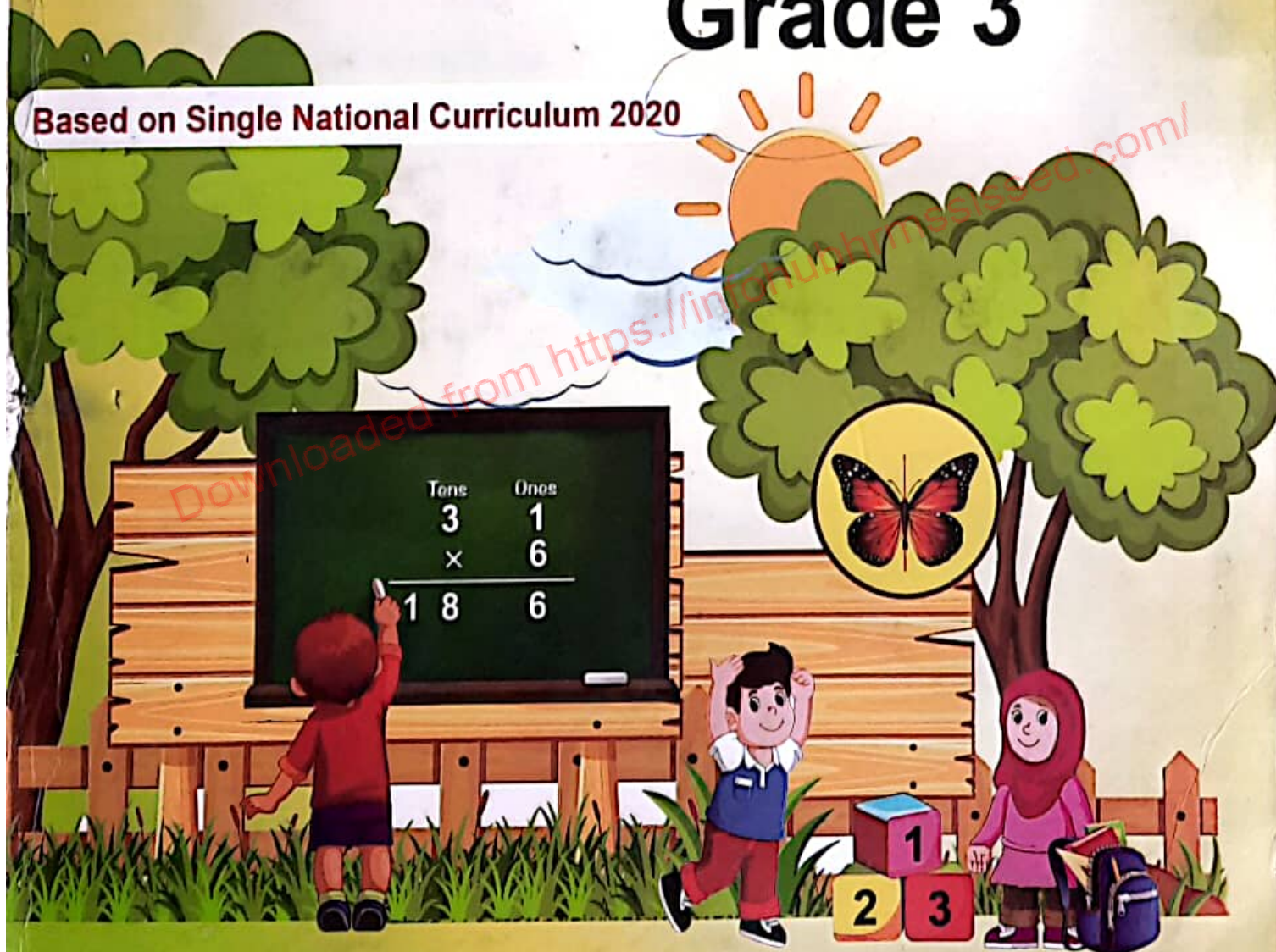


2021-22

# Mathematics

## Grade 3

Based on Single National Curriculum 2020



EDUCATION REFORMS PROGRAMME  
GOVERNMENT OF THE PUNJAB





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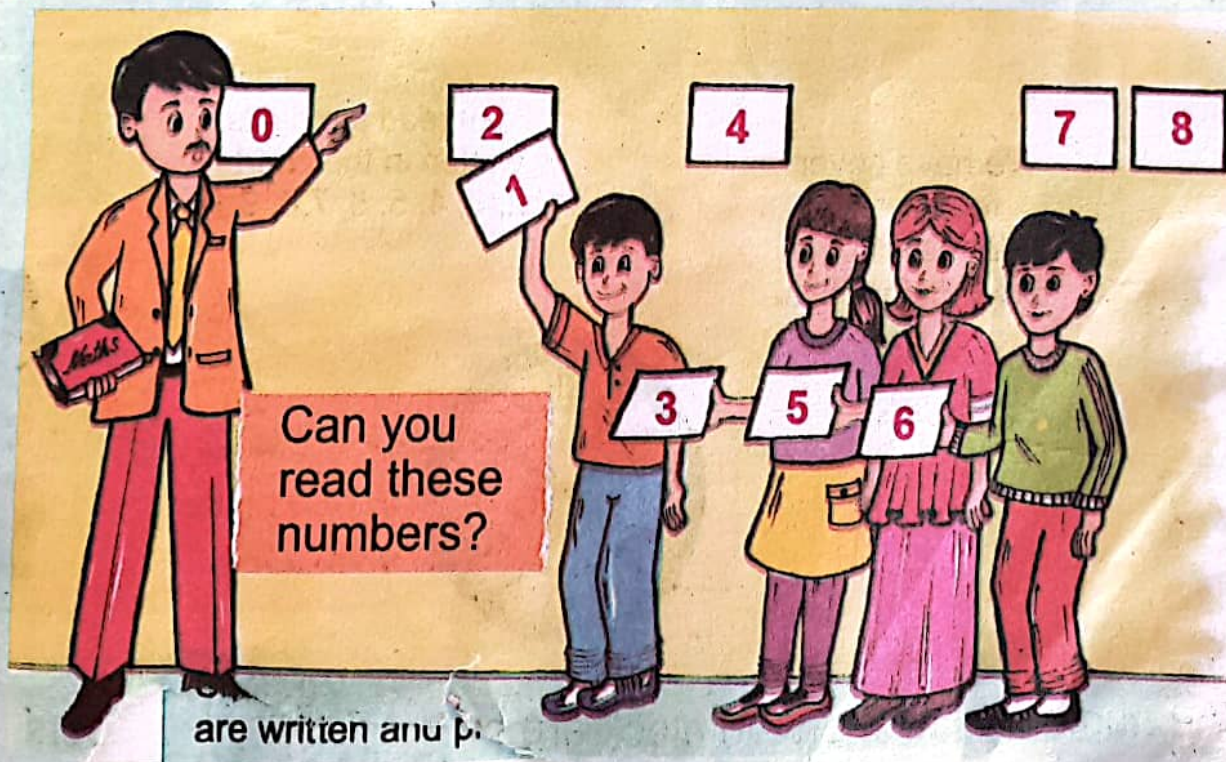
# Unit 1

# Whole Numbers

## Learning Outcomes

After completing this unit, you will be able to:

- Read Roman numbers up to 20.
- Write Roman numbers up to 20.
- Recognize even and odd numbers up to 99 within a given sequence.
- Differentiate between even and odd numbers within a given sequence.
- Identify the place values of numbers up to 5-digit
- Read and write given numbers up to 100 000 in numerals and words
- Represent a given number on number line up to 2-digit numbers.
- Identify the value of a number from number line up to 2-digit numbers.
- Compare two numbers up to 3-digit using symbols " $<$ ", " $>$ ", or " $=$ ".
- Write the given set of numbers in ascending and descending order.
- Round off a whole number to the nearest 10 and 100

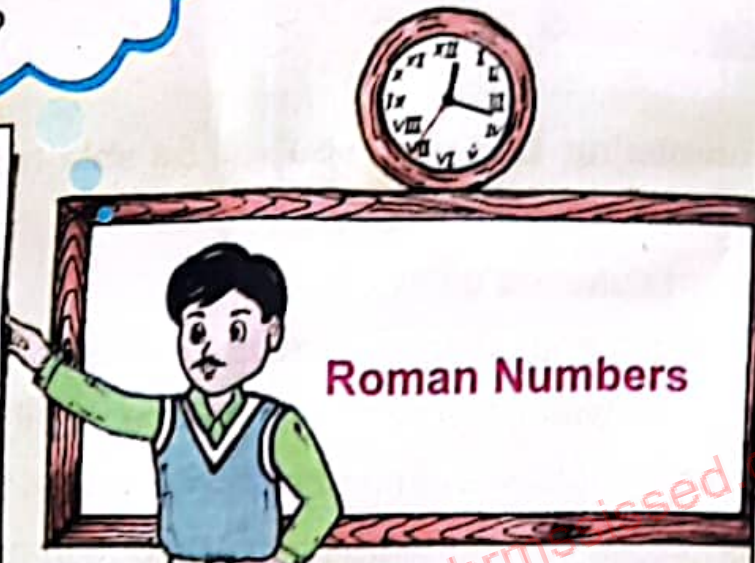




# Roman Numbers

Who can read the digits written in the chart?

1
2
3
4
5
6
7
8
9
10



I	=	1
II	=	2
III	=	3
IV	=	4
V	=	5
VI	=	6
VII	=	7
VIII	=	8
IX	=	9
X	=	10



We have never read these numbers on the watch before this.

I can read the digits written in the chart 1, 2, 3, 4, 5, 6, 7, 8, 9, 10



The numbers given on the clock are 2200, G.B PWWB Quarters. 21,177 4,258 9,41,97.



Roman Numbers can be read as.



Read the Roman numbers  
V, VII, IX and X



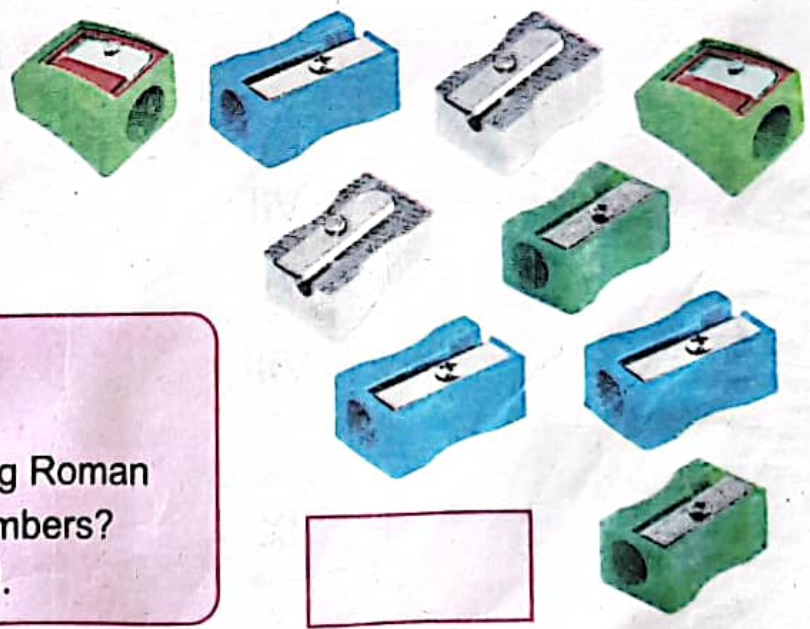
V is called 5  
VII is called 7  
IX is called 9  
X is called 10

I	=	1
II	=	2
III	=	3
IV	=	4
V	=	5
VI	=	6
VII	=	7
VIII	=	8
IX	=	9
X	=	10



Count sharpeners and write in Roman numbers.

**Check Point**  
Can you write the value of IIV and VIII?



**Try yourself**  
Can you write the following Roman numbers in numeral numbers?  
IIV, IIX, IX and VII.

**Teaching Point** Show/give different objects to the children on which roman number are written and practice them reading of Roman numbers.





# Roman Numbers upto 20

Numbers	Roman Numbers	Numbers	Roman Numbers
1	I	11	XI
2	II	12	XII
3	III	13	XIII
4	IV	14	XIV
5	V	15	XV
6	VI	16	XVI
7	VII	17	XVII
8	VIII	18	XVIII
9	IX	19	XIX
10	X	20	XX



Write the time by looking at the clocks.





Write the missing Roman numbers in blank boxes.

I	ii	III	iv	V	VI	vii	viii	ix	X
XI	xii	xiii	xiv	XV	xvi	xvii	xviii	xix	XX

## Exercise 1



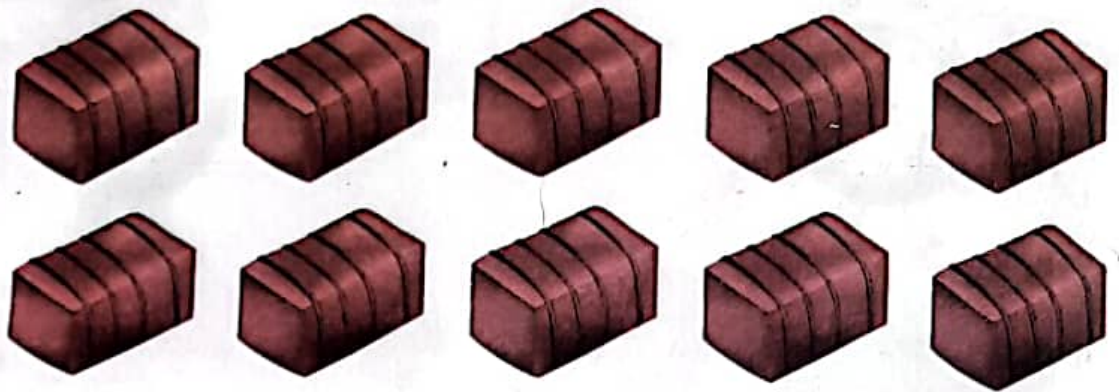
1 Write in the Roman Numbers.

2 =	5 =
7 =	9 =
12 =	16 =
19 =	20 =

**Teaching Point** Give different cards to the children on which digits numbers and Roman numbers are written. To recognize numbers from them.



2  Count the chocolates and write in Roman numbers.




10

3  Count the given figures and write in Roman numbers.



6

4  Write the missing numbers.





# Even and Odd Numbers













To understand even and odd numbers, count the beads in pair of 2.

What are the even and odd numbers?



Count the beads in pairs.

1. 
2. 
3. 
4. 
5. 
6. 
7. 
8. 
9. 
10. 

**Key Fact**

The numbers which are divisible by 2 are called even numbers.


**Key Fact**


The numbers which are not divisible by 2 are called odd numbers.


The number of beads which are in pairs are called even numbers, and the beads that are not in pairs are called odd numbers.




**Odd**


1 → 


3 → 


5 → 

**Even**

2 → 

4 → 

6 → 

 Count the following objects and write even / odd in the given box.



4



3



3

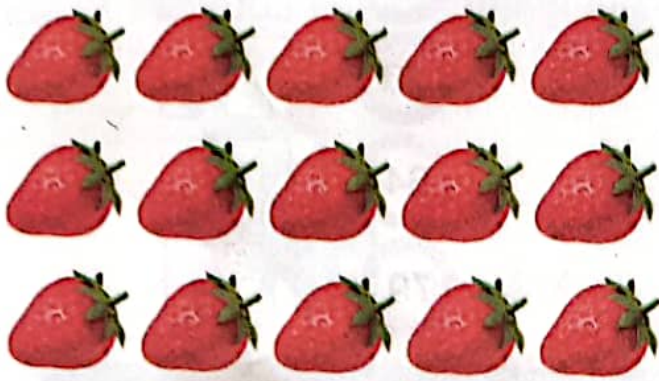


2

**Teaching Point** Help the students to divide them into pairs. If the students divide into pairs then they are even otherwise odd.



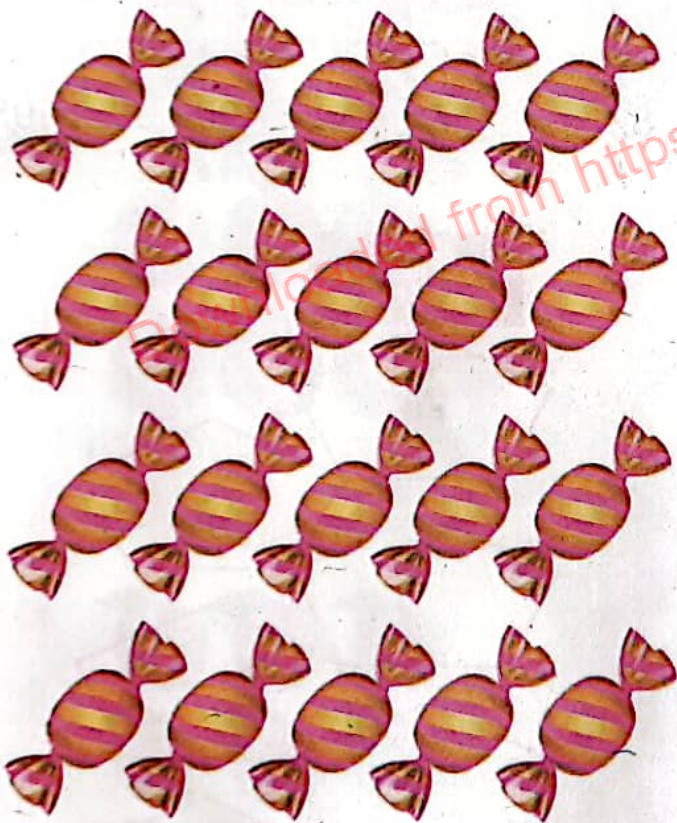
Count the following objects and write even and odd in the given box.



۱۹۶۱۵



۶



۲۰



۳





Write even or odd in front of the given numbers.

2	جفت Even	15	طاق Odd
9	طاق	23	طاق
16	جفت	64	جفت
42	جفت	79	طاق



Separate the even and odd number from the given numbers.

