find out the perimeter of towel.
7. A fencing has to be done outside of a field which is square shape. Length of wire used for fencing is 260 meter. Find the side of the field.
8. Length and breadth of floor of a room is 8 meter and 7 meter respectively. A carpet is laid down on the floor which cover all floor. Find the area of carpet.
9. Find the perimeter of a square shape stone whose side is 60 cm .
10. To complete two rounds of a square shape field Dev walks 40 m . Then find the side of field.
11. Find the area and perimeter of a rectangle field whose length is 2.5 meter and breadth is 3.5 meter.
12. Find the side of a square field whose area is 81 metre.
13. Find the area of a square field whose side is 1.5 meter.
14. Find the perimeter and area of a square field if Ramesh completes its two rounds after covering a distance of 60 meter.

## Examination Type <br> Questions

1. To complete 2 rounds of a square shape field Ajay travells a distance of 360 meter. Then find out the area of field.
2. A square is shown in the figure given below. Find its area and perimeter. Is its area equal to box covered? If yes, then find the number of boxes.

3. Find the perimeter and area of rectangle park whose length and breadth are 25 metre and 35 metre respectively.
4. Find out the area of the following figure.


## 15

## Holding Capacity

## Let us Learn

Hey kids, in this chapter you will learn about
(i) Introduction of holding capacity
(ii) Concept of holding capacity
(iii) Application of holding capacity
(iv) Relation between holdings units
(v) Addition and subtraction of liter and milliliter

## Introduction of Holding Capacity

Today we purchase various items from market such as bread, milk, sugar, vegetable, oil, cloth etc. Generally these items are purchased. What is method of measurement of these? Let us understand this.


Mohan, when I purchase, sugar, vegetable, rice, then shopkeeper weight it from balance.


Generally for solid objects shopkeeper weight it from balance, therefore when we purchase solid items he weight it from various weights. On provision store and vegetable shop we found various weights such as $5 \mathrm{~kg}, 2$ $\mathrm{kg}, 1 \mathrm{~kg}, 500 \mathrm{gm}, 200 \mathrm{gm}, 100 \mathrm{gm}, 50 \mathrm{gm}$, etc.

But when we purchase milk, oil or other liquid item he does not weight them. He measures them by fixed holding capacity pots. This method is used for measurement of liquids. What we have understood from this? We understood that liquids are measured by fixed holding pots. That is the reason liquids are not weight from balance. They are measured by fixed holding capacity pots.

## Try These

Observe your nearby items and classify them in the following categoriy :

| Things which are weighing by weights | Things which are measured by pots of fixed holding |
| :---: | :---: |
|  |  |
|  |  |
|  |  |
|  | .......... |

## Concept of Holdings

We have discussed that liquids are measured by fixed holding pots. Generally shopkeeper has which type capacity holding pots.


In the above figure you are able to see 1 liter, $500 \mathrm{ml}, 200 \mathrm{ml}, 100 \mathrm{ml}$ and 50 ml capacity holdings pots.
These pot are generally available on milk shop or provisional stores. The amount of liquid which can be filled in a pot is known as holdings of that pot.

Different holdings pots have what relation between them.


It is clear that
1 liter $=1000 \mathrm{ml}$


Hence,


## Do Yourself

Example 1. (i) How much milk will we get in the given measurements.

(ii) Which holdings capacity pots will be used for measuring the given quantity?
(i) 2 liter $750 \mathrm{ml}=$ $\qquad$
(ii) 1 liter $600 \mathrm{ml}=$ $\qquad$
(iii) 4 liter $250 \mathrm{ml}=$ $\qquad$
(iv) 3 liter $800 \mathrm{ml}=$

## Applications of Holdings Capacity

We have learned that liquids are always measured in liter and milliliter. Generally, whatever items we use in our daily life are measured by 1 liter, $500 \mathrm{ml}, 200 \mathrm{ml}, 100 \mathrm{ml}$ and 50 ml capacity holding pots.

When we measure more capacity such as petrol tanker, diesel tanker and big ponds, than big units of measurement will be used, which we will study in higher classes.

In our daily life we found defined holdings capacity pots such as water tank on our roof, having capacity from 500 liter to 2000 liter, Iron drum, oil container, milk tank, cold drinks bottle etc. All such holding capacity pots have defined holding capacity. Let us understand this with examples :
Example 1. From a water tank of capacity 3000 liter, how many drums of holding 200 liter can be filled?
Sol. Holding capacity of drum $=200$ liter
Holding capacity of tank $=2000$ liter
Number of drums $=\frac{\text { Capacity of tank }}{\text { Holdings of drum }}=\frac{3000}{200}=15$
Hence 15 drums can be filled.
Example 2. A milkman in a street sells milk to 4 house. If he sells, 1 liter 500 ml , 2 liter $250 \mathrm{ml}, 750 \mathrm{ml}$ and 500 ml . How much milk has been sold by milk man?
Sol. To find out the total milk sold we have to add the all quantities

$$
\begin{aligned}
& =(1 \text { liter } 500 \mathrm{ml})+(2 \text { liter } 250 \mathrm{ml})+(750 \mathrm{ml})+(500 \mathrm{ml}) \\
& =3 \text { liter }+2000 \mathrm{ml} \\
& =3 \text { liter }+2 \text { liter } \\
& =5 \text { liter }
\end{aligned}
$$

## Do Yourself

Example 3. (i) Poonam purchased 1 liter 200 ml vegetable oil and the shopkeeper has a 200 ml holdings capacity pot. How many times of pots he has to pour to give oil?
(ii) A tank of water is of 1000 liter and a drum of 2.5 liter is used to fill it. How many times of drums has to be poured to fill it?
[Ans. (i) 6, (ii) 400]

## Exercise 15.1

1. Radha poured $500 \mathrm{ml}, 200 \mathrm{ml}$ and 100 ml capacity holdings pots in a thermos. If the thermos is half filled, then what is the holdings of thermos?
2. In a small bottel of kerosine 3 liter kerosine can be filled. How much kerosine can be filled in 8 such bottles?
3. How many 250 ml packets can be packed from 10 liter milk?
4. In a drum of 200 liter holding capacity 5 liter 10 drums, 3 liter 20 bottles and 2 liter 15 bottles has been poured and remaining drum is filled by 1 liter holding capacity bottle, then how many 1 liter bottles has been poured?
5. Fill in the blanks
(i) In $1 \frac{1}{2}$ liter $\ldots \ldots$ ml holdings 3 pots can be filled.
(ii) By taking 500 ml ...... times 1 liter pot can be filled.
(iii) At the rate of ₹ 40 per liter, the value of 2 liter 250 ml milk is
(iv) millimeter is equal to 1 liter.
6. A tank on roof is filled by a tap whereas a top in lower ground take it out. If the tank is filled by tape in 1 hour is 25 liter and lower take it out in 1 hour is 10 liter. After 4 hour how much water in tank at the time of starting tank is empty?
7. Ramesh has 600 liter tank on his roof and water expenses of his family in a day is 20 buckets. If the holdings of bucket is 10 liter, then how many days water can be used.?
8. A tank is filled by a tap in 2 hour and outlet tap empty it in 4 hour if both the tapes are operated for one hour what will be the position of tank?