8	12	25	31	40	54	67
41	76	53	82	71	90	95

**Even**

8

**Odd**

25





# Exercise 2

1 Write the number of the following objects and identify whether they are even or odd numbers.



3    Odd



11    Odd



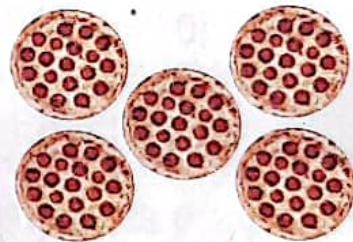
4    Even



2    Even



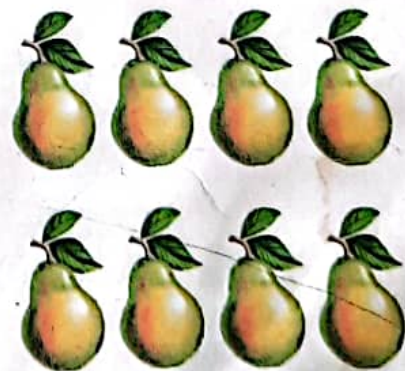
6    Even



5    Odd




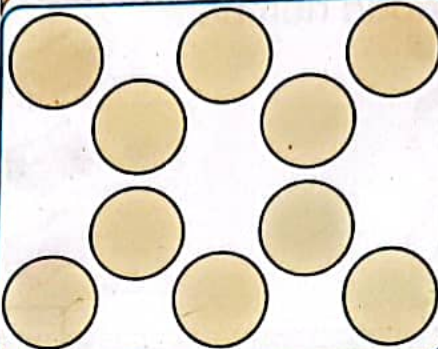
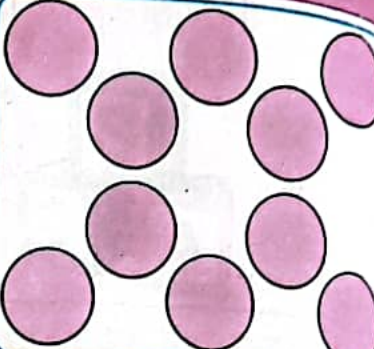
9    Odd



8    Even



2  Identify even and odd from the given numbers and write them separately in the boxes provided.

Numbers	Even	Odd
1 8 7 10 23		
14 15 30 35 42		
55 65 68 72 79		
82 83 91 96 100		

3  Write the odd numbers in between the given numbers.


(i) 4 and 16

(ii) 20 and 34

4  Write the even numbers in between the given numbers.

(i) 1 and 10

(ii) 21 and 35

5  Separate the even and odd numbers from the following:

 2	 5	 9	 18	 21	 28	 35
 56	 67	 73	 79	 80	 84	 87
 90	 93	 94	 95	 97	 98	 100



# Place Values of Numbers up to 5 digits

Yesterday, my elder brother asked me about the place values of numbers, how can we find place value?



Give the cards to the children to make a number and find out the place value of each one and then change the place of these cards to make a new number, and find its place value and then change cards with other children.

The teacher called four children and gave them hats on which ones, tens, hundreds and thousands are written and also gave them cards. Find out the value of each digit.



Thousands	Hundreds	Tens	Ones
8	3	1	3
<b>13</b>			



the greatest 4-digit number is 9 999.

By adding 1 in 9999 we get 10 000.  
It is first 5-digit number. It can be written in place value chart as:

$$\begin{array}{r} 9\ 9\ 9\ 9 \\ + \quad 1 \\ \hline 10\ 000 \end{array}$$

Ten Thousands T.Th	Thousands Th	Hundreds H	Tens T	Ones O
1	0	0	0	0

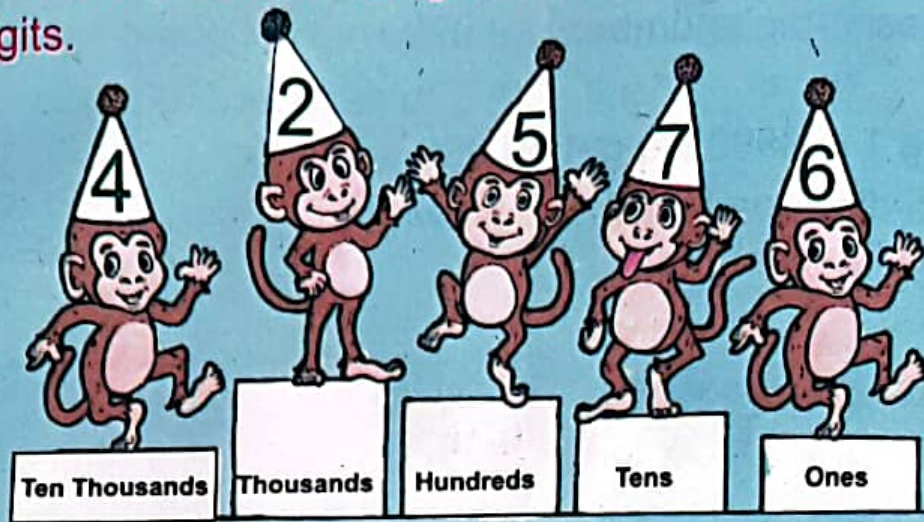
Write the values of 5 and 8

Ten Thousands T.Th	Thousands Th	Hundreds H	Tens T	Ones O
5	9	8	7	4
50 000	9 000	800	70	4

**Value of 5 = 50 000**                      **Value of 8 = 800**



The place values of 2 and 5 are given in the following. Find the value of these digits.



Ten Thousands T.Th	Thousands Th	Hundreds H	Tens T	Ones O
4	2	5	7	6
40 000	2 000	500	70	6

value of 2 = 2000

value of 5 = 500



Read and write 9 231 in words.

Thousands Th	Hundreds H	Tens T	Ones O
9	2	3	1

Nine thousand two hundred and thirty one.



Read and write 27 616 in words.

Ten Thousands T.Th	Thousands Th	Hundreds H	Tens T	Ones O
2	7	6	1	6

Twenty seven thousand six hundred and sixteen.





Read and write 85 405 in words:

Ten Thousands T.Th	Thousands Th	Hundreds H	Tens T	Ones O
8	5	4	0	5

Eighty five thousand four hundred and five.



Write four thousand seven hundred and nineteen in numerals.

4 719



Write forty two thousand eight hundred and sixty eight in numerals.

42 868



Write sixty eight thousand nine hundred and fifty one in numerals.

68 951

### Exercise 3



1 Write the following numbers in words:

(a) 5 342

(b) 7 123

(c) 5 321

(d) 8 035

(e) 9 899

(f) 8 0321



2 Write the following numbers in numerals:

- (a) Five thousand eight hundred and forty
- (b) Six thousand three hundred and sixty three
- (c) Thirty two thousand three hundred and eight
- (d) Eighty thousand five hundred and eighty seven
- (e) Sixty four thousand and thirty three
- (f) Forty one thousand nine hundred and ninety nine


3 Fill in the blanks.

- (a) 2 347 =  Thousands +  Hundreds +  Tens +  Ones
- (b) 6 780 =  Thousands +  Hundreds +  Tens +  Ones
- (c) 34 560 =  <sup>Ten</sup> Thousands +  Thousands +  Hundreds +  Tens +  Ones
- (d) 53 406 =  <sup>Ten</sup> Thousands +  Thousands +  Hundreds +  Tens +  Ones
- (e) 92 341 =  <sup>Ten</sup> Thousands +  Thousands +  Hundreds +  Tens +  Ones

4 Match with correct number

Seven thousand eight hundred	384
Eighty two thousand six hundred and fifty one	2 357
Fifteen thousand seven hundred and sixty three	5 326
Fifty three thousand one hundred and two	7 800
Two thousand three hundred and fifty seven	15 763
Five thousand three hundred and twenty six	53 102
Three hundred and eighty four	82 651



5 Write the values of 4 and 6.

Thousands Th	Hundreds H	Tens T	Ones O
4	6	6	9

6 Write the place values of digits in the following numbers:

	Ten Thousands T.Th	Thousands Th	Hundreds H	Tens T	Ones O
2 357					
67 815					
82 301					
75 389					

7 Write the values of the encircled digit.

(i) 45(6)7

(ii) 5(3)27

(iii) 8(5)761

(iv) 7043(1)

(v) (6)7431

(vi) 39(7)61


(vii) 932(6)7

(viii) (6)8037

(ix) 5(4)136

(x) 8(9)791



8  Write the value of all digits.

Ten Thousands    Thousands    Hundreds    Tens    Ones

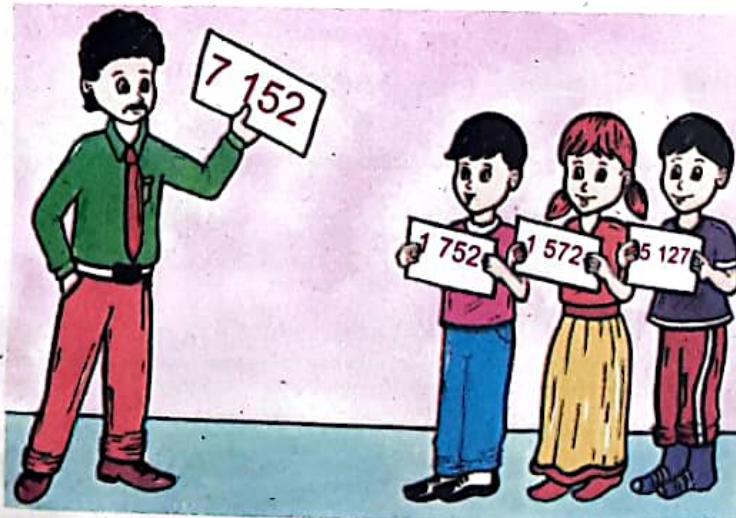
(i)



(ii)



Make three smaller numbers by replacing the place of digits in the given number.



Can you make some more smaller numbers?

Teaching Point

Give different number cards to the students and ask them to make smaller or greater numbers.





Find the given numbers in crossword puzzle. It may be horizontal or vertical. The first one is done for you.

6	9	2	6	5	7	4	9	0	1
4	1	5	8	7	6	2	0	1	4
5	9	7	3	2	3	7	7	2	9
9	0	3	5	2	7	6	4	5	9
8	6	4	9	7	1	1	0	5	3
4	2	3	8	7	6	7	3	5	8

- (i) Seven thousand three hundred and forty three
- (ii) Thirty seven thousand seven hundred and twenty nine
- (iii) Six thousand three hundred and seventy one
- (iv) 4 Thousands + 5 Hundreds + 9 Tens + 8 Ones
- (v) 7 Ten thousands + 2 Thousands + 2 Hundreds + 7 Tens + 1 One
- (vi) 3 Ten thousands + 5 Thousands + 2 Hundreds + 7 Tens + 6 Ones

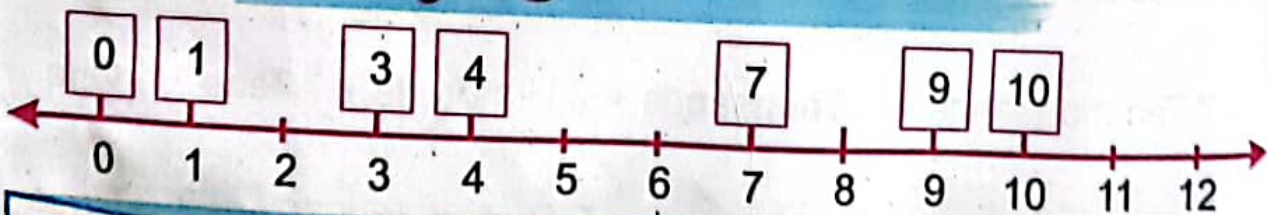


# Number Line

Place the given numbers on a number line.



A straight line on which numbers are represented at equal intervals is called number line.



**Teaching Point** Explain the concept of number line to the students, give example of students standing in school assembly or sitting in a classroom.

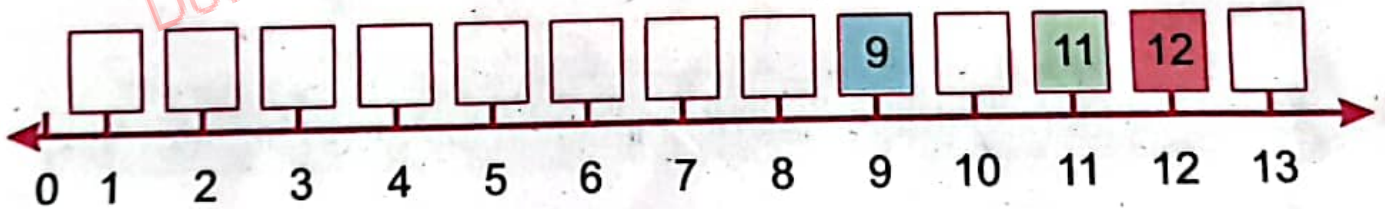




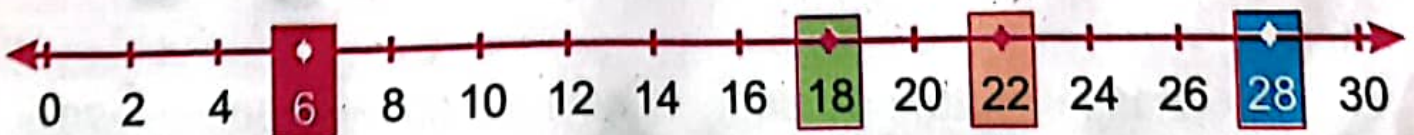
Represent 15 on the number line.



Represent 9, 11 and 12 on the number line.



Represent 6, 18, 22 and 28 on the number line.

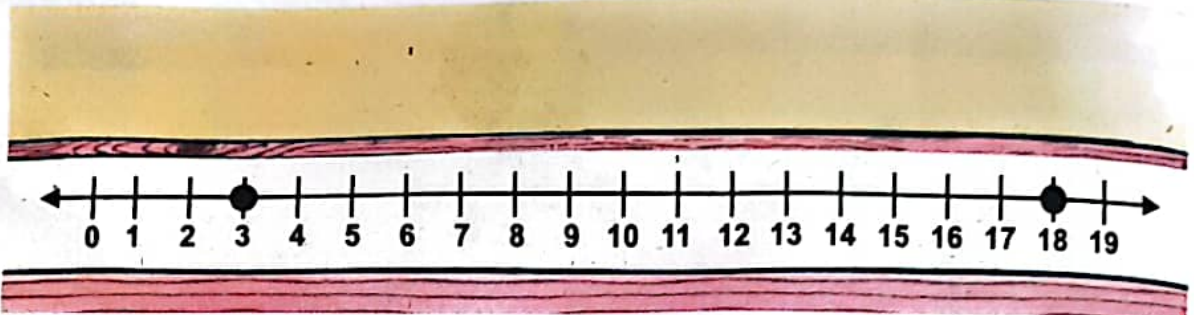




Identify the values of number on the number line



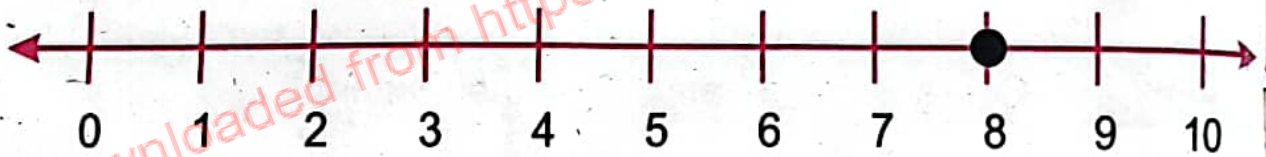
Identify the marked numbers given on the number line.



3 and 18



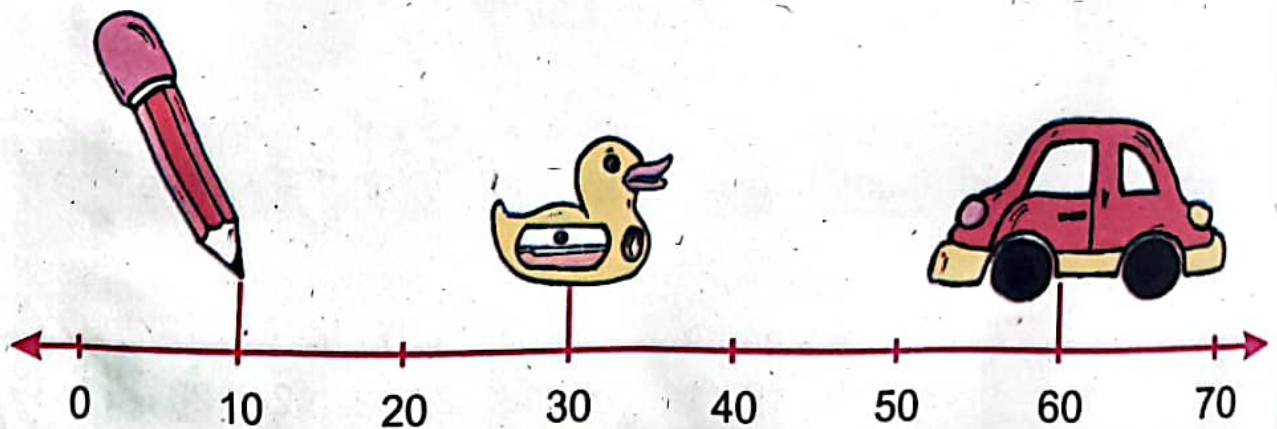
Identify the number which is between 7 and 9.



8



Identify the values of objects on the given number line.



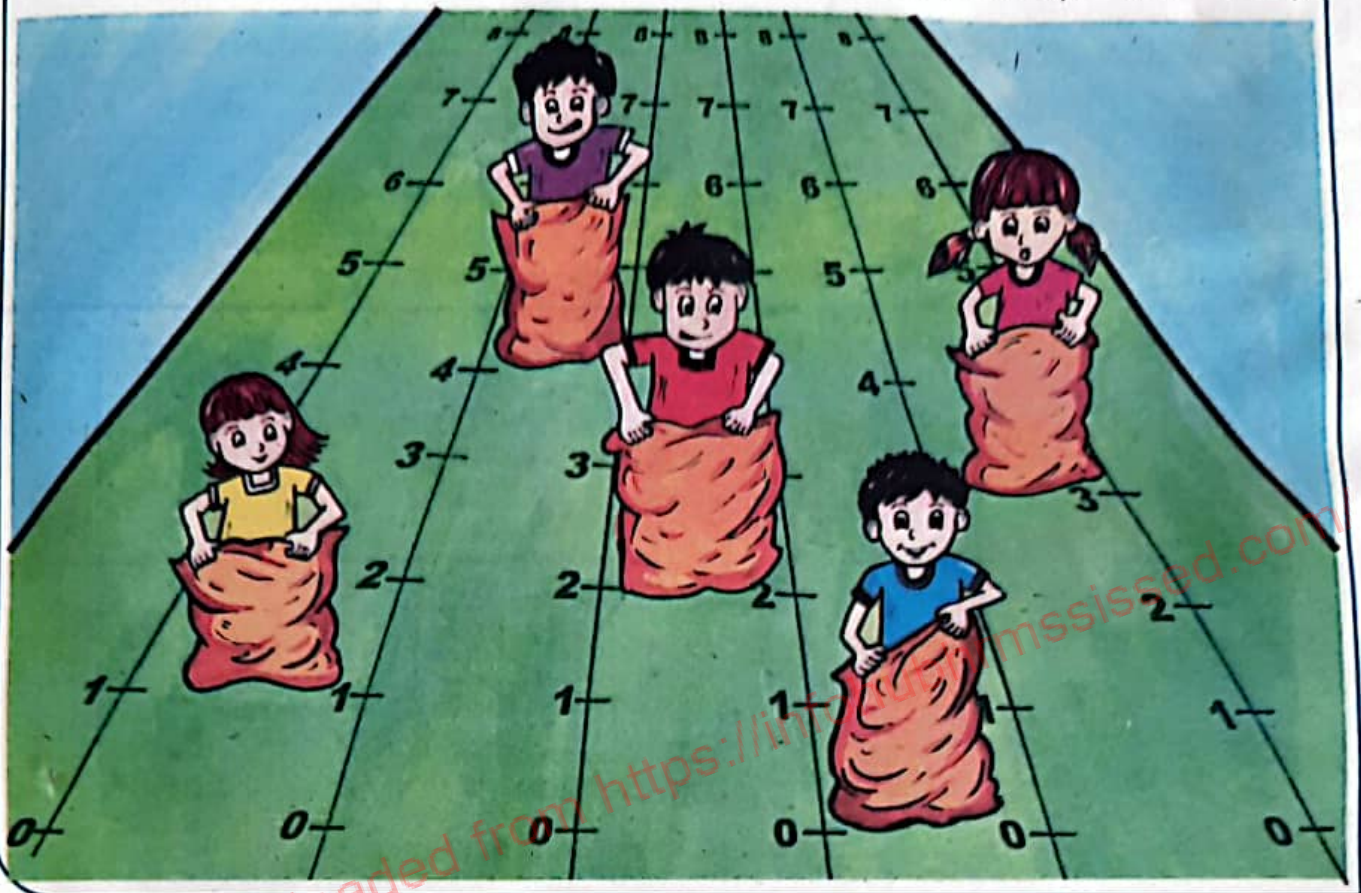
10, 30 and 60



Activity



Identify the position of each child on the number line (1 unit = 1 m)



Exercise 4



1 Represent the following numbers on the number line:

(i) 9, 4

(ii) 5, 15, 25

(iii) 6, 12, 24, 36

(iv) 4, 12, 20, 28

(v) 0, 15, 30, 60

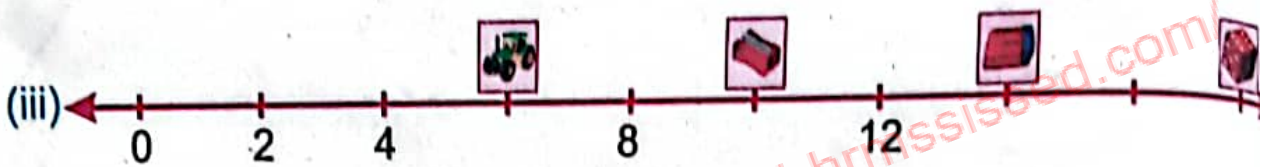
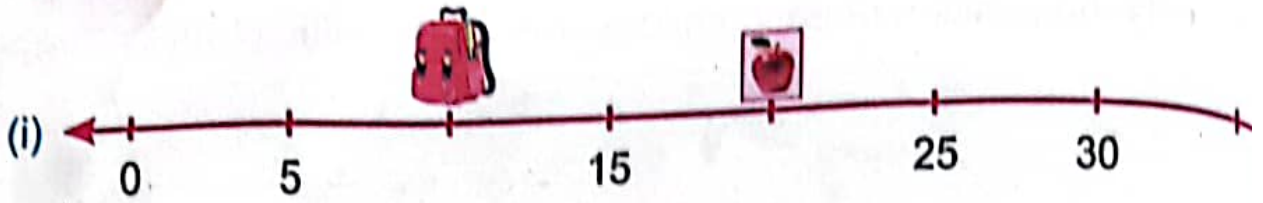
(vi) 3, 6, 9, 12, 15

Teaching Point

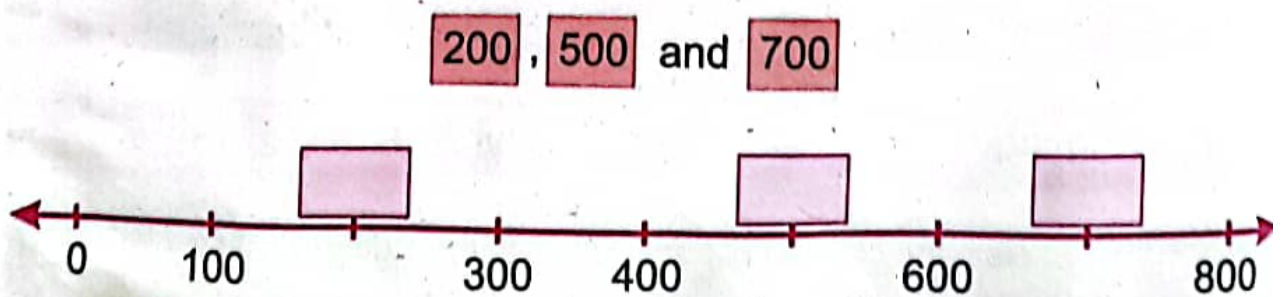
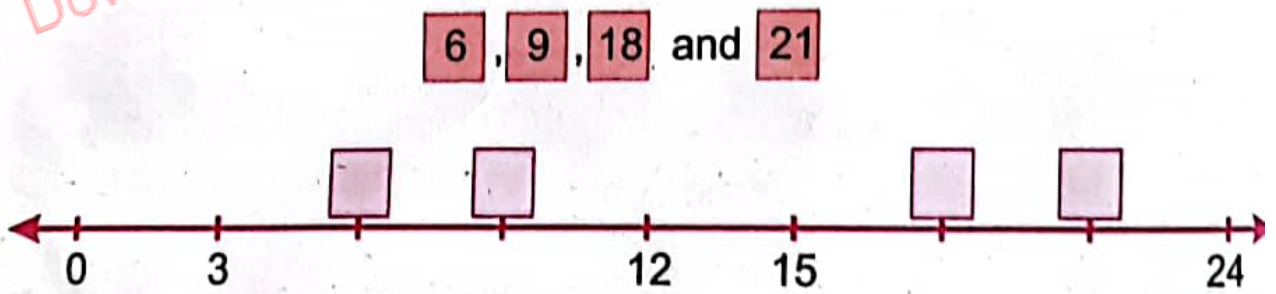
Explain the concept of number line to the students with the help of different games.



2 Write the values of objects on the given number line.



3 Place the correct number card on the number line.





# Comparing and Ordering Numbers

In a cricket match, different players score different runs as shown. What is the highest score?

TEAM (A)		SCORE BOARD	
<b>BATSMEN</b>		<b>WICKETS</b>	
1. Bilal	40		<b>8</b>
2. Asad	60	<b>OVERS</b>	
3. Ali	30		<b>16</b>
4. Abdullah	50	<b>TOTAL</b>	
5. Hamza	70		<b>520</b>
6. Saad	90		
7. Farooq	100		
8. Abdul Haadi	80		

How would we find the highest and the lowest score?

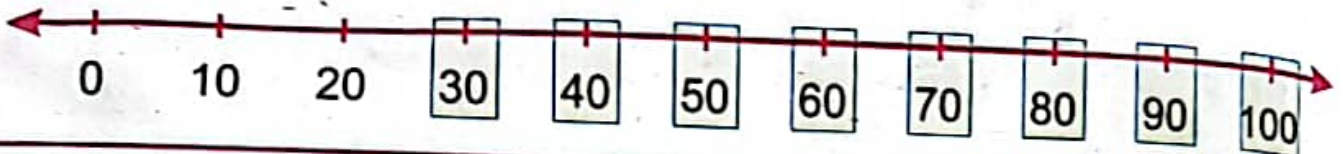




On a number line:

- numbers increase as we move from left to right.
- each number is greater than the number on the left.
- It is easy to know which number is bigger or smaller.

Put the card of runs on the number line and identify the highest and the lowest score.



According to above number line: Highest score = 100  
Lowest score = 30

**Key Fact**

Use these symbols while comparing numbers:

- = Equal to
- > Greater than
- < Less than

So,  $100 > 80$  100 is greater than 80  
 $80 = 80$  80 is equal to 80  
 and  $80 > 30$  80 is greater than 30  
 $30 < 40$  30 is less than 40



Rs 350

I have two toy cars, which costs more?



Rs 245





The cost can be compared easily with the help of place value chart.



Hundreds H	Tens T	Ones O
2	4	5
3	5	0

First compare the digits at hundreds place. 3 at hundreds place is greater than 2 at hundreds place.

Therefore, 350 is greater than 245. It can be written as:

$$350 > 245$$

A toy worth Rs 350 is more expensive.

Compare 567 and 582.



Hundreds H	Tens T	Ones O
5	6	7
5	8	2

First compare the digits at hundreds place:

☆ The digit 5 at the hundreds place is same for both numbers.

Compare the digits at tens place:

☆ Digit 8 at the tens place is greater than digit 6 at the tens place.

Therefore, 582 is greater than 567. It can be written as:

$$582 > 567$$

**Teaching Point** Give number cards of different values to the students and ask them to compare numbers.





Compare  
892 and 895

**Key Point**



Two numbers will be equal when the place values of all their digits are same.

- ☆ The digit 8 at hundreds place in both numbers is same.
- ☆ The digit 9 at tens place in both numbers is same.
- ☆ The digit 5 at ones place is greater than digit 2 at ones place.

Therefore,

$895 > 892$

## Ordering Numbres



Build towers from number blocks keeping in mind the order of the numbers.



Arrangement of numbers from the smallest to the greatest is called ascending order. The blocks in this tower are arranged in ascending order.

Arrangement of numbers from the greatest to the smallest is called descending order. The blocks are arranged in descending order.

**Teaching Point** Explain the concept of ascending and descending order by giving examples from real life (e.g) use of stairs.





Write 25, 45, 10 and 32 in ascending order.

Arrange these numbers from the smallest value to the greatest value.

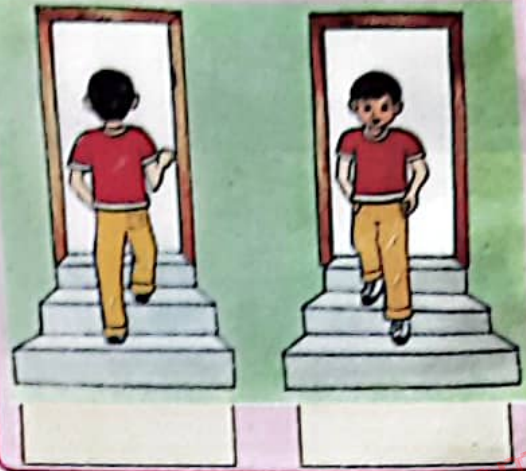
10, 25, 32, 45 is an ascending order.



Try Yourself



Which picture represents ascending or descending order?



Write the numbers 325, 532 and 470 in  
(i) Ascending order (ii) Descending order

Ascending order:

325

470

532

Descending order:

532

470

325

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Write 279, 281, 265, 273 in ascending and descending order.



Descending order

281  
279  
273  
265

Ascending order

281  
279  
273  
265



(ii) 85, 52, 73, 41, 67

Ascending order:

--	--	--	--	--

Descending order:

--	--	--	--	--

(iii) 346, 451, 321, 536

Ascending order:

--	--	--	--

Descending order:

--	--	--	--

(iv) 698, 278, 543, 231, 731

Ascending order:

--	--	--	--	--

Descending order:

--	--	--	--	--


(v) 476, 471, 472, 335, 345

Ascending order:

--	--	--	--	--

Descending order:

--	--	--	--	--

4  Make five numbers less than 321 and write them in ascending and descending order.

--	--	--	--	--

Ascending order:

--	--	--	--	--

Descending order:

--	--	--	--	--





## Estimation

Round off the whole number to the nearest 10 and 100.

My father paid Rs 1 209 for buying fuel. How can we round off this amount to the nearest 10.



### Key Fact

Use symbol " $\approx$ " for rounding off.

Rounding off to the nearest 10. It becomes Rs 1210. It has following rule:

### While Rounding off to the nearest 10,

- If the digit at ones place is between 0 to 4 or less than 5 then the digit at ones place is replaced by 0.

24 is 20 when rounded to the nearest 10.

24 is rounded off to 20.

- If the digit at ones place is 5 or greater than 5 then the digit at ones place is replaced by '0' and the digit at tens place is increased by "1".

36 is rounded off to 40

### Teaching Point

Give cards of different numbers to the students and ask them to compare these numbers.



### Rounding off to the nearest 100

While rounding off to the nearest 100, if the digit at the tens place is between 0 to 5 or less than 5 then put zeros at the ones and tens place. If the digit at the tens place is equal to 5 or greater than 5 then put zeros at the ones and tens place and the digit at hundreds place is increased by "1".

It can be written as:

$$666 \approx 700$$

To round off 666 to the nearest 100, we get 700.

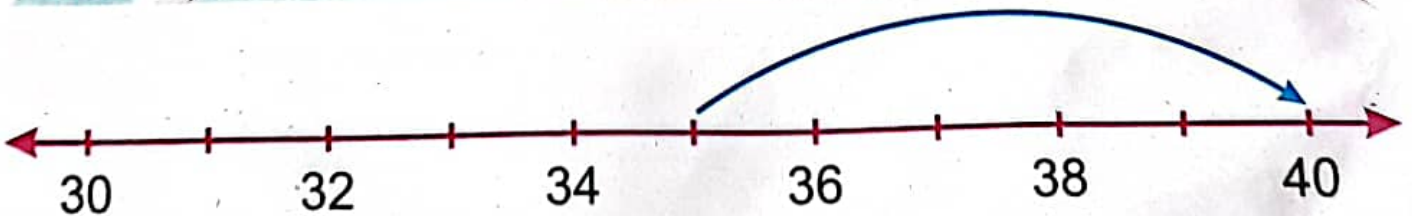


Round off the following number to the nearest 10 and 100:

Numbers	To the nearest 10	To the nearest 100
37	40	0
82	80	100
187	190	200
345	350	300
653	650	700



Round off 35 to the nearest 10 on number line.



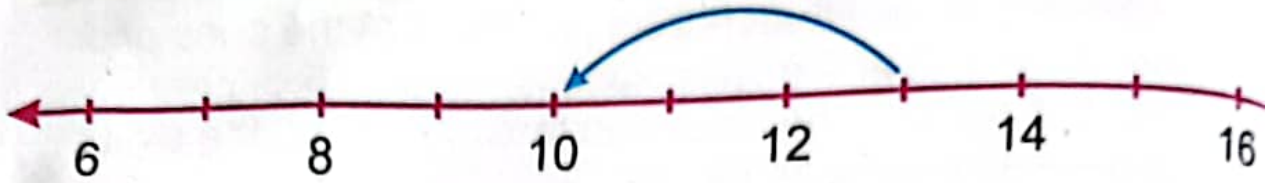
So, 35 is rounded off to 40.







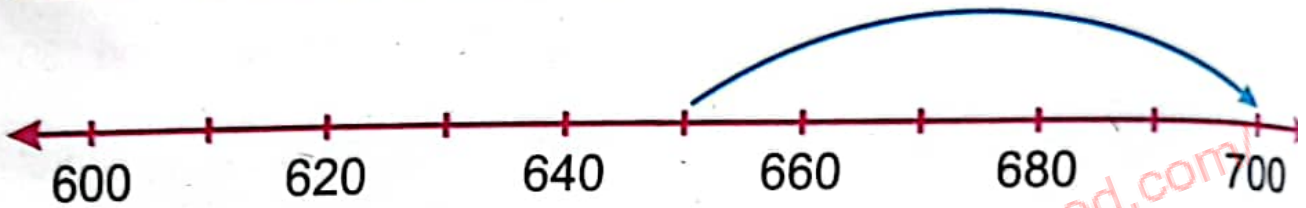
Round off 13 to the nearest 10 on the number line.



Therefore, 13 is rounded off to 10.



Round off 650 to the nearest 100 on the number line.



Therefore, 650 is rounded off to 700.


### Exercise 6



1  Round off the following numbers to the nearest 10 and 100:

Numbers	To the nearest 10	To the nearest 100
26		
52		
327		
385		
750		



2  Match the following numbers with correct value after rounding off:

(i) To the nearest 10

19	40
32	50
41	80
52	100
61	20
76	30
95	60

*Note: An arrow points from 32 to 20.*

(ii) To the nearest 100

101	400
256	800
384	100
517	900
649	300
789	500
850	600

*Note: An arrow points from 101 to 100.*

3  Round off 26 to the nearest 10 on the number line.

4  Round off 735 to the nearest 100 on the number line.

**I have learnt to:**

- the numbers which can be written in pair form are called even numbers.
- the numbers which can't be written in pair form are called odd numbers.
- a straight line on which the numbers are represented at equal intervals is called the number line.
- arrangement of numbers from the lowest numbers to highest numbers is called ascending order.
- arrangement of numbers from the highest to the lowest numbers is called descending order.


**Vocabulary**

- Even
- Odd
- Place value
- Number line
- Comparing
- Ordering
- Estimation
- Descending Order
- Ascending Order



## Review Exercise




1  Tick (✓) the correct option.

- (i) Roman number XIX is equal to:  
 (a) 10                      (b) 11                      (c) 19                      (d) 20
- (ii) Place value of 2 in 2 750 is:  
 (a) 2 tens      (b) 2 ten thousands      (c) 2 thousands      (d) 2 hundred
- (iii) Eight thousand seven hundred and twenty is equal to:  
 (a) 8 720              (b) 8 702              (c) 8 072              (d) 87 020
- (iv) 23, 25, 21 and 27 can be written in descending order as:  
 (a) 21, 23, 25, 27                                      (b) 23, 25, 27  
 (c) 27, 23, 21                                              (d) 27, 25, 23, 21
- (v) 16 can be rounded off to the nearest 10 as:  
 (a) 10                      (b) 15                      (c) 20                      (d) 16


2  Fill in the blanks.

- (i) 25 can be rounded off as \_\_\_\_\_ to the nearest 10.  
 (20 or 30)
- (ii) In ascending order, numbers are written from \_\_\_\_\_.  
 (lowest to highest or highest to lowest)
- (iii) Number of wheels in a vehicle are \_\_\_\_\_.  
 (even or odd)
- (iv) Number of sides of a triangle are \_\_\_\_\_.  
 (even or odd)
- (v) In an odd number, the digits at ones place are \_\_\_\_\_.  
 (1,3,5,7,9) or (0,2,4,6,8)



3  Write the following in Roman numbers:

2	5	8	11	15

4  Write the place values of encircled digits in the following numbers:

5(3)42	7(0)63	1286(5)	8(0)064	965(6)3

5  Write the following numbers in words:


647 \_\_\_\_\_

7 265 \_\_\_\_\_

9 999 \_\_\_\_\_

9 765 \_\_\_\_\_

8 701 \_\_\_\_\_

6  Write the following numbers in descending and ascending order:

(i) 27, 21, 3, 45

Ascending order:

--	--	--	--

Descending order:

--	--	--	--


(ii) 512, 321, 445, 241, 114

Ascending order:

--	--	--	--	--


Descending order:

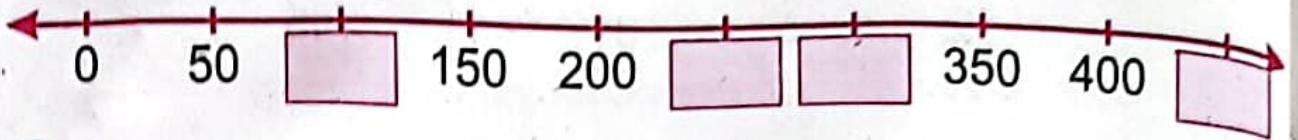
--	--	--	--	--


7  Write the even and odd numbers separately.


15	34	45	64	71	77	84	88
----	----	----	----	----	----	----	----



8  Write the missing numbers on the number line.



9  Compare 928 and 985 by using "<" or ">".

10  Round off the following numbers to the nearest 10 and 100:

Numbers	To the nearest 10	To the nearest 100
46		
83		
765		
847		
956		

**Activity**



Suleman called his friends on his birthday party. There were \_\_\_\_\_ girls and \_\_\_\_\_ boys. Which group has even number of people?