## Relation between Holding Units

We have seen if standard units are given in meter, kilograms or kilometer and question is asked in $\mathrm{cm}, \mathrm{mm}$, then unit conversion is necessary. Therefore, it is very essential to understand the relation between holdings unit.

$$
\begin{aligned}
& \text { Milli }=\text { Thousandth }=\frac{1}{1000} \\
& \text { Centi }=\text { Hundredth }=\frac{1}{100} \\
& \text { Deci }=\text { tenth }=\frac{1}{10} \\
& \text { Deca }=\text { Ten times }=10 \\
& \text { Hecta }=\text { Hundred Times }=100 \\
& \text { Kilo }=\text { Thousand times }=1000
\end{aligned}
$$

## Example 1. Convert 4 kilometer in meter.

Sol. $\because 1$ kilometer $=1000$ meter

$$
\begin{aligned}
4 \text { kilometer } & =4 \times 1000 \text { meter } \\
& =4000 \text { meter }
\end{aligned}
$$

Example 2. Convert 2000 ml into liter.
Sol. $\because$ In $1000 \mathrm{ml}=1$ liter

$$
\begin{aligned}
\text { In } 2000 \mathrm{ml} & =\frac{1}{1000} \times 2000 \\
& =2 \text { liter }
\end{aligned}
$$

Example 3. Convert 300 centimeter into meter.
Sol. $\because 100$ centimeter $=1$ meter

$$
\therefore \quad 300 \text { centimeter }=\frac{1}{100} \times 300=3 \text { meter }
$$

Example 4. Convert 5000 gm into kilogram.
Sol. $\because 1000 \mathrm{gm}$ is equal to 1 kg .
$\therefore 5000 \mathrm{gm}$ is equal to

$$
=\frac{1}{1000} \times 5000=5 \mathrm{~kg}
$$

(iii) Convert 4750 gm in kg .
(iv) Convert 4750 ml into liter.
(v) Convert $2 \frac{1}{2}$ liter into milliliter.

## Exercise 15.2

1. Convert $3 \frac{1}{2}$ kilometer into meter.
2. Convert 6500 gm into kilogram.
3. Convert 2250 millimeter into liter.
4. Convert 18000 ml into liter.
5. Convert 75000 gm into kilogram.
6. Convert 2.5 liter in milliliter.
7. Convert $1 \frac{1}{2}$ kilogram into gram.
8. Convert 3 meter into millimeter.
9. How many drum of 20 liter can be filled from tank of capacity 5000 liter?
10. The holdings capacity of a box is 15 liter. Then how many boxes can be filled from 3750 liter drum?
11. The holding capacity of a box is 13 kg 500 gm . How much oil can be stored in such 48 boxes?
12. Holding capacity of a container is 15 liter, then what is capacity of such 15 container?
13. The weight of 1 oil bottle is 1 kg 750 gm , then what is the capacity of such 20 bottles.
14. Convert 5 liter 750 ml into millimeter.
15. Convert $2 \frac{3}{4} \mathrm{~km}$ into meter.

## Examination Type <br> 4. Questions

1. Convert $7 \frac{2}{5} \mathrm{~kg}$ into gram.
2. Convert 7 kg 750 gm into gram.
3. Convert 10 kg into milligram.
4. The capacity of bucket is 10 liter 500 ml , then how many bucket is required to fill a tank of 651 liter?
5. The holdings capacity of a tanker is 2000 liter. From the tanker 20 bucket of 20 liter and 10 bucket of 15 liter are taken from it, then how much water remains in the tanker?
6. There are two drum with holding capacity 25 liter and 45 liter. Find out the largest capacity by which both drum can be filled?
7. Which pots will be used by a shop keeper if he has 1 liter, 2 liter, $100 \mathrm{ml}, 200 \mathrm{ml}$ pots
(i) 2 liter 200 ml
(ii) 5 liter 500 ml
(iii) 3 liter 200 ml
8. Two cans are filled 20 and 30 liter milk. What is the measurement of largest pot by which it can be measured?
9. The holding capacity of a drum 220 liter. How much oil can be in such 340 drum?
10. Dheeraj has 864 bananas. Then how many dozen can be in these bananas if 12 pieces is equal to one dozen?
11. Fill in the blank :
(i) $1000 \mathrm{ml}=\ldots \ldots \ldots$. liter
(ii) $1 \mathrm{~cm}=\ldots \ldots \ldots \mathrm{mm}$
(iii) $100 \mathrm{~cm}=\ldots \ldots$. meter
(iv) 1000 meter $=\ldots \ldots \ldots \mathrm{km}$
(v) 1 meter $=\ldots \ldots \ldots \mathrm{mm}$
12. State True/False.
(i) 5000 meter is equal to 5 km .
(ii) 4.5 millimeter is equal to 45 cm .
(iii) $2 \frac{1}{2} \mathrm{~km}$ is equal to 2750 meter.
(iv) 1750 meter is equal to $1 \frac{3}{4} \mathrm{~km}$.

## 16

## Geometry

## - Let us Learn

Hey kids, in this chapter you will learn about
(i) Introduction of angles
(ii) Approximation process of angle measurement
(iii) $90^{\circ}$ angle, acute angles, and obtuse angles
(iv) Types of angles
(v) Measure of angles with protector

## Introduction of Angles

See carefully the figures given below :




Cross


Hand pump

Few does not revolve from its position such as your school, roof of your home. Some things does not revolve a complete round but it revolves less such as door of room, hammock, handle of hand pump. Few things revolves a complete rounds such as hands of clock, ceiling fan, etc.

## Approximation Process of Angle Measurement

When any things moves or revolves or changes its direction then an angle is created. Angle created such way tells us that how much the things has revolved.