**Hint:**  
Count the number of boys and girls in the picture.



# Unit 2

# Number Operations

## Learning Outcomes

After completing this unit, you will be able to:

- Add numbers up to 4-digit with and without carrying
- Add numbers up to 100 using mental strategies
- Solve real life number stories up to 4-digit with and without carrying involving addition
- Subtract numbers up to 4-digit with and without borrowing
- Subtract numbers up to 100 using mental strategies
- Solve real life number stories up to 4-digit with and without borrowing involving subtraction
- Develop multiplication tables for 6, 7, 8, and 9
- Multiply 2-digit number by 1-digit number
- Multiply a number by 0 and 1
- Apply mental strategies to multiply 1-digit number to 1-digit number
- Solve real life situations involving multiplication of 2-digit number by 1-digit number
- Divide 2-digit number by a 1-digit number (with zero remainder)
- Apply mental strategies to divide 1-digit number by a 1-digit number
- Solve real life situations involving division of 2-digit number by a 1-digit number

On Eid day, Irfan received Rs 150 from his uncle and Rs 200 from his aunt as Eidi. How much Eidi did he receive?

Can you add and subtract numbers?





# Addition upto 4-digit number without carrying



There are 3 516 mango trees and 2 322 guava trees in an orchard. What is the total number of trees?



To find the total number of trees, we add them

	Th	H	T	O
Number of mango trees =	3	5	1	6
Number of guava trees =	+ 2	3	2	2
Total number of trees =	5	8	3	8

**Step 1**

Add ones.

$$6 \text{ ones} + 2 \text{ ones} = 8 \text{ ones}$$

**Step 3**

Add hundreds.

$$5 \text{ hundreds} + 3 \text{ hundreds} = 8 \text{ hundreds}$$

So, total number of trees is 5 838.

**Step 2**

Add tens.

$$1 \text{ ten} + 2 \text{ tens} = 3 \text{ tens}$$

**Step 4**

Add thousands.

$$3 \text{ thousands} + 2 \text{ thousands} = 5 \text{ thousands}$$

**Teaching Point** Teacher should guide the students to write numbers in respective place according to place value of the digits.





A grocer sold vegetable for Rs 2546 on Tuesday and Rs 3443 on Wednesday. How much is the total sale of vegetables?



	Th	H	T	O
Sale of vegetable on Tuesday =	2	5	4	6
Sale of vegetable on Wednesday =	+ 3	4	4	3
<b>Total sale =</b>	<b>5</b>	<b>9</b>	<b>8</b>	<b>9</b>

So, total sale of vegetable is Rs 5 989

## Addition of numbers upto 4-digit with carrying

### Addition

Areeba has Rs 6 388 while Affan has Rs 2 424. What is the total amount they have altogether?



	Th	H	T	O
Areeba has amount =	6	<sup>1</sup> 3	<sup>1</sup> 8	8
Affan has amount =	+ 2	4	2	4
<b>Total amount =</b>	<b>8</b>	<b>8</b>	<b>1</b>	<b>2</b>




**Step 1**

Add ones.

$$8 \text{ ones} + 4 \text{ ones} = 12 \text{ ones} = 1 \text{ ten and } 2 \text{ ones}$$

Write 2 at ones column and carry 1 ten to the tens column.


**Step 2**

Now, add tens.

$$8 \text{ tens} + 2 \text{ tens} + 1 \text{ ten} = 11 \text{ tens} = 1 \text{ hundred and } 1 \text{ ten}$$

Write 1 at tens column and carry 1 hundred to the hundreds column.


**Step 3**

Now, hundreds.

$$3 \text{ hundreds} + 4 \text{ hundreds} + 1 \text{ hundred} = 8 \text{ hundreds}$$


**Step 4**

Now, add thousands.

$$6 \text{ thousands} + 2 \text{ thousands} = 8 \text{ thousands}$$

Write 8 in thousands column.

Thus, Areeba and Affan have total amount of Rs 8 812.





There are 2 685 number of boys and 1 520 number of girls in a school. What is the total number of students in the school?

	Th	H	T	O
Number of boys	= 2	6	8	5
Number of girls	= + 1	5	2	0
Total number of students	= 4	2	0	5

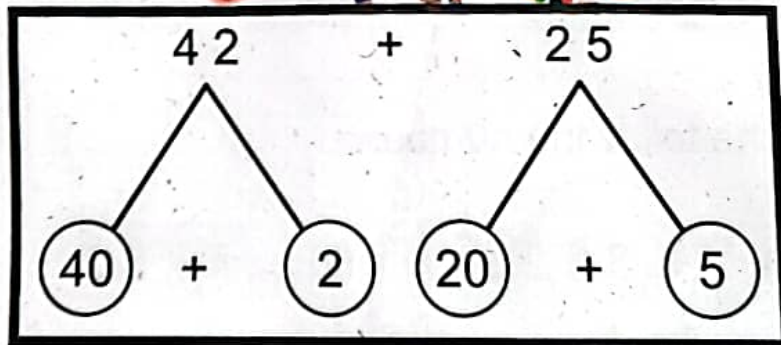


So, the total number of students in the school is 4 205.

## Add numbers upto 100 using mental strategies



Ahmad has 42 toffees and 25 biscuits. How can he find out the sum of these items?



$$40 + 20 = 60$$

$$2 + 5 = 7$$

$$= 67$$

**Teaching Point**

Teacher should explain the concept of adding zero (0) to any number and tell them the answer will be the number itself.



Exercise 1



1 Solve the following:

(i) 
$$\begin{array}{r} 6643 \\ + 3215 \\ \hline \end{array}$$

(ii) 
$$\begin{array}{r} 5137 \\ + 3542 \\ \hline \end{array}$$

(iii) 
$$\begin{array}{r} 7256 \\ + 1423 \\ \hline \end{array}$$

(iv) 
$$\begin{array}{r} 6795 \\ + 2104 \\ \hline \end{array}$$

(v) 
$$\begin{array}{r} 7000 \\ + 2137 \\ \hline \end{array}$$

(vi) 
$$\begin{array}{r} 4000 \\ + 3154 \\ \hline \end{array}$$

2 Add the following numbers:

(i) 5794 , 3825

(ii) 4752 , 3596


(iii) 5496 , 2179

(iv) 6243 , 5727


(v) 6495 , 2156


(vi) 5676 , 3864




- 3  There are 3 454 orange trees and 2 345 guava trees in an orchard. Find the total number of trees.



- 4  Zubair paid Rs 6 758 and Rs 3 441 in March and April respectively, as gas charges. Find the total amount paid by him for gas.

- 5  Population of the village 'A' is 4 536 and population of the village 'B' is 3 253. Find the total population of both the villages.



- 6  There are 6 540 male and 2 120 female employees in an organization. Find the total number of employees.





7 

Aliyan and Shahwaiz save Rs 4 056 and Rs 5 430 respectively. Find out their total saving.

8 

Add using mental strategies:

(i)  $15 + 16 = 31$

(ii)  $52 + 18 =$

(iii)  $59 + 10 =$

(iv)  $47 + 32 =$

(v)  $35 + 55 =$

(vi)  $46 + 24 =$

(vii)  $37 + 23 =$

(viii)  $36 + 54 =$

(ix)  $27 + 43 =$

(x)  $56 + 24 =$

(xi)  $42 + 15 =$

(xii)  $32 + 28 =$



# Subtraction of numbers upto 4-digits without borrowing



Zubair had Rs 9899. He purchased household things for Rs 7 545. How much amount was left with him?

Total amount  
Amount paid  
Amount left

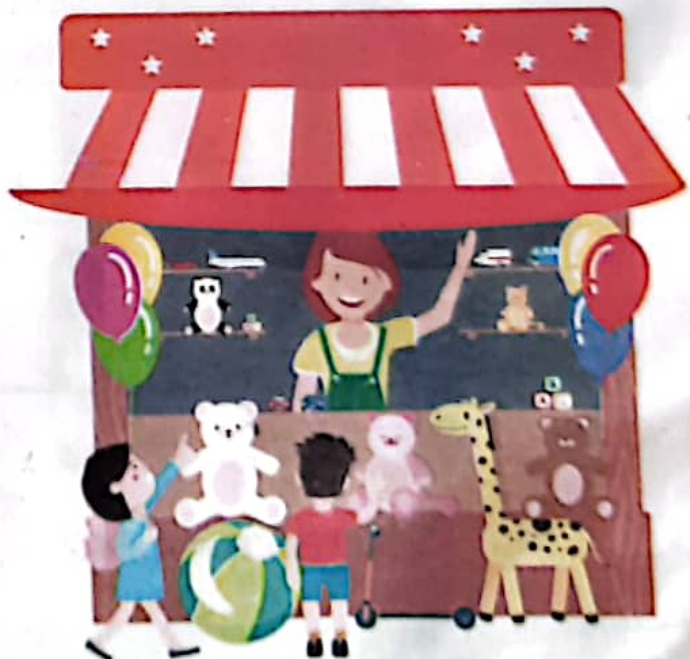
	Th	H	T	O
=	9	8	9	9
= -	7	5	4	5
=	2	3	5	4

**Step 1**

Subtract ones from ones.  
9 ones - 5 ones = 4 ones  
Write 4 at ones column.

**Step 2**

Subtract tens from tens.  
9 tens - 4 tens = 5 tens  
Write 5 at tens column.





**Step 3**

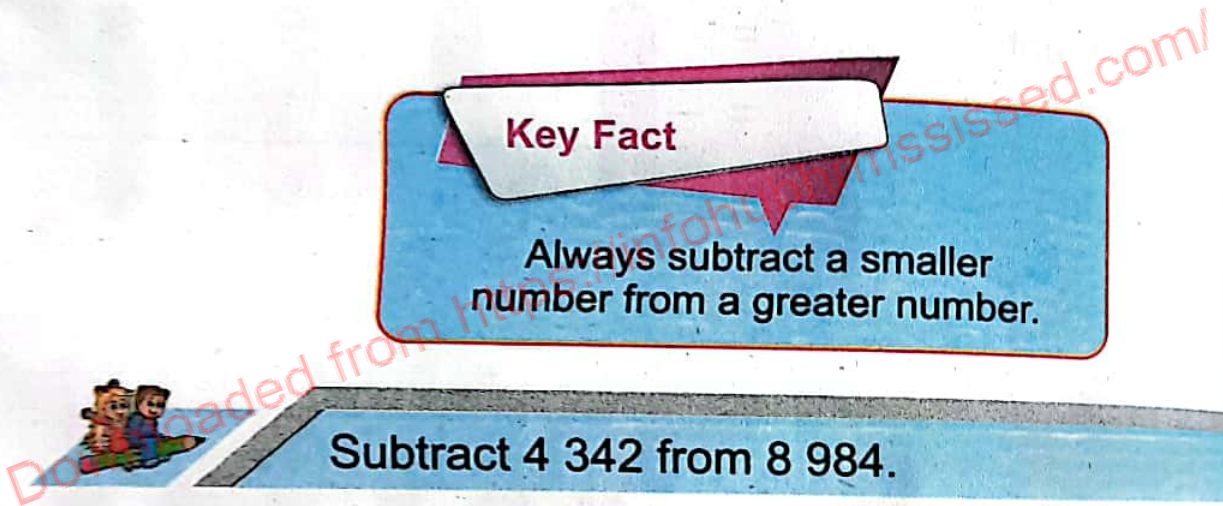
Subtract hundreds from hundreds.  
 8 hundreds – 5 hundreds = 3 hundreds  
 Write 3 at hundreds column.

**Step 4**

Subtract thousands from thousands.  
 9 thousands – 7 thousands = 2 thousands  
 Thus, Rs 2354 was left with Zubair.

**Key Fact**

Always subtract a smaller number from a greater number.



Subtract 4 342 from 8 984.

Th	H	T	O
8	9	8	4
- 4	3	4	2
4	6	4	2

Difference = 4 642.

**Teaching Point**

Teacher should explain all steps involving subtraction to students and give them assignment for practice.





1 982 people offered their Eid namaz in a masjid. 1 670 of the total were men. Find out the number of children.

	Th	H	T	O
Number of people	= 1	9	8	2
Number of men	= - 1	6	7	0
Number of children	= 0	3	1	2

Thus, the number of children were 312



### Subtraction with borrowing

Ali has 2 354 coins and Wali has 1 260 coins. How much more coins Ali have than Wali?

	Th	H	T	O
Number of coins Ali has	= 2	<sup>2</sup> 3	<sup>10</sup> 5	4
Number of coins Wali has	= - 1	2	6	0
Difference	= 1	0	9	4



Thus, Ali has 1 094 more coins than Wali.

#### Step 1

Subtracts ones from ones.

4 ones - 0 ones = 4 ones

Write 4 at ones column.



**Step 2**

Subtract tens from tens.

We cannot subtract 6 tens from 5 tens.

Therefore, we will borrow 1 hundred from hundreds.

Then, 1 hundred + 5 tens = 10 tens + 5 tens = 15 tens

Now, 15 tens – 6 tens = 9 tens

Write 9 at tens column.

**Key Fact**

1 hundred = 10 tens



**Step 3**

Subtract hundreds from hundreds.

After giving 1 hundred to tens, 2 hundreds are left.

Therefore, 2 hundreds – 2 hundreds = 0 hundreds

Write 0 at hundreds column.

**Step 4**

Subtract thousands from thousands.

2 thousands – 1 thousand = 1 thousand

Write 1 at thousands column.

Thus, Ali has 1 094 more cion than Wali.

**Key Fact**

If 0 is subtracted from any number, we get the same number.



**Try Yourself**

What is the difference between largest and smallest 4-digit number?

**Teaching Point**

Teacher should guide the students about all steps for subtraction and give some questions for practice.





Find the difference between 7 650 and 2 586.

Th	H	T	O
7	<del>6</del>	<del>5</del>	0
-	5	4	10
2	5	8	6
5	0	6	4

Difference = 5 064.



There were 5 434 bags of wheat in a godown. 2956 bags were sold. How many bags of wheat were left in godown?

Total number of bags

Bags sold

Remaining bags of wheat

Th	H	T	O
<del>5</del>	<del>4</del>	<del>3</del>	4
-	2	9	6
2	4	7	8

Thus, remaining bags of wheat in godown were 2 478.



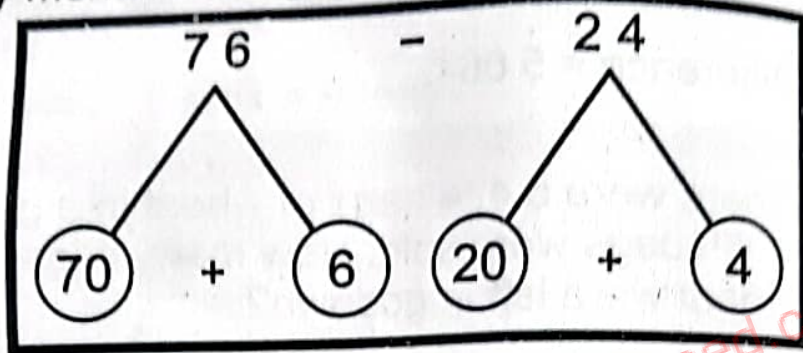


# Subtraction of numbers upto 100 using mental strategies.



Bilal has Rs 76. He spends Rs 24 from them. How much money is left with him?

We solve it by mental strategies as follows:

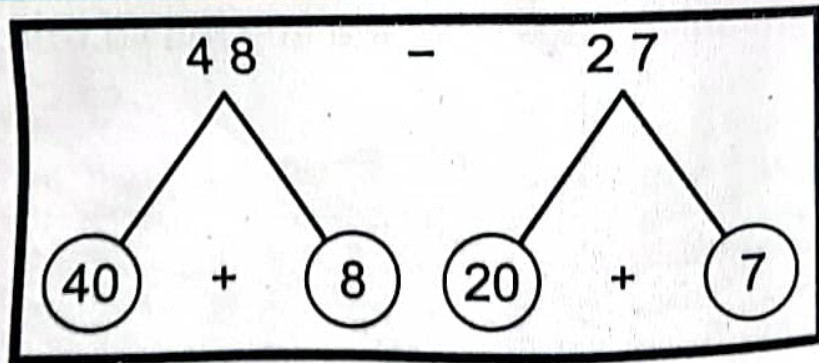


$$\begin{aligned}
 70 - 20 &= 50 \\
 6 - 4 &= 2 \\
 &= \underline{52}
 \end{aligned}$$

Thus, Bilal has Rs 52.



Find the difference between 48 and 27?



$$\begin{aligned}
 40 - 20 &= 20 \\
 8 - 7 &= 1 \\
 &= \underline{21}
 \end{aligned}$$

**Teaching Point**

Teacher should explain the concept of mental subtraction to students and give some questions for practicing.





# Exercise 2

1 Solve the following:

12 13 14

(i)

3	5	4	6
-	2	3	2

(ii)

5	7	9	6
-	3	4	5

(iii)

6	3	5	4
-	4	0	4

(iv)

8	7	6	4
-	3	6	5

(v)

4	7	5	4
-	3	5	3

(vi)

9	8	7	6
-	6	7	5

(vii)

9	7	6	5
-	8	9	7

(viii)

8	7	5	4
-	3	9	7

(ix)

6	4	9	5
-	3	5	4

(x)

7	9	6	5
-	6	8	7


(xi)

8	6	7	8
-	7	8	9

(xii)

8	5	4	3
-	7	6	5



2  Subtract mentally.

(i)  $80 - 24 = \boxed{\phantom{00}}$

(iii)  $67 - 25 = \boxed{\phantom{00}}$

(v)  $87 - 36 = \boxed{\phantom{00}}$

(ii)


$65 - 41 = \phantom{00}$


(iv)


$76 - 35 = \phantom{00}$


(vi)

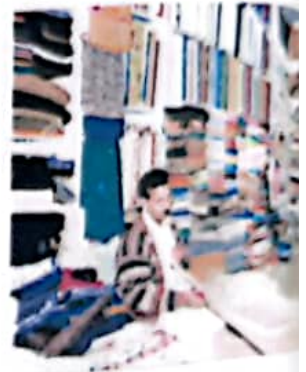
$57 - 21 = \phantom{00}$

3  A book has 1535 pages in all. Zarina has read 424 pages. How many pages are left to read?

4  Aamir and Gulraiz are cloth merchants. If Aamir's sale of one day is Rs 6456 and Gulraiz's sale of one day is Rs 4340. Then find how much more money Aamir has than Gulraiz?