One fourth round


Half round


One complete round

Suppose that two pencils are in up or down position then in one fourth round, half round and one complete round above conditions/situations will be created. Discuss this situation with your friend.

## Concept of Right angle (90 $)$

Have you seen the floor, walls and roof of any house. Have you seen the bending angle of walls from floor.


Figure of room

(3' O clock)

(9' O clock)

Carefully observe the clock at 3'o clock and 9'o clock the hands of clock are perpendicular (stands) on each other such we have seen between walls and floor.

Such angle between two lines is known as right angle which is represented by ${ }_{\square}$.
Let us understand the right angle with another simple experiment.

## By the Folding of Papers

Take a square shape paper fold it such a way so that each position will cover itself fold it again in same manner.


Square shape Paper


First fold


Type of first fold


Second fold


Type of second fold

Now open the paper lines intersect each other you will observe there are four angles are in the paper.
Generally corner of doors of room, book are in shape of right angle. You can use square shape sheet of paper or any square shape cartoon can be used for right angle measurement and you can judge the measurement of angle between things.

## Concept of angles less than right angle and more than right angle

Think on following figure :





(6)


Carefully observe the figures of (1) and (2). Are these angle are same as right angle of figure (3)? No. All these are less than $90^{\circ}$. The angles which are less than $90^{\circ}$ (Right angle) is known as Acute angle. Similarly, you can observe the angle in the figure (4), (5) are more than right angle. The angles which are more than right angle $\left(90^{\circ}\right)$ is known as obtuse angle.

## Activity

Search around you such shapes and corners which has Acute, obtuse and right angle. List them.
When two lines are straight to each other, then such angle is known as straight angle whose measure is $180^{\circ}$.


## Straight Line Angle

Now think on figure 6 where two lines are straight to each other such as hour hand and minute hand of clock.

## Approximation of Angle Measurement (Right angle, Acute and Obtuse Angles)

Take a transparent paper and cut a circular shape.


Now as per figure fold it and divide it two part.


Now open it and cut with a line.


Out of these any one piece can be used for angle measurement of right angle, acute or obtuse angle.


Do Yourself
Example 1. Write and identify acute, obtuse and right angle.
(a)


(b)



Edges of Acute angle $=$
Edges of Right angle =
Edges of Obtuse angle =

## Measurement of Angles by Protector

See your Geometry box in which there is half circle shape apparatus. What is the name of this apparatus? It is protector.


The protector is used for angle measurement. Angle measured by protector is in Ansh or degree whose symbol is ${ }^{\circ}$. Let us understand the protector. Whole protector is in shape of half circle which has $0^{\circ}$ to $180^{\circ}$. In the middle you find $90^{\circ}$ angle on which a straight line is appeared. This is Right angle.

NOTE Right angle means is $90^{\circ}$.
Can you define the angles on the basis of their measurement.


## Measurement of Angle by Protector

How any angle is measured with the help of protector. Let us discuss.
To measure an angle from protector we kept the protector in such a way that any edge of that angle should match with the lines of protector and start counting from there.


By seeing the angle the line is on $50^{\circ}$. Therefore the measurement of angle is $50^{\circ}$.

Measure the angle with the help of protector.


It value is $\qquad$

## Do Yourself

Example 2. Measure the following angles with the help of protector.

(a)

(b)

(c)

## Exercise 16

1. Measure the following angles with the help of protector.
(i)

(ii)

(iii)

$\qquad$
(iv)
,
(v)

(vi) $\qquad$
2. Draw the following angles with the help of protector.
(i) $20^{\circ}$
(ii) $30^{\circ}$
(iii) $45^{\circ}$
(iv) $60^{\circ}$
(v) $120^{\circ}$
(vi) $150^{\circ}$
(vii) $15^{\circ}$

## Examination Type <br> 4. Questions <br> $\qquad$

2. Measure the angles with the help of protector.

(1)

(2)

(3)
3. What is the measurement of an angle by revolving a pencil half round.


Half round
4. Identify the angles and write acute, right and obtuse angles.

(i)

(ii)

(iii)
5. By revolving a pencil for a complete round. What is value of angle made in such way.


One complete round

## 6. Fill in the blanks :

(i) The value of Acute angle is from ...... to
(ii) The value of Right angle is .........
(iii) The value of obtuse angle is from $\qquad$ to
(iv) The value of obtuse angle is more than $\qquad$ and less than $\qquad$
(v) The value of straight line angle is $\qquad$ ..

## 7. State True or False :

(i) Right angle means $90^{\circ}$.
[True/False]
(ii) Angle measured from protector is in Ansh or degree.
[True/False]
(iii) Protector is line drawing instrument.
[True/False]
(iv) The value of obtuse angle is $180^{\circ}$.
[True/False]

## 8. Multiple Choice Questions

(i) The value of angle when the hour hand of clock is on 6 and minute hand of clock is on 12 .
(a) $90^{\circ}$
(b) $120^{\circ}$
(c) $45^{\circ}$
(d) $180^{\circ}$
(ii) Protector is having half circle shape which can measure angles from $0^{\circ}$ upto
(a) $0^{\circ}$
(b) $120^{\circ}$
(c) $180^{\circ}$
(d) None
(iii) When the clock hands is on 3 and 12 then what is the value of angle between them
(a) $60^{\circ}$
(b) $90^{\circ}$
(c) $180^{\circ}$
(d) None
(iv) How many right angle will make a straight line angle.
(a) 2
(b) 3
(c) 4
(d) 5

## 17

## Brain Teasers

## Let us Learn

Hey kids, in this chapter you will learn about
(i) Introduction of brain teasers,
(ii) Calculation of brain teasers.

## Introduction of Brain Teasers

Teacher writes some exercise on the black board. He hides one digit and writes three possible answers student has to identify the write answer. Such as

$$
\begin{array}{r}
72 \\
+4 \square \\
\hline
\end{array}
$$

Answer
(a) 122
(b) 115
(c) 145

The first number is 72 and second number is less than 50 therefore total of these may not be 145 .


The number is 122 is also not possible because second number may be 49 but the total of these two is equal to
121 is not equal to 122 .
Hence, answer will be 115 .

Teacher writes another question and asked to write answer.