5  Total number of men and women in a village is 6753. If the number of women is 3985 then find the number of men.

6  In a cattle farm, number of goats and sheep is 7516. If number of sheep is 5728 then find the number of goats.





# Multiplication

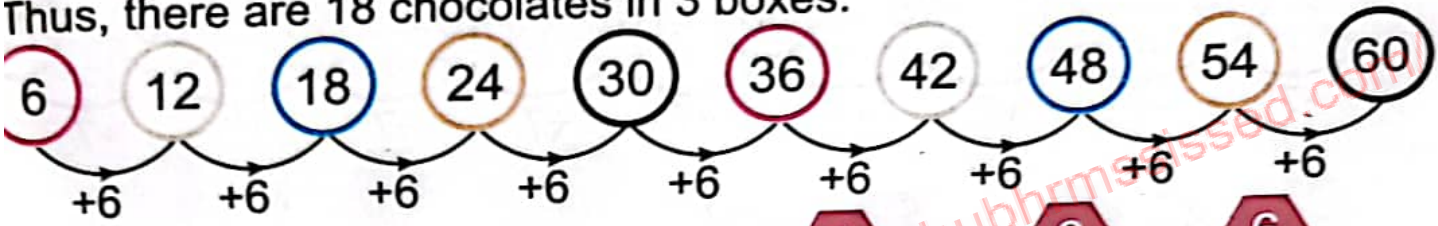
## Table of 6

Faheem has 3 chocolate boxes. There are 6 chocolates in each box. What is the total number of chocolates?



Chocolates in 1 box = 6  
 Chocolates in 3 boxes = 6 + 6 + 6 = 18  
 Chocolates in 3 boxes = 3 × 6 = 18

Thus, there are 18 chocolates in 3 boxes.



**Key Fact**

When an even number is multiplied by 6 then we get the same even number at ones place.

2	x	6	=	12
4	x	6	=	24
6	x	6	=	36
8	x	6	=	48

1	x	6	=	6
2	x	6	=	12
3	x	6	=	18
4	x	6	=	24
5	x	6	=	30
6	x	6	=	36
7	x	6	=	42
8	x	6	=	48
9	x	6	=	54
10	x	6	=	60

**Teaching Point**

Teacher should guide the students to develop table of 6 using repeated addition.

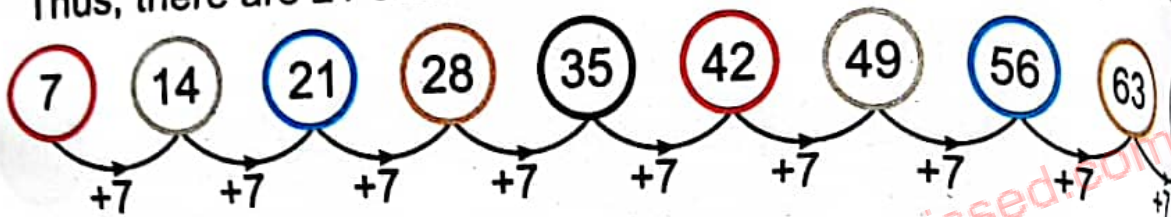


Table of 7

Faheem has 3 chocolates in each box. There are 7 boxes. What is the total number of chocolates?

Chocolates in 1 box = 7  
 Chocolates in 3 boxes = 7+7+7=21  
 Chocolates in 3 boxes = 3 × 7 = 21

Thus, there are 21 chocolates in 3 boxes.



1	×	7	=	7
2	×	7	=	14
3	×	7	=	21
4	×	7	=	28
5	×	7	=	35
6	×	7	=	42
7	×	7	=	49
8	×	7	=	56
9	×	7	=	63
10	×	7	=	70

By adding 7 repeatedly we get table of 7.

Key Fact

$6 \times 7 = 42$   
 or  
 $6 \times 7 = 7 \times 6 = 42$

Key Fact

Repeated addition of number is called multiplication.

Teaching Point

Teacher should guide the students to develop table of 7 by using repeated addition.

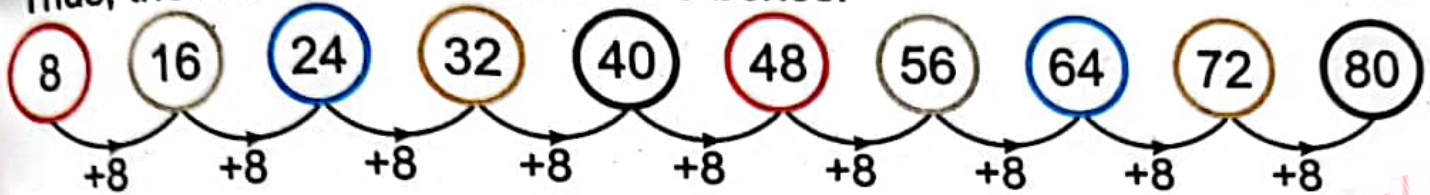


Table of 8

Madiha has 3 chocolates in each box. There are 8 boxes. What is the total number of chocolates?

- Chocolates in 1 box = 8
- Chocolates in 3 boxes =  $8+8+8=24$
- Chocolates in 8 boxes =  $3 \times 8 = 24$

Thus, there are 24 chocolates in 3 boxes.



We can get table of 8 by adding 8 repeatedly.



1	×	8	=	8
2	×	8	=	16
3	×	8	=	24
4	×	8	=	32
5	×	8	=	40
6	×	8	=	48
7	×	8	=	56
8	×	8	=	64
9	×	8	=	72
10	×	8	=	80

**Key Fact**

$3 \times 8 = 24$   
 or  
 $3 \times 8 = 8 \times 3 = 24$

**Teaching Point** Teacher should guide the students to develop table of 8 by using repeated addition.



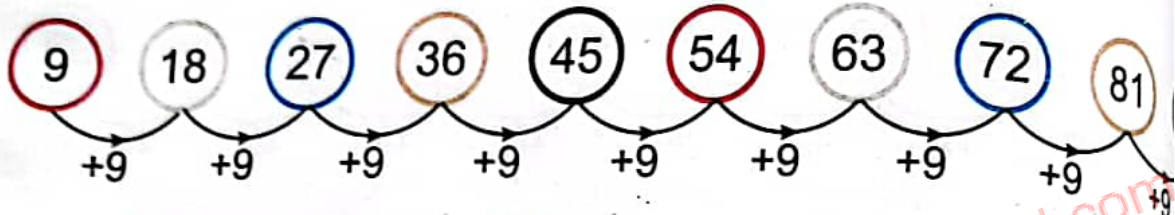
**Table of 9**

Madiha has 3 chocolates in each box. There are 9 boxes. What is the total number of chocolates?

Chocolates in 1 box = 9  
 Chocolates in 3 boxes = 9+9+9=27  
 Chocolates in 3 boxes =  $3 \times 9 = 27$



We can get table of 9 by adding 9 repeatedly.



1	x	9	=	9
2	x	9	=	18
3	x	9	=	27
4	x	9	=	36
5	x	9	=	45
6	x	9	=	54
7	x	9	=	63
8	x	9	=	72
9	x	9	=	81
10	x	9	=	90

**Key Point**

$4 \times 9 = 36$   
 or  
 $4 \times 9 = 9 \times 4 = 36$

**Teaching Point** Teacher should guide the students to develop table of 9 by using repeated addition.



Exercise 3



1 Complete the following tables:



2 Fill in the boxes.

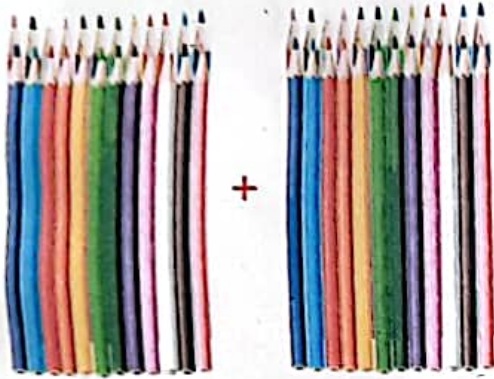
<b>x</b>	1	2	3	4	5	6	7	8	9	10
6	6				30				54	
7		14				42				70
8			24				56			
9				36				72		



# Multiply 2-digit number by 1-digit number



Umair has 2 boxes. Each box has 24 pencils. How many total number of pencils he has?



Pencils in a box	=	T	O
		2	4
Number of boxes	=	x	2
Total number of pencils	=	4	8



Now, we multiply 24 by 2.

## Step 1

Write the given question in vertical form and write ones under ones.

	T	O
	2	4
	x	2
	<hr/>	

## Step 2

Multiply the digits at ones as:

$$4 \times 2 = 8$$

Write 8 at ones column.

	T	O
	2	4
	x	2
	<hr/>	
		8



Step 3

Multiply 2 at tens place by 2 at ones place as:

$$2 \times 2 = 4$$

T	O
2	4
x	2
<hr/>	
4	8

Thus, there are 48 pencils in the two boxes.



The cost of Mathematics book of class -3 is Rs 65. Then what will be the price of 6 such books?

Price of 1 book = Rs 65  
 Price of 6 books =  $6 \times 65$   
 = Rs 390



Now, we multiply 65 by 6

Step 1

Write the numbers in vertical form.

T	O
6	5
x	6
<hr/>	



Step 2

Multiply 6 by 5 at ones place as:  $6 \times 5 = 30$   
 Write 0 at ones column and carry 3 at tens column.

T	O
6	5
x	6
<hr/>	
	0
3	





**Step 3**

$$6 \times 6 = 36$$

And add 3 tens.

$$36 \text{ tens} + 3 \text{ tens} = 39 \text{ tens}$$

Write 9 at tens column  
and 3 at hundreds column.

Price of 1 book = Rs 65

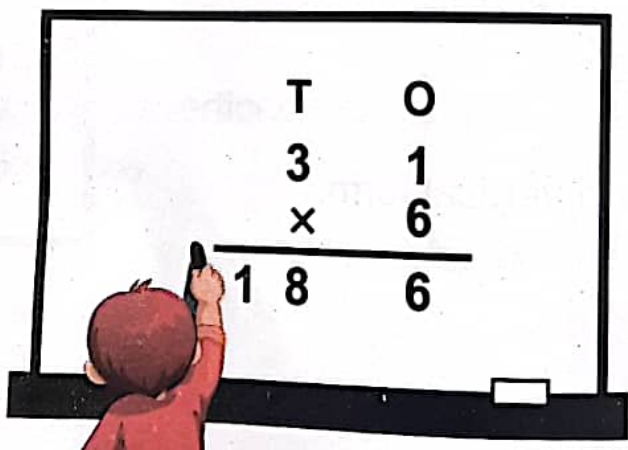
Price of 6 books =  $6 \times 65$

Thus, the price of 6 books will be Rs 390



Mehwish has 6 toys. If the cost of one toy is Rs 31  
What will be the cost of 6 such toys?

Cost of one toy = Rs 31  
Cost of 6 toys =  $6 \times 31$

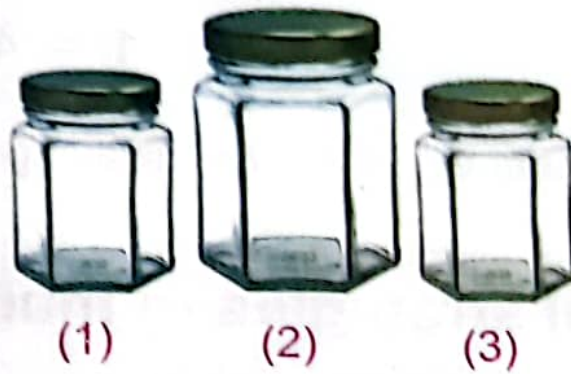


Thus, the cost of 6 toys will be Rs 186.



# Multiply a number by 0 and 1

How many toffees are there in each jar?



There are three empty jars of toffees. It means that there is no toffee in each jar.

Sum of toffees in three jars =  $0 + 0 + 0 = 0$

or

Multiply 3 by 0 =  $3 \times 0 = 0$

Similarly,

$4 \times 0 = 0$

Thus, multiplying a number by '0' we always get '0'.

There are three baskets and in each basket there is only one apple.



Total number of apples =  $1 + 1 + 1 = 3$

**Teaching Point** Teacher should explain the concept of multiplication by giving daily life examples.



If these 3 apples are placed in one basket then we can write



Number of apples in a basket =  $3 \times 1 = 3$

Similarly,  $4 \times 1 = 4$

If we multiply a number by 1 then we always get the same number.

### Apply mental strategies to multiply 1-digit number by 1-digit number



Consider the multiplication of the following numbers

$3 \times 6 = 18$

$7 \times 4 = 28$

$4 \times 5 = 20$

$9 \times 8 = 72$



#### Try Yourself

$9 \times 1 = ?$

$0 \times 6 = ?$

$1 \times 7 = ?$

$8 \times 1 = ?$

#### Key Point

When two numbers are multiplied with each other we get the product of those numbers.



Exercise 4



Solve the following:

(i) 
$$\begin{array}{r} 24 \\ \times 3 \\ \hline 27 \end{array}$$

(ii) 
$$\begin{array}{r} 35 \\ \times 4 \\ \hline 39 \end{array}$$

(iii) 
$$\begin{array}{r} 32 \\ \times 5 \\ \hline 37 \end{array}$$

(iv) 
$$\begin{array}{r} 38 \\ \times 6 \\ \hline 35 \end{array}$$

(v) 
$$\begin{array}{r} 45 \\ \times 7 \\ \hline 413 \end{array}$$

(vi) 
$$\begin{array}{r} 48 \\ \times 8 \\ \hline 416 \end{array}$$

(vii) 
$$\begin{array}{r} 54 \\ \times 9 \\ \hline 513 \end{array}$$

(viii) 
$$\begin{array}{r} 56 \\ \times 7 \\ \hline 514 \end{array}$$

(ix) 
$$\begin{array}{r} 62 \\ \times 6 \\ \hline 68 \end{array}$$

Solve the following by using tables:

$7 \times 6 = \square$

(ii)  $5 \times 6 = \square$


$4 \times 7 = \square$

(iv)  $9 \times 7 = \square$

$4 \times 9 = \square$

(vi)  $8 \times 7 = \square$



3  Fill in the blanks.

(i)  $5 \times 0 =$

(ii)  $35 \times 0 =$

(iii)  $45 \times 0 =$

(iv)  $48 \times 1 =$

(v)  $1 \times 57 =$

(vi)  $31 \times 1 =$

4  Solve by using mental strategies:

(i)  $4 \times 9 =$

(ii)  $5 \times 4 =$

(iii)  $6 \times 3 =$


(iv)  $6 \times 5 =$

(v)  $8 \times 4 =$

(vi)  $7 \times 5 =$

5  If Habib spends Rs 24 in one day, then how many rupees will he spend in 4 days?



6  There are 7 days in a week. How many days are there in 52 weeks?

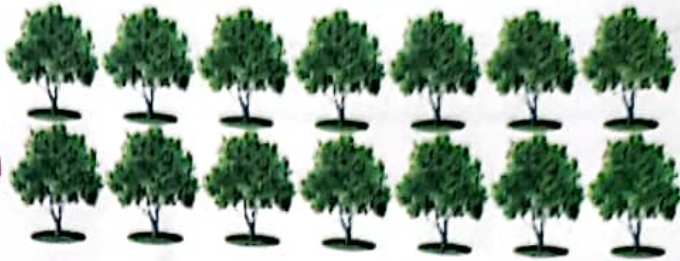
	T	W	Th	F	S	S	M	T	W
		1	2	3	4		5	6	7
8	9	10	11	12	13	14	15	16	17
18	19	20	21	22	23	24	25	26	27
28	29	30	31						

May						June				
	T	W	Th	F	S	S	M	T	W	Th
				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								



7 

If there are 28 trees in one row, then how many trees are there in 5 such rows?



8 

A motorcycle can cover a distance of 62 kilometres in one litre of petrol. How much distance will it cover in 4 litres?



**Divide 2-digit number by 1-digit number with zero remainder**

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I have 30 marbles and I want to place them in 6 jars equally. How many marbles can be placed in each jar?



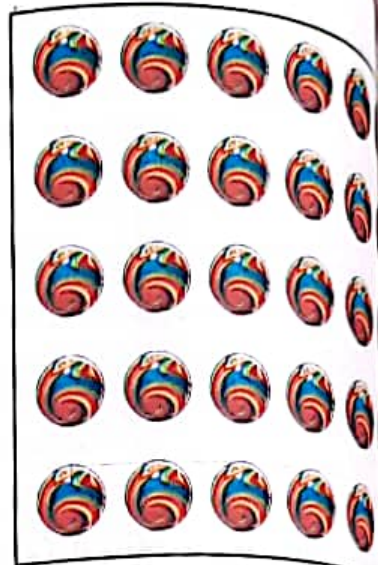


Dividing 30 by 6, we get 5.

Total number of marbles = 30

Number of jars = 6

Number of marbles in one jar =  $30 \div 6$   
= 5



Downloaded from <https://infobharmssind.com/>

$$\begin{array}{r}
 5 \leftarrow \text{Quotient} \\
 6 \overline{) 30} \leftarrow \text{Dividend} \\
 \underline{-30} \\
 00 \leftarrow \text{Remainder}
 \end{array}$$

Thus, 5 marbles can be placed in each jar.



There are 72 mango trees in 6 rows. How many mango trees are there in 1 row?

Number of mango trees = 72  
 Rows of trees = 6  
 Number of trees in 1 row =  $72 \div 6$

$$\begin{array}{r}
 12 \\
 6 \overline{) 72} \\
 \underline{-6} \\
 12 \\
 \underline{-12} \\
 00
 \end{array}$$

Thus, there are 12 trees in one row.





Distribute 84 pencils in 4 boxes equally.

$$\text{Number of pencils} = 84$$

$$\text{Number of boxes} = 4$$

$$\begin{aligned} \text{Number of pencils in} &= 84 \div 4 \\ \text{one box} &= 21 \end{aligned}$$

$$\begin{array}{r} 21 \\ 4 \overline{) 84} \\ \underline{-8} \phantom{0} \\ 04 \\ \underline{-4} \\ 0 \end{array}$$

Thus, there are 21 pencils in one box.

### Key Fact

When 2-digit number is divided by 1-digit number, we divide the number at tens place first and then the number at ones place.

### Key Fact

Division means to distribute the things equally.

**Apply mental strategies to divide 1-digit number by 1-digit number.**



Consider the division of the following numbers:

$$6 \div 2 = \boxed{3}$$

$$9 \div 3 = \boxed{3}$$

$$8 \div 2 = \boxed{4}$$

$$8 \div 4 = \boxed{2}$$

### Teaching Point

Teacher should guide the students that process of division can be made easy by dividing things into groups.



# Exercise 5



Solve the following:

1.  $20 \div 4 = \square$

3.  $42 \div 6 = \square$

5.  $72 \div 8 = \square$

7.  $48 \div 4 = \square$

9.  $84 \div 7 = \square$

11.  $96 \div 8 = \square$

2.  $25 \div 5 = \square$

4.  $49 \div 7 = \square$

6.  $81 \div 9 = \square$

8.  $72 \div 6 = \square$

10.  $51 \div 3 = \square$

12.  $99 \div 9 = \square$

Solve by using mental strategies.

13.  $4 \div 2 = \square$

15.  $9 \div 3 = \square$

14.  $8 \div 4 = \square$

16. During school assembly, 96 students are standing in 6 rows. How many students are there in one row?



17. A man covered 56 km in 4 days, then how much distance will be covered in one day?







The price of 1 packet of biscuits is Rs 5. I have Rs 70. How many packets can I buy?



Zubair bought 7 notebooks for Rs 91. Find the price of 1 notebook.



If the price of 1 pencil is Rs 8. How many pencils can be bought in Rs 48?



**I have learnt to:**

- add upto 4-digit number (with and without carrying)
- subtract upto 4-digit number (with and without borrowing)
- add 0 in any number, we get the same number.
- subtract basically difference of two numbers.
- subtract smaller number from a greater number.
- when we subtract 0 from any number, we get the same number.
- multiplied the number 6 by an even number then we get the same even number in ones place.

For example,  $4 \times 6 = 24$ ,  $6 \times 6 = 36$   
 $2 \times 6 = 12$


- Repeated addition of numbers is called multiplication.
- When any number is multiplied by 1 we get the same number.
- When any number is multiplied by 0 then we get 0.
- When 2-digit number is divided by 1-digit number then we divide digit at tens place firstly and then at ones place.

**Vocabulary**

- Addition
- Subtraction
- Multiplication
- Division
- Mental strategies
- Box



## Review Exercise


- 1  Tick (✓) the correct option.
- (i) Sum of 1 564 and 7 325 is \_\_\_\_\_.  
(a) 8 888 (b) 8 889 (c) 8 899 (d) 8 888
- (ii) Difference of 6 351 and 1 265 is \_\_\_\_\_.  
(a) 5 056 (b) 5 076 (c) 5 086 (d) 5 096
- (iii) 3 246 is \_\_\_\_\_ less than 1 886.  
(a) 1 350 (b) 1 360 (c) 1 370 (d) 1 380
- (iv) There are 6 eggs in a basket. Then \_\_\_\_\_ eggs are in 7 such baskets.  
(a) 21 (b) 28 (c) 35 (d) 42
- (v) When any number is multiplied by 0, we get \_\_\_\_\_.  
(a) 0 (b) 1 (c) 10 (d) 100
- (vi) By multiplying 12 by 1, we get \_\_\_\_\_.  
(a) 13 (b) 112 (c) 12 (d) 14
- (vii) By dividing 24 by 6, we get \_\_\_\_\_.  
(a) 4 (b) 5 (c) 6 (d) 7
- (viii) By dividing 84 by 4, we get \_\_\_\_\_.  
(a) 18 (b) 19 (c) 20 (d) 21



 Add:

2.  $4536 + 5314$

3.  $8645 + 3456$

 Solve the following:

4.  $4554 - 2342$

5.  $5943 - 4864$


 Solve by using mental strategies:

6.  $28 + 13 =$


7.  $58 - 32 =$

8.  $8 \times 6 =$


9.  $6 \div 3 =$

- 10  In Najeebullah's shop, there are 1 457 mangoes and 7 321 bananas. Find total number of fruits.



- 11  The total number of students in a school is 4 356. If the number of female students is 1 968, then find the number of male students.

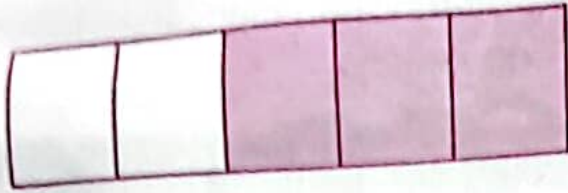


- 12  If Hanif spends Rs 35 in one day, then how many rupees will he spend in 7 days?

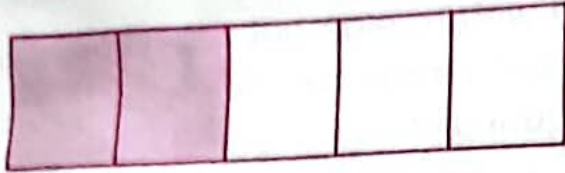
- 13  If the price of 8 kilograms of salt is Rs 96, then what will be the price of one kilogram of salt?



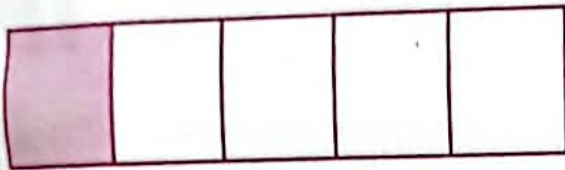
Match the given coloured figures with the fraction.



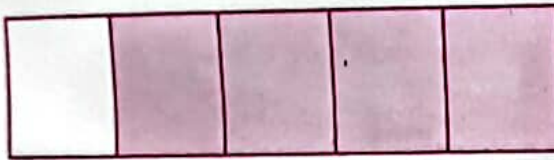
$\frac{2}{5}$



$\frac{3}{5}$



$\frac{4}{5}$



$\frac{1}{5}$

**Key Fact**

How many parts of a whole:  
 • The top number (the numerator) shows how many parts have been used.  
 • The bottom number (the denominator) shows how many equal parts the whole is divided into.

**Exercise 1**

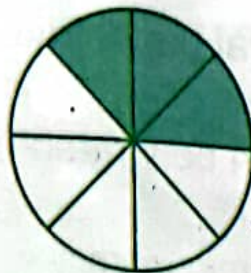
1 Identify numerator and denominator in the following fractions.

$\frac{2}{7}, \frac{3}{7}, \frac{5}{8}, \frac{2}{5}, \frac{10}{13}, \frac{9}{10}, \frac{1}{8}, \frac{2}{3}, \frac{4}{7}, \frac{3}{4}$

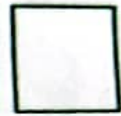
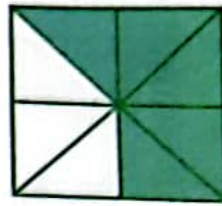
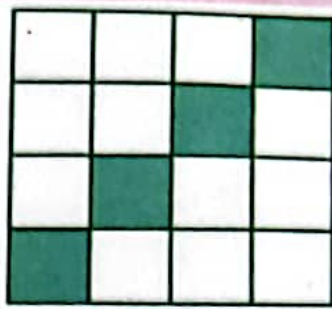
2 Write the fraction of the coloured part in the given boxes.



$\frac{1}{4}$



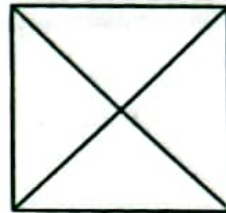




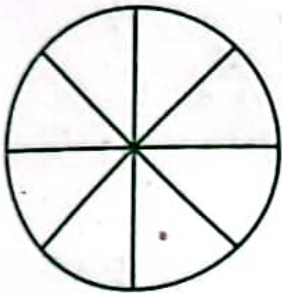
3. Colour the following figures according to the given fractions:



$$\frac{2}{3}$$



$$\frac{3}{4}$$



$$\frac{3}{8}$$



$$\frac{3}{6}$$

4. Write the fraction from the given numerator and denominator.

Numerator = 4  
Denominator = 11

$$\rightarrow \frac{4}{11}$$

(ii)

Numerator = 3  
Denominator = 11

$$\rightarrow \frac{\quad}{\quad}$$

Numerator = 4  
Denominator = 9

$$\rightarrow \frac{\quad}{\quad}$$

(iv)

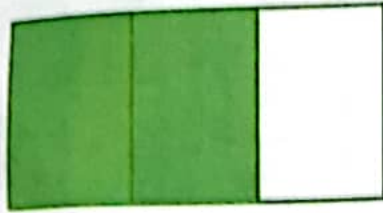
Numerator = 5  
Denominator = 7

$$\rightarrow \frac{\quad}{\quad}$$



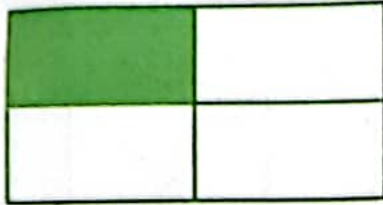
5 Match the following coloured figures with the given fractions

(i)



$\frac{3}{4}$

(ii)



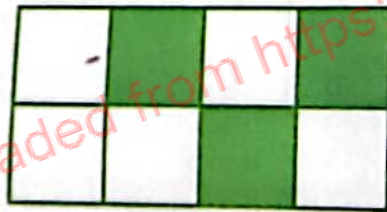
$\frac{3}{8}$

(iii)



$\frac{1}{4}$

(iv)



$\frac{2}{8}$

(v)



$\frac{2}{3}$

(vi)



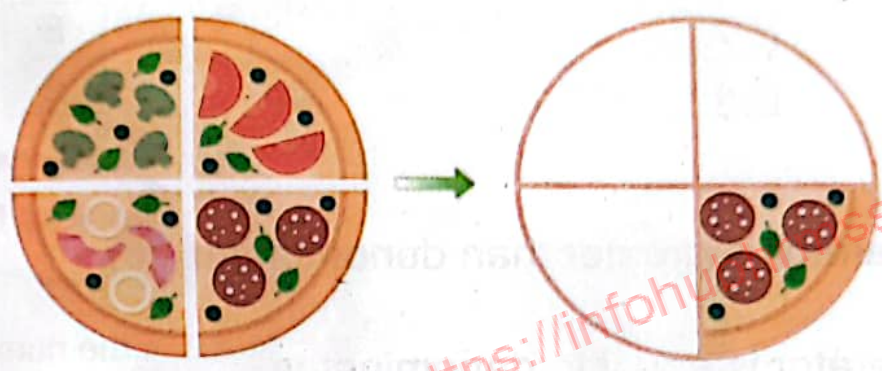
$\frac{2}{5}$



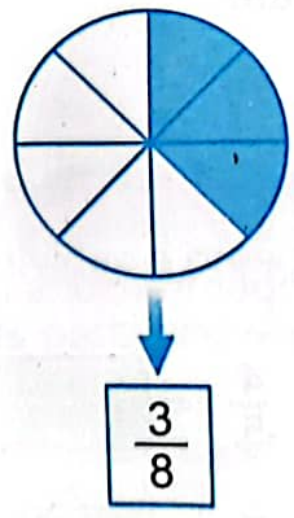
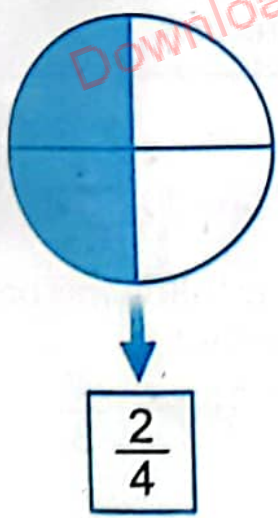
# Proper and Improper Fractions

Proper Fraction:

A pizza is divided into four equal parts. I ate three parts. How many parts are left ?



Similarly, the left over part can be written as fraction :  $\frac{1}{4}$

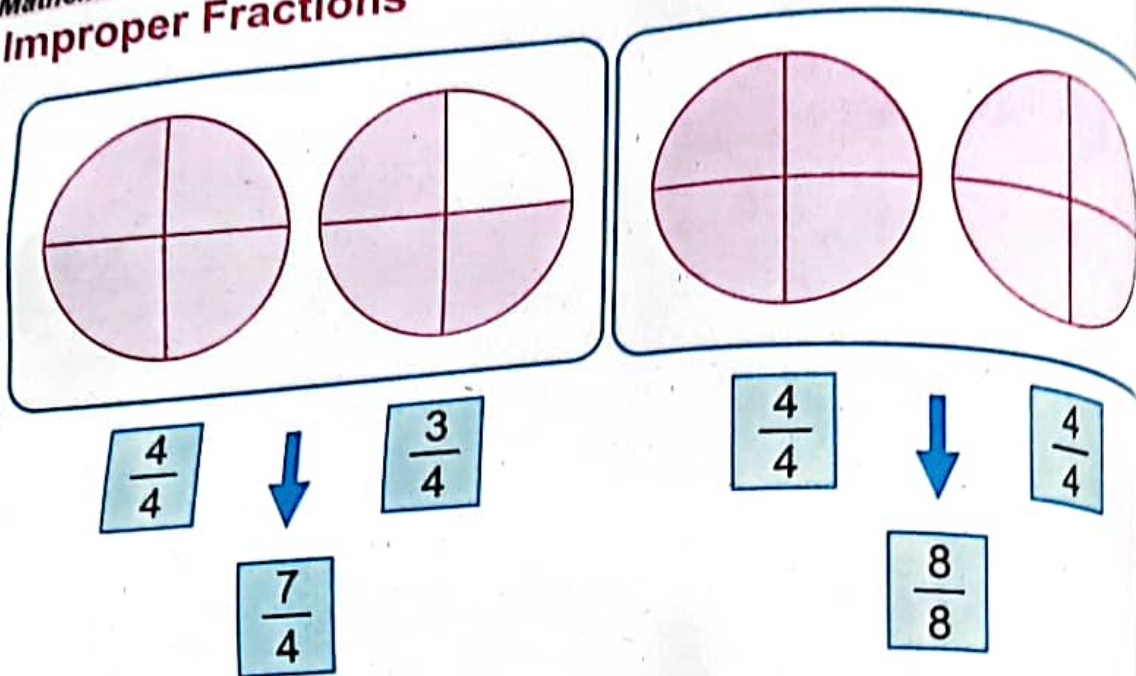


**Key Point**  
 If the numerator of a fraction is smaller than the denominator, then the fraction is called proper fraction.

In these fractions, numerators are less than denominators. Therefore, these fractions are called proper fractions.

**Check Point**  
 Is  $\frac{2}{3}$  a proper fraction?





In  $\frac{7}{4}$ , numerator is greater than denominator.

In  $\frac{8}{8}$ , numerator is equal to denominator.

Therefore, both the fractions are improper fractions.

**Key Point**

If the numerator of a fraction is greater than or equal to the denominator, then the fraction is called improper fraction.

**Exercise 2**

1 Write proper or improper fractions in the following boxes

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

(ii)  $\frac{4}{5} =$

(iii)  $\frac{4}{3} =$

(iv)  $\frac{4}{9} =$

(v)  $\frac{7}{5} =$

(vi)  $\frac{9}{5} =$

(vii)  $\frac{8}{9} =$

(viii)  $\frac{3}{7} =$

(ix)  $\frac{7}{7} =$



2 Match proper fractions with proper fractions and improper fractions with improper fractions in the following:

$$\frac{13}{6}$$

$$\frac{14}{5}$$

$$\frac{4}{5}$$

$$\frac{9}{4}$$

$$\frac{8}{5}$$

Proper fractions

Improper fractions

$$\frac{7}{12}$$

$$\frac{7}{19}$$

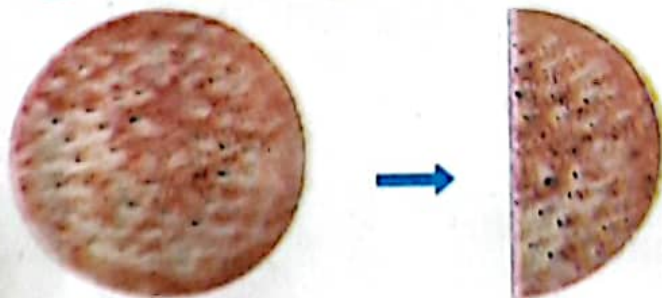
$$\frac{8}{15}$$

$$\frac{7}{9}$$

$$\frac{7}{4}$$

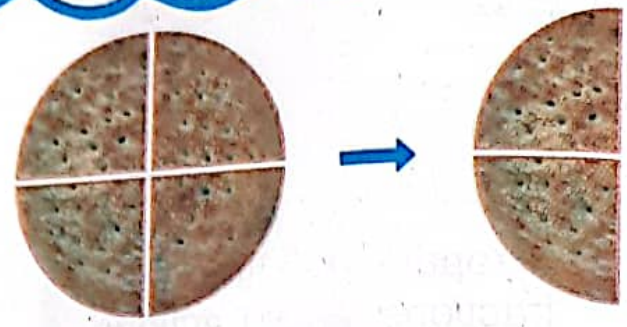
### Equivalent Fractions

Umair divides a bread into two equal parts and eats  $\frac{1}{2}$  of it.

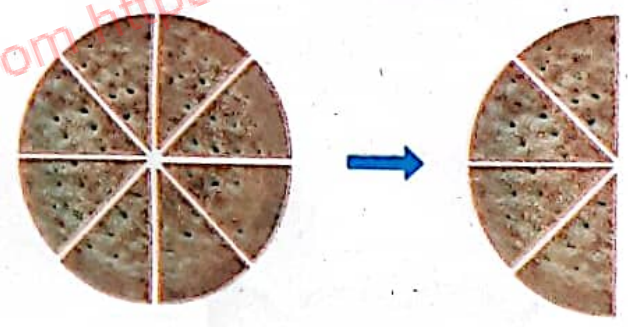




Nousheen has a bread. She divided it into four equal parts and ate  $\frac{2}{4}$  of it.



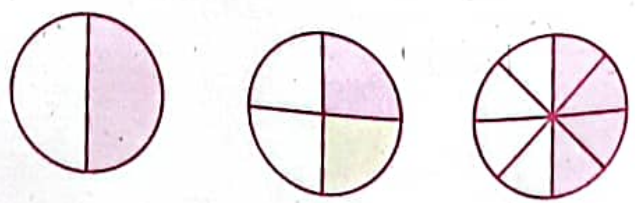
Uzair has a bread. He divided it into eight equal parts and ate  $\frac{4}{8}$  of it.



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We observe that Umair, Nousheen and Uzair ate same quantity bread.