Answer
(a) 156
(b) 302
(c) 88


## Try These

1. Choose the correct answer.
(i)

| $4 \square 6$ |
| ---: |
| $+3 \square$ |

(a) 483
(b) 683
(c) 883
(ii)

$+1 \square 2$
(a) 495
(b) 345
(c) 265

Let us understand some thing new by doing a new exercise

| $75 \square$ |
| ---: |
| $-2 \square 5$ |

(a) 572
(b) 613
(c) 512

In this the first number is either 750 or more than 750 and less than 760 . By subtracting 205 or more from lesser number 760 we will not get result as 572 and also we will not get a result 613 there fore third option 512 is right answer.

Identify the words which will be blank boxs $\qquad$
482
(A) $+2 \square 6$
(B) $-3 \square 7$

In the (A) there will be number 5 in the blank box because by adding 8 to 5 we will get result as 5 therefore the total will be 13 in which 3 will be written in total one (1) will be carry forwarded and when we add 4 and 2 with carry (1) the total will be 7 .

$$
\begin{array}{r}
482 \\
+256 \\
\hline 738 \\
\hline
\end{array}
$$

Now try the problem (B).
The some process can be used for subtraction when we subtract 7 from a number we get 5 as result therefore $7+5=12$ which 2 will be in the one borrow from next digit therefore 2 will be in unit place 1 borrow will be borrow from next digit it will be 4 if we subtract a number we get result as 0

$$
\begin{array}{r}
652 \\
-347 \\
\hline 305 \\
\hline
\end{array}
$$

## Exercise 17.1

1. Choose the correct option :
$\begin{array}{r}5 \square 3 \\ \text { (i) }+\quad 5 \square \\ \hline\end{array}$
(A) 452
(B) 800
(C) 582
$3 \square 5$
(ii) +28
(A) 792
(B) 597
(C) 462
$47 \square 3$
(iii) $+3 \square 8 \square$
(A) 7807
(B) 6857
(C) 9803

70
(iv) $-3 \square 5$
(A) 601
(B) 121
(C) 381

(v) | 8 | $6 \quad 4$ |
| ---: | ---: |
| -5 | $\square \square$ |

(A) 272
(B) 392
(C) 202
$65 \square 1$
(vi) $\qquad$
(A) 5592
(B) 4242
(C) 2671
2. Find the number which will be in Blank Boxes.

(i) \begin{tabular}{c}
7 <br>
$+\square$ <br>
$\frac{\square 3}{\square}$ <br>
\hline $6 \quad \square$ <br>

(v) | 2 |
| :---: |
| $+2 \quad \square$ |
| $\square 0 \quad 7$ |
| $3 \square$ |

\end{tabular}

(ix) $\begin{array}{r}-\square \quad 2 \\ \hline\end{array}$
(xiii) $+\begin{array}{r}\square \\ \hline\end{array} \quad 9 \quad 2$.

(iii) $\begin{array}{r}29 \\ +3 \square \\ \hline \square 4 \\ \hline 1 \square\end{array}$


(vii) $-\frac{6}{4}$


(xv) | -8 | 9 | $2 \quad 7$ |  |
| ---: | ---: | ---: | ---: |
| 1 | 0 | $\square$ | 2 |

3. Solve the following :

(i) | 3 | $\square$ | 5 |
| ---: | ---: | ---: |
| +4 | 2 | $\square$ |
| 8 | 2 | 2 |

(ii) $\begin{array}{r}9 \quad 5 \quad \square \\ -4 \quad \square \quad 3 \\ \hline \square \quad 8 \quad 9 \\ \hline\end{array}$

## Exercise 17.2

1. Choose the correct option :
$52 \square 4$
(i) $+3 \square 6 \square$
(A) 08004
(B) 10204
(C) 08491
(ii) $+4 \quad 1 \square 3$
(A) 12852
(B) 15852
(C) 10852

(A) 4942
(B) 3942
(C) 5942
2. 25 will be multiply by which number so that the unit place and tenth place digits should be zero.
3. To get ten times of a number a number should be multiplied by which number.
4. There are how many digits. If we multiply it by 5 the unit digit will be 5 .
5. To make half of a number. The number is divided by which number.
6. Find out the number whose both digits are equal and divisible by 7 .
7. What is that number by which all numbers are divisible.
8. What process in 9 and 6 has to be alone to obtained 54 as result.

9 . What process should be used in 6 and 3 to get result 2 .
10. What is that number if we multiply a number by it result is always zero.
11. What is the smallest two digits number which is divisible by 2 and 3 .
12. What process should be used in numbers 12 and 7 to get result as 84 .
13. What process should be used in numbers 15 and 45 to obtained result as 3 .
14. 45 should be multiplied by which two different numbers so that unit place digit will be 5 .
15. Find out the smallest two digit number which is divisible by 4 and 6 .

## Examination Type <br> 4. Questions

1. Write the digits in blanks :

$$
\begin{array}{r}
29 \\
+3 \square \\
\hline \square 4 \\
\hline
\end{array}
$$

2. Write the digits in blanks:

$$
\begin{array}{r}
47 \\
+2 \square \\
\hline \square 2
\end{array}
$$

3. If sum of two number is 7678 and one number is 4613 then find out second number.
4. Write the digits in blank.

| 59 |
| ---: |
| $-2 \quad \square$ |
| $\square 4$ |

5. Write the digits in blanks:

$$
\begin{array}{r}
7 \square \\
-\quad 33 \\
\hline 54 \\
\hline
\end{array}
$$

## 6. State True or False :

(i) If we multiply any number with zero, then result is always zero.
(ii) If we multiply any number with 1, then result always remains same.
(iii) If we divide 15 by a number 3 , then the result is 5 .
(iv) When we subtract 0 from a number, then the result is changed.
(v) To get four times of a number, we multiply a number by 4.

## 7. Objective Type Questions

(i) The sum of two number is 6549 if one number is 3269 , then the second number will be
(a) 2280
(b) 1880
(c) 3280
(d) 1492
(ii) The product of two number is 24 if one number is 6 , then second number will be
(a) 6
(b) 4
(c) 5
(d) 2
(iii) The product of two number is 15 if one number is 5 , then second number would be
(a) 5
(b) 3
(c) 12
(d) 18
(iv) The number when divided by a number result remains same, then the number is multiplied by same number and result remains same.
(a) 0
(b) 1
(c) 2
(d) 3
8. Fill in the Blanks :
(i) Brain teasers is used in during $\qquad$ .
(ii) The number is when multiplied by 1 the result $\qquad$ . .
(iii) When a number is multiplied by zero, then the result is always
(iv) The number is halved, then the number is divided by $\qquad$ . .

## Answer Key

## Chapter 1 Numbers

## Exercise-1

1. (i) 1600
(ii) 5042
(iii) 7986
(v) 97480
2. (i) Twenty Four Thousand Fifty Six
(ii) Forty Thousand Nine
(iii) Ninety Nine Thousand Nine Hundred Ninety Nine
(iv) Eighty Thousand Five Hundred Eleven
(v) Sixty Seven Thousand Seven Hundred Twenty Five.
3. (i) $10000+2000+300+70+2$
(ii) $20000+3000+400+30+4$
(iii) $40000+5000+300+00+2$
(iv) $70000+5000+000+00+4$
(v) $60000+8000+800+70+7$
4. (i) 45772
(ii) 60026
(iii) 39908
(iv) 52811
(v) 80008
5. (i) 50000
(ii) 3000
(iii) 400
(iv) 50
(v) 2
(vi) 90000,20
6. (i) $6 ; 20000$
(ii) 6000,$60 ; 200$
(iii) 60,$6 ; 2000,200$
(iv) $60000 ; 200,2$
(v) $60 ; 2000$
7. (i) $>$
(ii) <
(iii) $=$
(iv) <

## (v) $=$

(vi) $>$
8. 10457,75410
9. (i) $25975,26886,30840,37725,40021$
(ii) $53907,57039,57903,59307,59703$
(iii) $74344,74434,74443,77444,77555$
10. (i) $51425,50925,42325,41525,34152$
(ii) $86067,85032,82511,81316,81154$
(iii) $76543,76435,74653,74356,73456$

## Examination Type Questions

1. 10258,85210
2. (i) True,
(ii) False
(iii) True
(iv) True
3. 34678,87643
4. (i) False, (ii) False, (iii) True (iv) True
5. 10457,75410
6. (i) False, (ii) True
(iii) True,
(iv) False
7. 12349, 94321
8. (i) True,
(ii) False,
(iii) False
(iv) True
9. (i) $41839,41893,43981$
(ii) 1988, 19806, 19888, 19900
10. (i) True (ii) False, (iii) False
(iv) False

## Chapter 2 Addition and Subtraction

## Exercise-2

1. (i) 3998
(ii) 9060
(iii) 9221
(iv) 7031
(v) 2448
(vi) 3505
(vii) 1049
(viii) 1149
2. (i) 9632
(ii) 9793
(iii) 7750
(iv) 10000
3. (i) 3104
(ii) 2410
(iii) 1001
(iv) 358
4. 10998
5. ₹ 6500
6. 349
7. 3065
8. ₹ 3900
9. 3271
10. (i) ६९२२
(ii) ७२२८
(iii) १०४९९
(iv) ८२६९
(v) ७७३
(vi) 40 C
(vii) १०७६
(viii) १८९९
11. ₹ ९२०૪
12. ช९०
13. ५८く६३
14. ૪११ m
15. १०९९९
16. ७०
17. 13423
18. 2436
19. ₹ 960
20. ₹ 210
21. 670
22. ₹13063
23. 3678

## Examination Type Questions

1. 

| Column 'A' | Column 'B' |
| :---: | :---: |
| $171+21$ | 192 |
| $165-30$ | 135 |
| $2086-6$ | 2080 |
| $19+113$ | 132 |

2. (i) 9288 (ii) 744
3. 

| Column 'A' | Column 'B' |
| :---: | :---: |
| $144+15$ | 159 |
| $125+25$ | 150 |
| $216+118$ | 334 |
| $2587-7$ | 2580 |

4. (i) 6395
(ii) 3509
5. 602
6. 

| Column 'A' | Column 'B' |
| :---: | :---: |
| १७,२૪く | १ Hundred $૪$ tens, ८ ones, ७ thousands $१$ ten thousands |
| ६६,२६૪ | Six ten thousand, six thousand two hundred six tens four ones. |
| く२,000 | Eighty two thousand |
| ३०४१ | $३ ० 0 ०+\gamma ०+?$ |

7. 70
8. 

| Column 'A' | Column 'B' |
| :---: | :---: |
| $133-13$ | 120 |
| $2018+18$ | 2036 |
| $213+287$ | 500 |
| $50-8$ | 42 |

9. 1
10. 

| Column 'A' | Column 'B' |
| :---: | :---: |
| $18+112$ | 130 |
| $2072-12$ | 2060 |
| $162-22$ | 140 |
| $170+30$ | 200 |

## Chapter 3 Multiplication and Division

## Exercise-3.1

1. (i) 35750
(ii) 143524
(iii) 242060
(iv) 399600
(v) 172494 (vi) 368445
(vii) 316827 (viii) 506155
(ix) 507832 (x) 799200
2. (i) २२५८०८ (ii) १८५९०० (iii) २१८००० (iv) ३९०५૪૪ (v) ૪०૪९९६
3. 10125
4. ₹ 90750
5. 74800 litre
6. ₹ 200688
7. 111825
8. 258672
9. ₹ 35000
10. ₹ 10,500
11. 27776 Trees
12. 21280

## Exercise-3.2

1. 

|  | (i) | (ii) | (iii) | (iv) | (v) | (vi) | (vii) | (viii) | (ix) | (x) |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Q | 17 | 26 | 40 | 54 | 17 | 27 | 28 | 47 | 28 | 27 |
| R | 0 | 0 | 0 | 0 | 0 | 14 | 0 | 1 | 12 | 0 |

2. 

|  | (i) | (ii) | (iii) | (iv) | (v) |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Q | ३६ | २९ | २६ | २७ | २૪ |
| R | $\circ$ | $\circ$ | $\circ$ | $५$ | १७ |

3. ₹ 18
4. 72 dozen
5. 26
6. 13 m, ₹ 10
7. 27
8. 78
9. ₹ 12
10. 22 oranges

## Examination Type Questions

1. ₹ 46,150
2. 1068
3. 9 m
4. 86400 seconds
5. 51840 beats in 12 hour.
6. ₹ 125
7. 8