Fractions  $\frac{1}{2}$ ,  $\frac{2}{4}$  and  $\frac{4}{8}$  look different but actually they ate same quantity of bread.



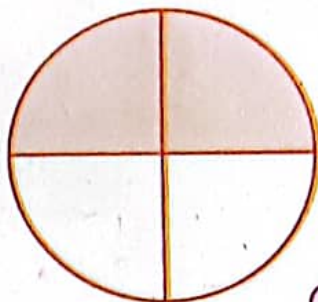
So, we can say that:  $\frac{1}{2}$ ,  $\frac{2}{4}$  and  $\frac{4}{8}$  are equivalent fractions.



To find equivalent fractions, multiply or divide the numerator and the denominator by the same non zero number.

We can write three equivalent fractions of  $\frac{1}{2}$  as:

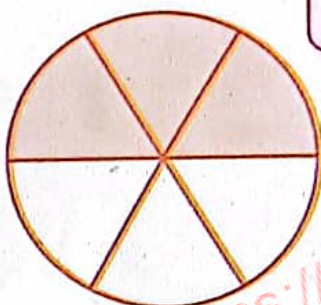
$$\frac{1}{2} = \frac{1 \times (2)}{2 \times (2)} = \frac{2}{4}$$



**Try Yourself**

What will be three equivalent fractions of  $\frac{2}{3}$ ?

$$\frac{1}{2} = \frac{1 \times (3)}{2 \times (3)} = \frac{3}{6}$$



**Key Fact**

To get equivalent fraction, multiply numerator and denominator by a non-zero number.

$$\frac{1}{2} = \frac{1 \times (4)}{2 \times (4)} = \frac{4}{8}$$



Thus, three equivalent fractions of  $\frac{1}{2}$  are:


$$\frac{2}{4}, \frac{3}{6} \text{ and } \frac{4}{8}$$

**Teaching Point**

Explain the concept of equivalent fractions by using daily life examples.



### Exercise 3

1  Match the equivalent fractions.

(i)

$$\frac{3}{5}$$

$$\frac{8}{14}$$

(ii)

$$\frac{5}{9}$$

$$\frac{1}{2}$$

(iii)

$$\frac{4}{7}$$

$$\frac{15}{21}$$

(iv)

$$\frac{3}{6}$$

$$\frac{9}{24}$$

(v)


$$\frac{3}{8}$$

$$\frac{6}{10}$$

(vi)

$$\frac{5}{7}$$

$$\frac{10}{18}$$

2  Write three equivalent fractions of each of the following

(i)  $\frac{5}{6}$

(ii)  $\frac{2}{3}$

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

(iv)  $\frac{5}{8}$

(v)  $\frac{3}{5}$

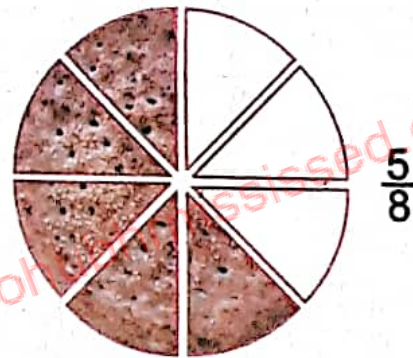
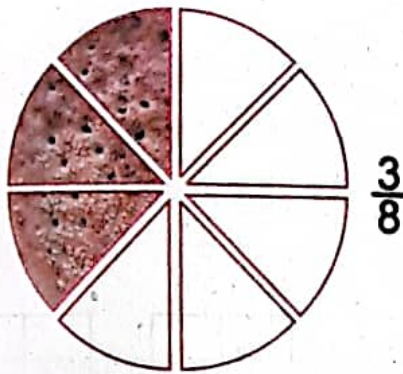
(vi)  $\frac{2}{5}$



# Comparison of Fractions

Ali eats  $\frac{3}{8}$   
part of a bread.

Saba eats  $\frac{5}{8}$   
part of a bread.



Who ate less bread?

When denominators of the fractions are same.  
We compare their numerators.

In  $\frac{3}{8}$  and  $\frac{5}{8}$ , denominators are same

but the numerators are different

i.e., 3 is smaller than 5.

$$\text{So, } \frac{3}{8} < \frac{5}{8}$$

Therefore, we can say that Ali ate less bread.

### Key Point

In two fractions with same denominators. A fraction having greater numerator than other fraction, is a greater fraction. While fractions with same numerators are equal fractions.

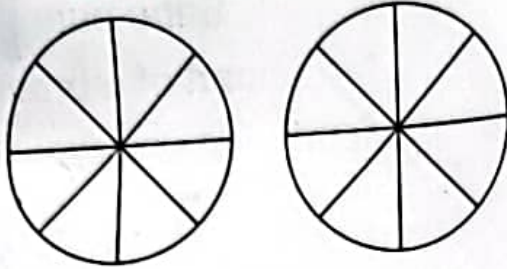


Exercise 4



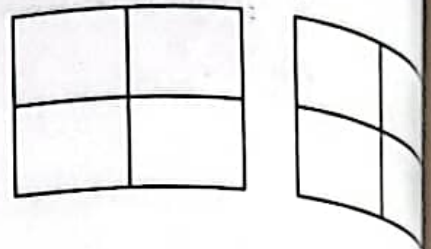
1 Colour the following figures according to fractions and then use "<" or ">" sign:

(i)



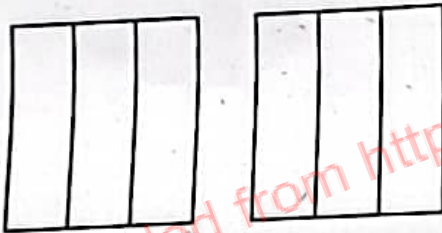
$\frac{3}{8}$    $\frac{5}{8}$

(ii)



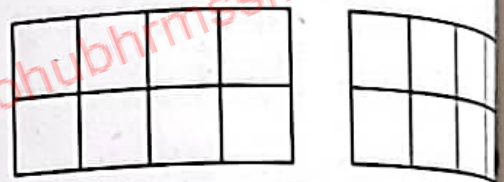
$\frac{3}{4}$    $\frac{2}{4}$

(iii)



$\frac{1}{3}$    $\frac{2}{3}$

(iv)



$\frac{5}{8}$    $\frac{3}{8}$



2 Use "<", ">" and "=" in the following fractions:

(i)  $\frac{3}{9}$    $\frac{5}{9}$

(ii)  $\frac{3}{5}$    $\frac{2}{5}$

(iii)  $\frac{4}{7}$    $\frac{4}{7}$

(iv)  $\frac{2}{3}$    $\frac{1}{3}$

(v)  $\frac{4}{9}$    $\frac{4}{9}$

(vi)  $\frac{5}{11}$    $\frac{3}{11}$



# Addition of Fractions

Zaryab and Nayab ordered one pizza. The pizza was divided into 8 equal parts. Zaryab ate 3 pieces of pizza. Nayab ate 2 pieces of pizza. How much pizza did they eat altogether?



Zaryab's ate + Nayab's ate = Total ate

$$\frac{3}{8} + \frac{2}{8} = \frac{3+2}{8} = \frac{5}{8}$$

To find the total quantity of pizza, we will add  $\frac{3}{8}$  and  $\frac{2}{8}$ .

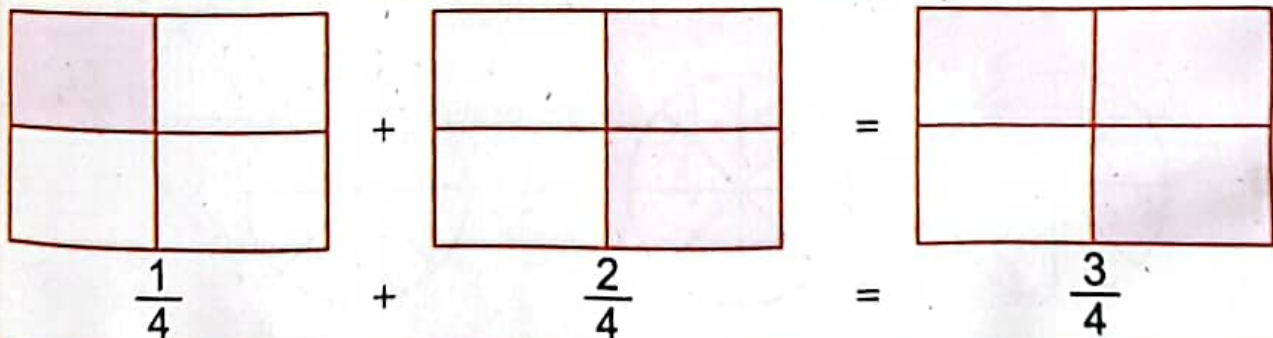
$$\begin{aligned} \text{Total pizza eaten} &= \frac{3}{8} + \frac{2}{8} \\ &= \frac{3+2}{8} \\ &= \frac{5}{8} \end{aligned}$$

**Key Fact**

To add fractions with same denominators, we add numerators only.



Add  $\frac{1}{4}$  and  $\frac{2}{4}$  through figures




**Teaching Point**


Explain the concept of addition of two fractions with same denominators to the students.

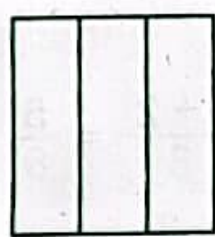
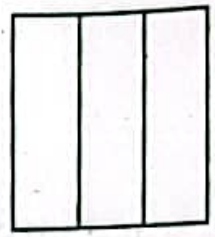



# Exercise 5

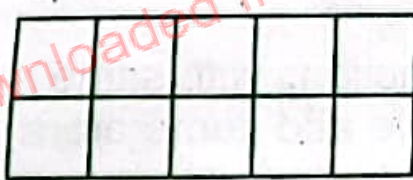
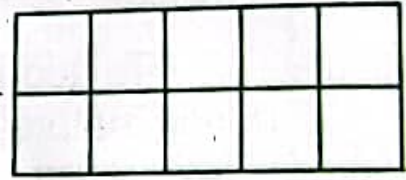

 Solve the following:

- |                                  |                                |                                |
|----------------------------------|--------------------------------|--------------------------------|
| 1. $\frac{3}{7} + \frac{2}{7}$   | 2. $\frac{3}{5} + \frac{1}{5}$ | 3. $\frac{1}{9} + \frac{4}{9}$ |
| 4. $\frac{5}{12} + \frac{2}{12}$ | 5. $\frac{1}{8} + \frac{3}{8}$ | 6. $\frac{1}{6} + \frac{3}{6}$ |


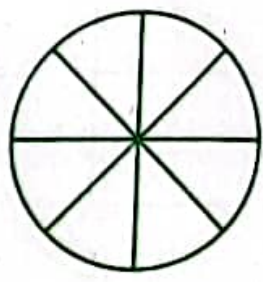

 Colour the figures according to the given fractions.

7.  +  = 

$\frac{1}{3} + \frac{1}{3} = \frac{2}{3}$

8.  +  = 

$\frac{3}{10} + \frac{4}{10} = \frac{7}{10}$

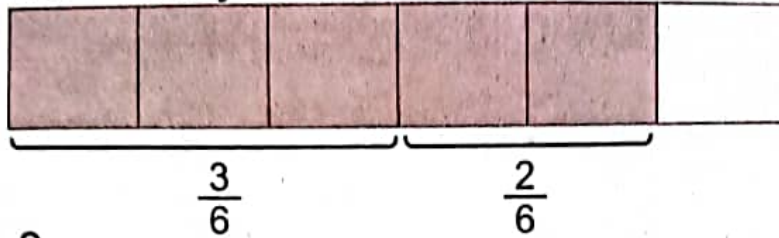
9.  +  = 

$\frac{3}{8} + \frac{2}{8} = \frac{5}{8}$



# Subtraction of Fractions

Shahzain and Tabish bought a chocolate in which Shahzain ate  $\frac{3}{6}$  part of the chocolate and Tabish ate  $\frac{2}{6}$  part of the chocolate. How much more chocolate has eaten by Shahzain than Tabish?



Shahzain ate =  $\frac{3}{6}$

Tabish ate =  $\frac{2}{6}$

Difference =  $\frac{3}{6} - \frac{2}{6}$

Shahzain ate more chocolate =  $\frac{3-2}{6} = \frac{1}{6}$

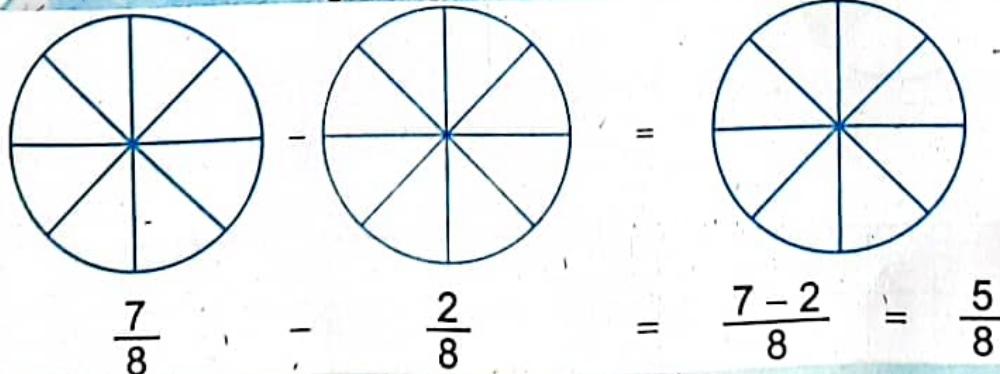
Thus, Shahzain ate  $\frac{1}{6}$  part more of the chocolate than Tabish.

**Key Fact**

To subtract fractions with same denominator, we subtract the numerators only.



Subtract  $\frac{7}{8} - \frac{2}{8}$  through figures.



**Teaching Point**

Teacher should explain the students the method of subtraction of two fractions with same denominators and give some questions for practicing.



# Exercise 6



Solve the following:

1.  $\frac{3}{7} - \frac{1}{7}$

2.  $\frac{5}{9} - \frac{1}{9}$

3.  $\frac{3}{5} - \frac{2}{5}$

4.  $\frac{5}{8} - \frac{2}{8}$

5.  $\frac{7}{12} - \frac{3}{12}$

6.  $\frac{5}{6} - \frac{3}{6}$

7.  $\frac{5}{8} - \frac{3}{8}$

8.  $\frac{5}{11} - \frac{3}{11}$

9.  $\frac{7}{15} - \frac{3}{15}$

Write the fractions of the coloured parts and then solve.

10. - =   
 - =

11. - =   
 - =

12. - =   
 - =



## I have learnt to:

## Vocabulary

- Proper fraction
- Improper fraction
- Equivalent fraction
- Comparing fractions
- Common fractions
- Addition of fractions
- Subtraction of fractions

if we divide a figure into equal parts then part/parts taken out of whole parts is called numerator.

total number of parts of a figure is known as denominator.

in proper fraction, numerator is less than denominator.

in improper fraction, numerator is greater than or equal to the denominator.

those fractions in which numerators and denominators are different but the value of those fractions is same are called equivalent fractions.

in two fractions with same denominators, fraction having greater numerator than other fraction is a greater fraction.


if numerator of two fractions with same denominators are equal then they are equal fractions.

in two fractions with same denominators, only add numerators.

in two fractions with same denominators only subtract numerators.

## Review Exercise



1  Tick (✓) the correct option.

(i) A fraction in which numerator is smaller than denominator is called \_\_\_\_\_ fraction.

- (a) proper      (b) improper      (c) equivalent      (d) common

(ii) A fraction in which numerator is greater than denominator is called \_\_\_\_\_ fraction.

- (a) equivalent      (b) common      (c) proper      (d) improper



(iii) Equivalent fraction of  $\frac{2}{5}$  is \_\_\_\_\_.

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

(b)  $\frac{4}{7}$

(c)  $\frac{4}{6}$

(d)  $\frac{4}{10}$

(iv) In fractions,  $\frac{4}{5}$    $\frac{3}{5}$ , use symbol.

(a) <

(b) >

(c) =

(d) ≠

(v) In fractions  $\frac{4}{15}$    $\frac{7}{15}$ , use symbol.

(a) >

(b) <

(c) =

(d) ≠

(vi) The sum of two fractions  $\frac{3}{15}$  and  $\frac{4}{15}$  is \_\_\_\_\_.

(a)  $\frac{1}{15}$

(b)  $\frac{7}{15}$

(c)  $\frac{7}{30}$

(d)  $\frac{1}{30}$

(vii) The difference of two fractions  $\frac{7}{9}$  and  $\frac{3}{9}$  is \_\_\_\_\_.