## Chapter 4 Vedic Mathematics

## Exercise-4.1

1. 28
2. 18
3. 5
4. 199
5. 257
6. 69
7. 1626
8. 3367
9. 267
10. 1192

## Exercise-4.2

1. 68
2. 191
3. 197
4. 727
5. 3024
6. 1264
7. 4796
8. 146
9. 5104
10. 715

## Exercise-4.3

1. (i) +4
(ii) +1
(iii) -2
(iv) -1
(v) +3
(vi) +9
(vii) -3
(vii) -4

## Exercise-4.4

1. 108
2. 180
3. 221
4. 72
5. 154
6. 144
7. 156
8. 130
9. 240
10. 216

## Examination Type Questions

1. 168
2. 197
3. 257
4. $7,5,1$
5. 255
6. 176
7. (i) -5
(ii) -2
(iii) +3

## Chapter 5 Multiples and Factors

## Exercise-5.1

1. (i) $8,12,16,20$
(ii) $14,21,28,35$
(iii) $28,42,56,70$
(iv) $38,57,76,95$
2. (i) $5,(9),(3), 13,(18)$ (ii) (45), $11,(10), 22$, (55) (iii) (12), 36, $32,48,18$
(iv) $25,35,15,40,(45$
3. $6,12,15,18$, 24,, 30
4. $14,21,28$
5. $28,32,36$
6. 10
7. 24. 
1. 90
2. $21,24,27,30,33$
3. 30
4. (i) $12,18,24,30$
(ii) $16,24,32,40$
(iii) $30,45,60,75$
(iv) $38,57,76,95$
5. Multiples of $9: 9,18,27,36,45,54,63,72,81,90,99$, $108,117,126,135,144,153,162$,
Multiples of $6: 6,12,18,24,30,36,42,48,54,60,66$, 72, 78, 84, 90, 96, 102, 108
Common Multiples : 18, 36, 54, 72, 90.

## Exercise-5.2

1. (i) 1,7
(ii) $1,3,9$
(iii) $1,2,4,8,16$
(iv) $1,5,25$ (v) $1,2,4,6,8,12,16,24,48$
(vi) $1,3,7,9,21,63$
2. (i) $1,2,4$
(ii) $1,2,5,10$ (iii) 1
(iv) 1,2
3. 7
4. 15
5. 6
6. 3
7. 10 liter
8. (i) 2
(ii) 6

## Examination Type Questions

1. 5 liter
2. 6
3. 10
4. $10,15,20,25,30$
5. $24,27,30$
6. 5

## Chapter 6 Understanding Fractions

1. (i) <
(ii) $=$
(iii) <
2. (i)

(ii)

(iii)

(iv)

3. (i) Three Fourth
(ii) One and Two Fifth (iii) Two and three Fifth
4. 


5.

6. (i) $\frac{3}{8}$ Three Eighth $\quad$ (ii) $\frac{2}{4}$ Two Fourth

(ii) $3+\frac{3}{4}$

(iii)

8. (i) $1+\frac{3}{5}$
(ii) $5+\frac{7}{8}$
(iii) $8+\frac{3}{7}$
(iv) $51+\frac{3}{5}$
(v) $53+\frac{2}{3}$

## Examination Type Questions

1. (b)
2. (d)
3. (d)
4. (d)
5. (a)
6. (b)
7. (c)
8. (d)
9. (b)
10. (c)
11. 


12. Four-eighth (4/8) or shaded part is $1 / 2$ of the whole.

## Chapter 7 Equivalent Fractions

## Exercise-7

1. (i) $\frac{2}{4}$
(ii) $\frac{4}{6}$
(iii) $\frac{2}{10}$
(iv) $\frac{4}{10}$
(v) $\frac{4}{14}$
2. (a) Yes
(b) No
(c) No
(d) Yes
(e) Yes
(f) No
3. (i) $\frac{3}{12}$
(ii) $\frac{9}{15}$
(iii) $\frac{6}{15}$
(iv) $\frac{6}{21}$
(v) $\frac{3}{18}$
4. (i) $\frac{2}{8}, \frac{3}{12}, \frac{4}{16}$
(ii) $\frac{4}{6}, \frac{6}{9}, \frac{8}{12}$
(iii) $\frac{4}{10}, \frac{6}{15}, \frac{8}{20}$
(iv) $\frac{6}{8}, \frac{9}{12}, \frac{12}{16}$
5. (i) $\frac{3}{9}, \frac{4}{12}$ $\qquad$ .etc., $\frac{4}{6}, \frac{6}{9}$ $\qquad$ .etc.
6. (i)

(ii)

$\frac{1}{5}$

$\frac{3}{15}$
7. (i) 3
(ii) 6
(iii) 3
(iv) 24
(v) 2
(vi) 4
8. (a) $\frac{4}{3}, \frac{6}{9}, \frac{8}{12}, \frac{10}{15}$
(b) $\frac{6}{8}, \frac{3}{12}, \frac{12}{16}, \frac{15}{20}$
(c) $\frac{6}{10}, \frac{9}{15}, \frac{12}{20}, \frac{15}{25}$
(d) $\frac{10}{12}, \frac{15}{18}, \frac{20}{24}, \frac{25}{30}$
(e) $\frac{4}{14}, \frac{6}{21}, \frac{8}{28}, \frac{10}{35}$
9. $\frac{4}{16}, \frac{5}{20}, \frac{6}{24}, \ldots \ldots$ etc
10. $\frac{2}{10}, \frac{3}{15}, \frac{4}{20}, \frac{5}{25}$
11. $\frac{6}{4}$ or $\frac{3}{2} \mathrm{~m}$
12. $2 \frac{1}{2} \mathrm{~m}$

## Examination Type Questions

1. $\frac{4}{6}, \frac{6}{9}, \frac{8}{12} ; \frac{2}{14}, \frac{3}{21}, \frac{4}{28}$
2. (i) $\frac{3}{12}$
(ii) $\frac{9}{15}$
(iii) $\frac{6}{15}$
(iv) $\frac{6}{21}$
(v) $\frac{3}{18}$
3. (i) 3
(ii) 6
(v) 2
(vi) 4
(iii) 3
(iv) 24
4. (i) $\frac{2}{8}, \frac{3}{12}, \frac{4}{16}$
(ii) $\frac{4}{8}, \frac{6}{9}, \frac{8}{12}$

## Chapter 8 Pattern

## Exercise-8

1. 


2. (i) 27,32
(ii) 50,60
(iii) 9,4
3. (i)

(ii)

4. (i)

(ii)

(iii)

5.

6. 36
7. $36+13=49$
$49+15=64$
$64+17=81$

## Examination Type Questions

1. $\qquad$ 2. (i) 22,26
(ii) 11,5
2. 


4. (i) 3,0
(ii) 15,17
5.

6.

7. $\longrightarrow$
8. (i) 27,32 (ii) 50,60
9.

10.


## Chapter 9 Data

## Exercise-9

2. (i) Sunday, 83
(ii) Mon-52, Fri -52 , Diff. - 1
3. Let 1000 match-box are represented by .

Now, the required pictograph is given below :

| Months | Number of match-boxes produced |  |
| :--- | :--- | :--- |
| March | April |  |
|  |  |  |


(a) 6000
(b) 4000
(c) 5000
(d) 1000
5. (i) Churu
(ii) Bikaner and Kota
(iii) $35^{\circ} \mathrm{C}$.

## Examination Type Questions

1. (a)
2. (b)
3. (d)
4. (c)
5. (b)
6. 


7.

10.


## Chapter 10 Currency

## Exercise 10.1

$\begin{array}{ll}\text { 1. ₹ } 3212.75 & \text { 2. ₹ } 1453.25\end{array}$
4. ₹ 2750.40
5. ₹ ५५८.९。
6. ₹ ४८८२.५० 7. ₹ 8962.15
3. (i) ₹ 6828.25
(ii) ₹ 8124.00
(ii) ₹ 15291.50
(iv) ₹ 13807.68
8. ₹ 5215.20
9. ₹ 55926.00
10. ₹ 105818.77

## Exercise 10.2

## 1. Bill/Cash Memo

| Bill No.-428 |  |  |  | Date-29/10/15 |
| :---: | :---: | :---: | :---: | :---: |
| Vasudeva Milk Dairy Kota |  |  |  |  |
|  |  |  |  |  |
| Name and address : Hement, Kota |  |  |  |  |
| S.N. | Items | Quantity | Rate | Amount |
| 1. | Milk | 8 litre | ₹ 40.25 | ₹ 322 |
| 2. | Curd | 3 kg | ₹ 60 | ₹ 180 |
| 3. | Ghee | 2 kg | ₹ 450 | ₹ 900 |
| 4. | Buttermilk | 5 kg | ₹ 20.75 | ₹ 103.75 |
| One thousand five hundred five and seventy five only |  |  | Total | ₹ 1505.75 |
| 1. Errors and Omissions accepted. <br> 2. Goods once sold not be taken back. |  |  |  |  |
|  |  |  |  | Sign. |


\section*{2. <br> Bill/Cash Memo <br> Bill No.-108 | Unnat Beej Bhandar |
| :---: |
| Kanpur |}

Name and address : Bheemraj

| S.N. | Items | Quantity | Rate | Amount |
| :---: | :---: | :---: | :---: | :---: |
| 1. | Maize seeds | 5 kg | ₹ 37.25 | ₹ 186.25 |
| 2. | Urea | 35 kg | ₹ 45 | ₹ 1575.00 |
| 3. | Insecticide | 1 litre | ₹ 235 | ₹ 235.00 |
| One thousand nine hundred ninty six and twenty five only. |  |  | Total | ₹ 1996.25 |

> 1. Errors and Omissions accepted.
> 2. Goods once sold not be taken back.

Sign.
3. Cost of soap calculated wrong.

Correct bill is as following :
Bill/Cash Memo

| Bill No.-568 |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: |
| Mamta General Store <br> Mahaveen Nagar, Karauli |  |  |  | Date-25/10/15 |
| Name and address : Manu, Karauli |  |  |  |  |

4. Total of washing power, namkeen and oil is calculated wrongly.

## Bill/Cash Memo

| Bill No.-547 |  |  |  | Date-22/10/15 |
| :---: | :---: | :---: | :---: | :---: |
| Manoj Provision Store Kanvas |  |  |  |  |
| Name : Smt. Meera |  |  |  |  |
| S.N. | Items | Quantity | Rate | Amount |
| 1. | Washing Powder | 2 kg | ₹ 77.25 | ₹ 154.50 |
| 2. | Namkeen | 3 kg | ₹ 140 | ₹ 420.00 |
| 3. | Salt | 5 kg | ₹ 25.20 | ₹ 126.00 |
| 4. | Oil | 2 liter | ₹ 75.40 | ₹ 150.80 |
| Eight hundred fifty one and thirty only. |  |  | Total | ₹ 851.30 |
| 1. Errors and Omissions accepted. <br> 2. Goods once sold not be taken back. |  |  |  |  |
|  |  |  |  |  |  |

## Examination Type Questions

## 1. <br> Bill/Cash Memo



1. Errors and Omissions accepted.
2. Goods once sold not be taken back.

Sign.
2.

Bill/Cash Memo

| Bill No.-126 |  |  |  | Date-12/5/15 |
| :---: | :---: | :---: | :---: | :---: |
| Raj Provision StoreJaipur |  |  |  |  |
| S.N. | Items | Quantity | Rate | Amount |
| 1. | Washing Powder | 12 kg | ₹ 77.25 | ₹ 927 |
| 2. | Namkeen | 13 kg | ₹ 140 | ₹ 1820 |
| 3. | Salt | 25 kg | ₹ 25.20 | ₹ 630 |
| 4. | Oil | 20 liter | ₹ 75.40 | ₹ 1508 |
| Four thousand eight hundred and eighty five only. |  |  | Total | ₹ 4885 |
| 1. Errors and Omissions accepted <br> 2. Goods once sold not be taken back. |  |  |  |  |

3. Amount calculated for soap and butter is wrong. For soap :

$$
₹ 6 \times 3=₹ 18
$$

For Butter,

$$
₹ 32 \times 2=₹ 64
$$

4. Hint : Amount calculated for butter milk, soap and chilli souce is wrong.

For Buttermilk,

$$
₹ 32.50 \times 2=₹ 65
$$

For Soap,

$$
₹ 8 \times 3=₹ 24
$$

For Chilli Souce,

$$
₹ 110 \times 2=₹ 220
$$

## Chapter 11 Time

## Exercise-11.1

1. (i) 75
(ii) 150
(iii) 345
(iv) 192
(v) 270
(vi) 390
(vii) $8 \frac{1}{6}$
(viii) $4 \frac{2}{3}$
(ix) $2 \frac{11}{12}$
(x) $14 \frac{1}{3}$

## Exercise-11.2

1. (i) 1200
(ii) 390
(iii) 915
(iv) 14400
(v) 9900
(vi) 27000
(vii) $\frac{590}{72}$
(viii) $7 \frac{5}{8}$
(ix) $20 \frac{11}{12}$
(x) $41 \frac{1}{4}$

## Exercise-11.3

1. (i) 636
(ii) 8100
(iii) 12
(iv) 100
2. (i) 6 hour 52 min
(ii) $19 \mathrm{~min}, 10 \mathrm{sec}$
(iii) 11 hour $37 \min 50 \mathrm{sec}$
(iv) 15 hour $16 \min 54 \mathrm{sec}$
3. (i) 2 hour 46 min
(ii) $3 \min 50 \mathrm{sec}$
(iii) 6 hour 33 min
(iv) 9 hour 50 min
4. 9 hour 15 min
5. 56 min
6. Mohan, 42 min
7. 7 hour 5 min
8. 6 hour 1 min
9. (i) False
(ii) True
(iii) True
(iv) False

## Examination Type Questions

1. (i) (c)
(ii) (b) (iii) (b)
(iv) (c)
2. (i) Ture
(ii) True
(iii) False
(iv) True
(v) True
(vi) True
(vii) False
(viii) False
(ix) True
(x) True
(xi) False
(xii) True
(xiii) False(xiv) False
(xv) False
3. (i) 3600
(ii) 86,400
(iii) 360
(iv) 1440

## Chapter 12 Weight

## Exercise-12.1

1. (i) $\frac{1}{5}$
(ii) $\frac{2}{5}$
(iii) $1 \frac{1}{4}$
(iv) $\frac{3}{4}$
(v) $1 \frac{1}{2}$
2. 1250 gm
3. 1750 gm
4. 5500 gm
5. 1500 gm

## Exercise-12.2

1. 4 kg 750 gm
2. 1 kg 250 gm
3. 1 kg 780 gm
4. 24 Packets
5. 9 kg wheat
6. 12 kg 600 gm
7. (i) 3500
(ii) 3400
(iii) 4750
(iv) 2200
8. (i) $1 \frac{1}{2}$
(ii) $2 \frac{1}{4}$
(iii) $\frac{1}{10}$
(iv) $4 \frac{3}{4}$
9. (i) False
(ii) True
(iii) True
(iv) False
10. 401 kg 250 gm 12.3 kg 200 gm
11. 8 kg 250 gm

## Examination Type Questions

1. (i) (b)
(ii) (a)
(iii) (b)
(iv) (c)
(v) (a)
2. (i) 1000
(ii) $2 \frac{1}{2}$
(iii) $1 \frac{1}{2}$
(iv) 2200
(v) $3 \frac{1}{10}$
(vi) 7450
3. (i) False
(ii) True
(iii) False
(iv) True

## Chapter 13 Measurement (Length)

## Exercise-13

1. (i) 12000
(ii) 10500
(iii) 2525
(iv) 1575
(v) 42
(vi) 18
2. (i) 1.2
(ii) 2.25
(iii) 5
(iv) 9.5
(v) 1.5
(vi) 17.5
3. 14 km 600 m
4. 13 km 400 m
5. 68 km 100 m
6. 15 km 600 m

## Examination Type Questions

1. (i) (b)
(ii) (b)
(iii) (b)
(iv) (c)
2. (i) 15000
(ii) 1
(iii) 120
(iv) $2 \frac{1}{4}$
(v) 1200000
3. (i) True
(ii) False
(iii) True
(iv) False (v) False
$\begin{array}{ll}\text { 4. } 5.15 \mathrm{~m} & \text { 5. } 3.900 \mathrm{~km} \text { 6. } 2 \mathrm{~m} 85 \mathrm{~cm}\end{array}$
4. 4 m 55 cm
5. 10 m 250 cm

## Chapter 16 Geometry

## Exericse-16

1. Do yourself.
2. Do yourself.

## Examination Type Questions

1. Obtuse
2. $180^{\circ}$
3. (i) All acute angles
(ii) One right angle and two acute angles
(iii) All right angles
4. $360^{\circ}$
5. (i) $0^{\circ}$ to less than $90^{\circ}$
(ii) $90^{\circ}$
(iii) more than $90^{\circ}$ and less than $180^{\circ}$ (iv) more than $90^{\circ}$ and less than $180^{\circ}$
(v) $180^{\circ}$
6. (i) True
(ii) True
(iii) True
(iv) False
7. (i) (d)
(ii) (c)
(iii) (b)
(iv) (a)

## Chapter 17 Brain Teasers

## Exercise-17.1

1. 
2. (i) +6
(ii) +4
$\begin{array}{cc}\text { (iv) (c), (v) (a) } & \text { (vi) (b) } \\ 29 & 2 \boxed{1}\end{array}$
. (i) (c), (ii) (b), (iii) (a),
(i) $\begin{array}{r}+6 \\ \underline{\boxed{1]} 3} \\ 6[ \end{array}$
$\boxed{12}$
(iii) +35
(iv) $\begin{array}{r}+85 \\ \boxed{106} \\ \boxed{5} 8\end{array}$

$\begin{array}{rrr}3 \boxed{7} & \begin{array}{r}485 \\ \text { (ix) } \\ -\frac{32}{5} \\ -5\end{array} & \left.\text { (x) } \begin{array}{r}-251 \\ 2 \boxed{3} 4 \\ \hline\end{array}\right)\end{array}$

$$
\text { (xv) } \begin{array}{r}
-8927 \\
1072 \\
\hline
\end{array}
$$

3. (i) $\begin{array}{r}395 \\ +427 \\ \hline 822 \\ \hline\end{array}$ (ii) $\begin{array}{r}952 \\ -463 \\ \boxed{489} \\ \hline\end{array}$

## Exercise-17.2

1. (i) (c),
(ii) (a),
(iii) (c)
(iv) (b)
(v) (c)
(vi) (b)
2. 4 or 8
3. 10
4. $5 .(1,3,5,7,9)$
5. 2
6. 77
7. 1
8. Multiplication
9. Division
10. Zero (0)
11. 12
12. Multiplication
13. Division
14. 3 and 5
15. 24

## Examination Type Questions

| 29 | 47 |  | 59 |
| :---: | :---: | :---: | :---: |
| 1. +35 | 2. +2 5 | 3. 3065 | 4. -25 |
| 64 | 72 |  | 54 |
| 77 |  |  |  |
| 5. -2 3 |  |  |  |
| 54 |  |  |  |
| 6. (i) True <br> (v) True | (ii) True | (iii) True | (iv) False |
| 7. (i) (c) | (ii) (b) | (iii) (b) | (iv) (b) |
| 8. (i) Calculations |  | (ii) Remains same |  |
| (iii) Zero |  | (iv) 2 |  |