(a)  $\frac{4}{9}$


(b)  $\frac{10}{9}$

(c)  $\frac{10}{18}$


(d)  $\frac{4}{18}$

2  Identify numerators and denominators of the following fractions

$\frac{2}{9}$ ,  $\frac{3}{7}$ ,  $\frac{4}{5}$ ,  $\frac{10}{7}$ ,  $\frac{4}{15}$ ,  $\frac{11}{6}$

3  Separate proper and improper fractions from the following fractions:

$\frac{3}{5}$ ,  $\frac{7}{5}$ ,  $\frac{9}{6}$ ,  $\frac{3}{8}$ ,  $\frac{5}{9}$ ,  $\frac{6}{6}$ ,  $\frac{7}{18}$

4  To compare use "<", ">" or "=" sign in the following fractions

(i)  $\frac{8}{9}$    $\frac{4}{9}$

(ii)  $\frac{5}{7}$    $\frac{6}{7}$

(iii)  $\frac{4}{5}$    $\frac{4}{5}$

5  Write three equivalent fractions of the following fractions:

(i)  $\frac{2}{3}$

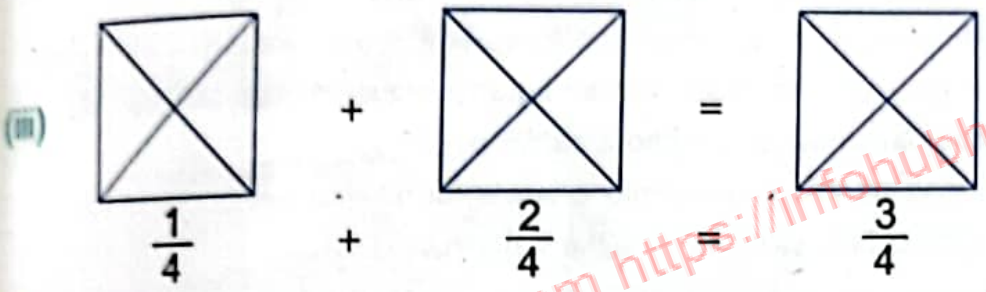
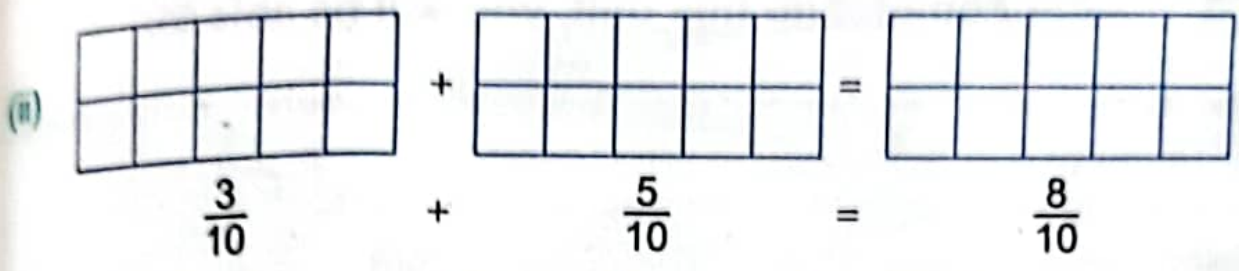
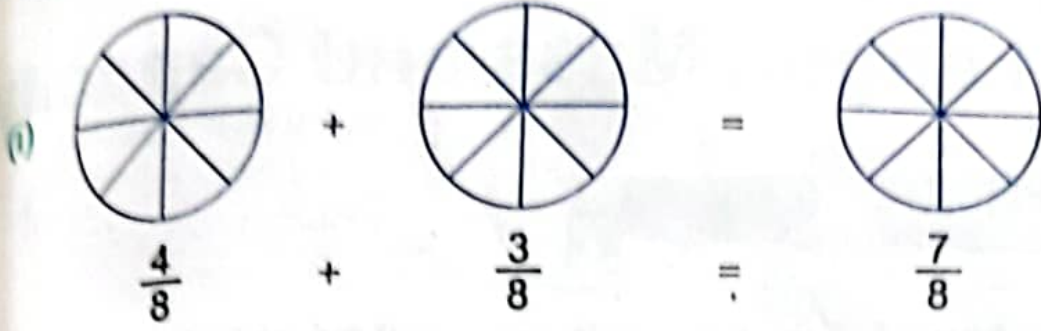
(ii)  $\frac{4}{5}$


(iii)  $\frac{3}{7}$

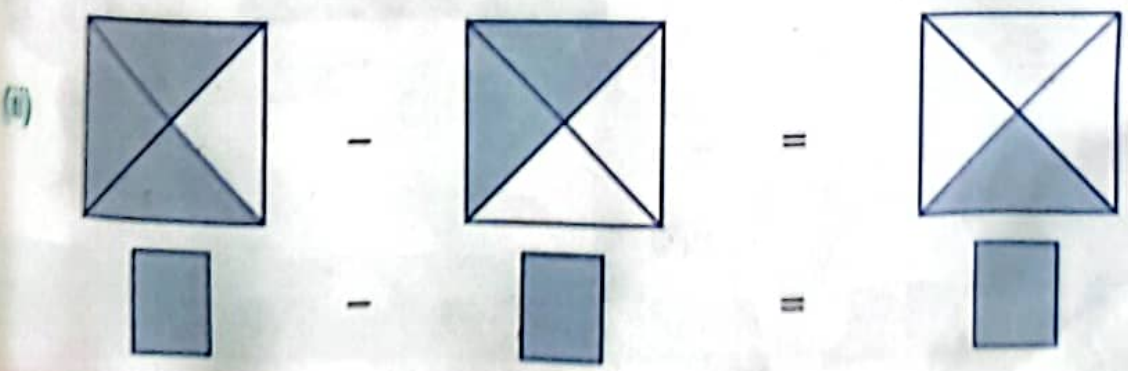
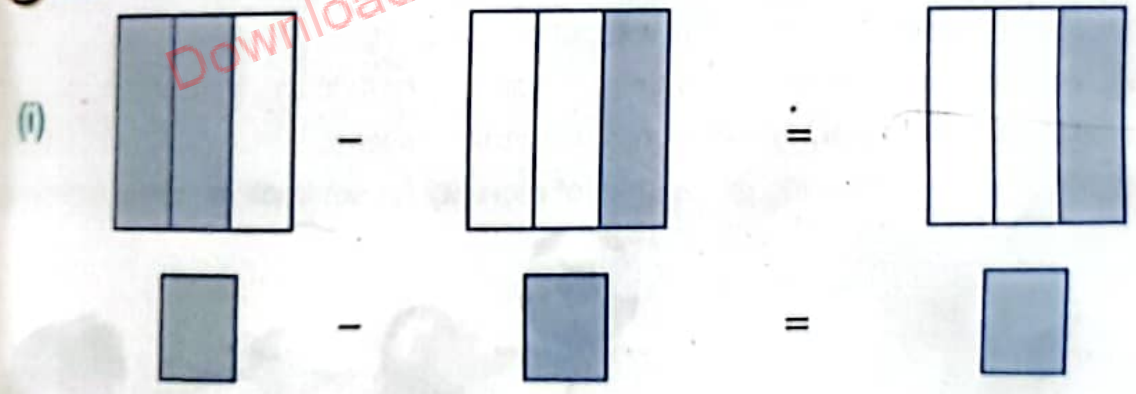
(iv)  $\frac{3}{8}$



6  Colour the figures according to the given fractions.



7  Write the fraction of the coloured parts then solve it.





# Unit 4

# Measurement: Length, Mass and Capacity

## Learning Outcomes

After completing this unit, you will be able to:

- Use standard metric units of length (kilometre, metre and centimetre) including abbreviations.
- Add measures of length in same units without carrying.
- Solve real life situations involving same units of length for addition.
- Subtract measures of length in same units without borrowing.
- Solve real life situations involving same units of length for subtraction without borrowing.
- Use standard metric units of mass (kilogram and gram) including abbreviations.
- Add measures of mass in same units without carrying.
- Solve real life situations involving same units of mass for addition without carrying.
- Subtract measures of mass in same units without borrowing.
- Solve real life situations involving same units of mass for subtraction without borrowing.
- Use standard metric units of capacity (litre and millilitre) including abbreviations.
- Add measures of capacity in same units without carrying.
- Solve real life situations involving same units of capacity for addition without carrying.
- Subtract measures of capacity in same units without borrowing.
- Solve real life situations involving same units of capacity for subtraction without borrowing.





# Length

How distance is measured from home to school?



### Key Fact

metre is written in short form as 'm'  
centimetre is written in short form as 'cm'  
 $1\text{ m} = 100\text{ cm}$

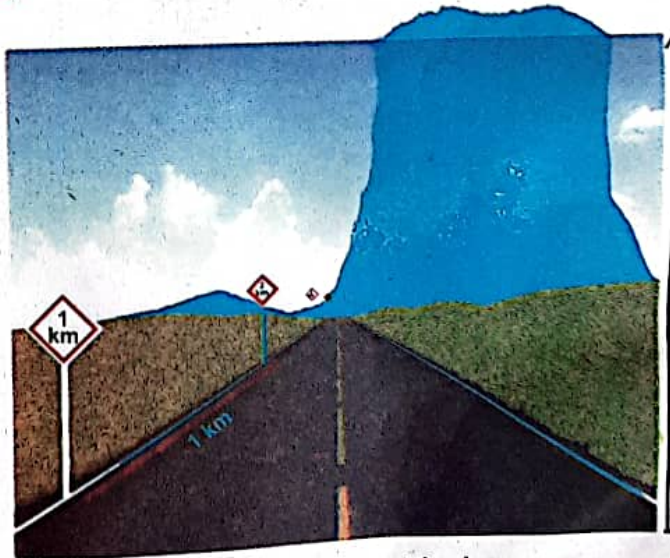
Usually schools are far away from home, so this distance is measured in kilometre (km)



About 1 cm



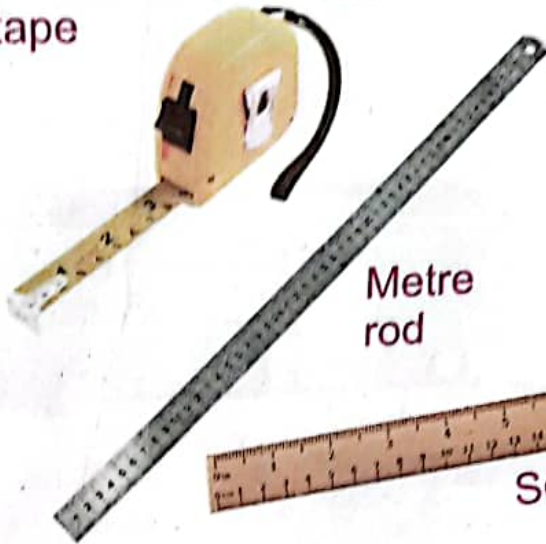
About 1 m



Measurement in km



Metallic measuring tape



Metre rod

Following measuring scales are used to measure different objects.



Scale



Plastic measuring tape

Length of table is measured in metres (m).



How can we measure the length of a table?



Its length is 1 metre and 20 centimetre.



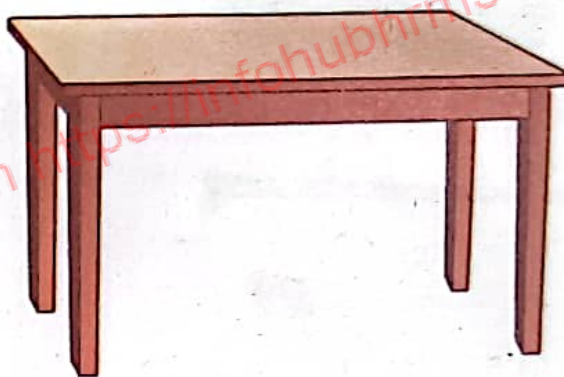
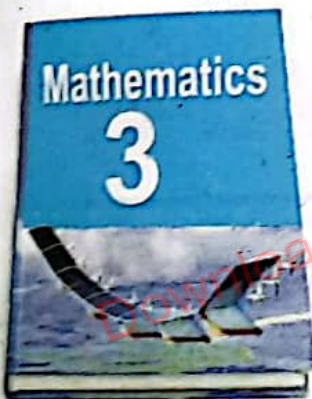
Length of my bag is 45 cm.

Length 45 cm





Which unit is suitable for measuring the following objects (metre/centimetre).



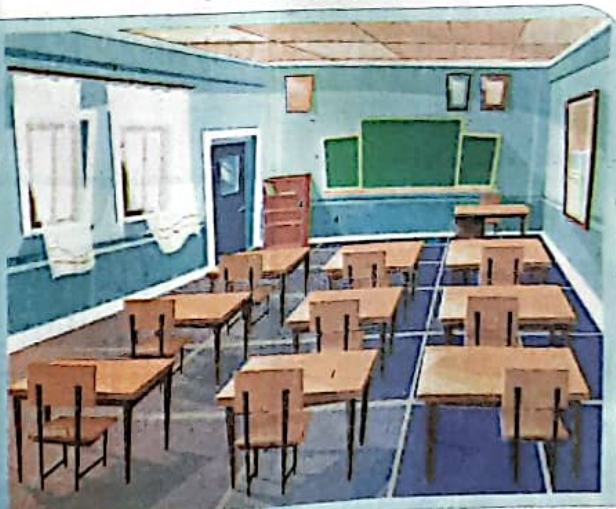
Teaching Point



Measure the length and width of your classroom with the help of measuring tape and also write the units

Length :

Width :





## Addition of Length

The distance from Khalil's office to his house is 9 km 600 m and the distance from the office to his friend's house is 13 km 200 m. How much distance will Khalil have to cover to go to friend's house?



Let's add the two distances from Khalil's office to his friend's house.



Add 9 km 600 m and 13 km 200 m.

### Key Fact

- ☆ 1 m = 100 cm
- ☆ Add centimetres into centimetres.
- ☆ Add metres into metres.

$$\begin{array}{r} 9 \text{ km } 600 \text{ m} \\ + 13 \text{ km } 200 \text{ m} \\ \hline 22 \text{ km } 800 \text{ m} \end{array}$$

Thus, Khalid will have to cover 22 Km 800 m to go to his friend's house

Add 15 km 18 m and 20 km 40 m.

$$\begin{array}{r} \textcircled{15} \text{ km } \textcircled{18} \text{ m} \\ + \textcircled{20} \text{ km } \textcircled{40} \text{ m} \\ \hline \boxed{35} \text{ km } \boxed{58} \text{ m} \end{array}$$





Arsalan bought 4 m 70 cm cloth while Rizwan bought 5 m 20 cm cloth. Find the total length of cloths they bought.



Arsalan's cloth	=	4 m 70 cm
Rizwan's cloth	= +	5 m 20 cm
Total cloth	=	9 m 90 cm

Thus, the total length of cloths was 9 m 90 cm.



Furqan went to his sister's house for Eid greetings. Distance of his sister's house is 3 km 400 m. Then they went to their grandmother's house that is 5 km 300 m away from his sister's house. Find the distance covered by Furqan.



Distance of Furqan's house from his sister's house	=	3 km 400 m
Distance from sister's house to grandmother's house	= +	5 km 300 m
Total distance	=	8 km 700 m

Thus, Furqan covered 8 km 700 m distance.



Solve the following:

1.

4 m	65 cm
+ 5 m	12 cm

2.

14 m	50 cm
+ 9 m	40 cm




3. 
$$\begin{array}{r} 7 \text{ km} \quad 632 \text{ m} \\ + 8 \text{ km} \quad 214 \text{ m} \\ \hline \end{array}$$


4. 
$$\begin{array}{r} 25 \text{ km} \quad 312 \text{ m} \\ + 21 \text{ km} \quad 676 \text{ m} \\ \hline \end{array}$$

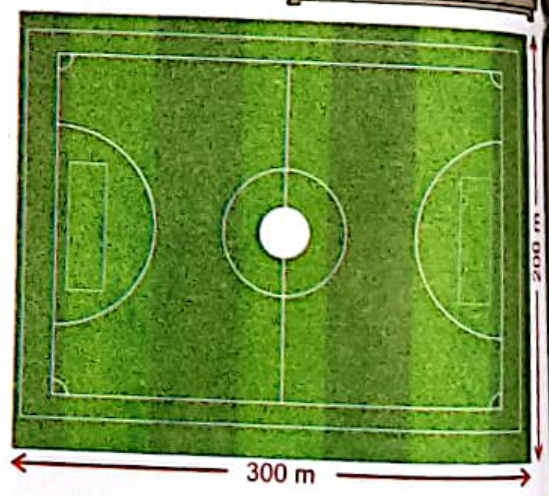
5. 
$$\begin{array}{r} 21 \text{ km} \quad 815 \text{ m} \\ + 17 \text{ km} \quad 183 \text{ m} \\ \hline \end{array}$$


6. 
$$\begin{array}{r} 41 \text{ km} \quad 745 \text{ m} \\ + 38 \text{ km} \quad 134 \text{ m} \\ \hline \end{array}$$

7.  Ahmad used two wooden boards of lengths 3 m 10 cm and 4 m 35 cm for making book shelf. Find the total length of two wooden boards.



8.  Junaid completes one round along the jogging track with length of 300 m and width of 200 m. How much distance does he cover in one round?



9.  In a long jump, Pervaiz jumps 4 m 25 cm in his first attempt and 5 m 15 cm in his second attempt. Find the total distance does he cover in two jumps.





# Subtraction of Lengths

Mount Everest is the highest peak in the world, with the height of 8 848 m. K-2 is the second highest peak with the height of 8 611 m. How much more high is Mount Everest than K-2 peak?



Mount Everest



K-2

We will subtract the two heights to find the difference of height of two peaks.

$$\begin{array}{r}
 \text{Height of Mount Everest} = 8\,848 \text{ m} \\
 \text{Height of K-2} = 8\,611 \text{ m} \\
 \hline
 \text{Difference in heights} = 237 \text{ m}
 \end{array}$$



Try it

Which unit is suitable for the following:

- Length of football ground.
- Height of mathematics book.
- Distance from Quetta to Islamabad.

Subtract 252 m 34 cm from 357 m 85 cm.

$$\begin{array}{r}
 3\,75 \text{ m } 85 \text{ cm} \\
 - 2\,52 \text{ m } 34 \text{ cm} \\
 \hline
 1\,23 \text{ m } 51 \text{ cm}
 \end{array}$$



Exercise 2



Solve the following:

(i)

51 m	86 cm
- 30 m	75 cm
<input type="text"/>	<input type="text"/>

(ii)

25 m	93 cm
- 14 m	23 cm
<input type="text"/>	<input type="text"/>

(iii)

15 km	365 m
- 13 km	252 m
<input type="text"/>	<input type="text"/>

(iv)

76 m	67 cm
- 35 m	41 cm
<input type="text"/>	<input type="text"/>

(v)

67 km	891 m
- 51 km	760 m
<input type="text"/>	<input type="text"/>

(vi)

35 km	786 m
- 13 km	675 m
<input type="text"/>	<input type="text"/>

(vii)

19 km	345 m
- 16 km	231 m
<input type="text"/>	<input type="text"/>

(viii)

19 km	708 m
- 15 km	205 m
<input type="text"/>	<input type="text"/>

Arsalan used 35 m 65 cm water pipe from 78 m 89 cm long pipe. How much pipe was left?





3



Rehana bought 19 m 82 cm lace and used 8 m 61 cm on her shirt. Find the length of remaining lace.



4



On returning from London, Subhan travelled 950 km 460 m distance by bus and taxi. If he travelled 900 km 230 m distance by bus. Find how much distance he travelled by taxi.



Try it



Route -1 = 5 800



Route -2 =

Suleman travels 5 800 metre to reach school via route - 1, while the distance from route - 2 to reach the school is 800 metre less. Find:

- The distance of route-2.
- The total distance of route-1 and route-2.



Mass



How can we weigh different objects?



Key Fact

Standard unit of mass is kilogram and gram.

We measure mass of heavy objects in kilograms (kg) and mass of light objects in grams (g)





### Weight



To find the mass of various objects different balances are used.



Read the masses of following objects and write them in the boxes.















# Addition of Mass

Amad bought 49 kg 600 g flour and 50 kg 200 g sugar. Find the total mass.



We will add both masses to find the sum of both masses.

**Key Fact**

- Add kilograms in kilograms.
- Add grams in grams.
- 1 kg = 1 000 g

Mass of flour =	49 kg	600 g
Mass of sugar =	+ 50 kg	200 g
Total mass =	99 kg	800 g

Add 17 kg 735 g and 32 kg 264 g.



**Key Fact**

- Kilogram is written in short form as 'kg'
- Gram is written in short form as 'g'

17 kg	735 g
+ 32 kg	264 g
49 kg	999 g





Hameeda bought 6 kg 500 g apples and 4 kg 250 g peaches.  
Find the total mass of fruits.



$$\begin{array}{r}
 \text{Apples} = 6 \text{ kg } 500 \text{ g} \\
 \text{Peaches} = + 4 \text{ kg } 250 \text{ g} \\
 \hline
 \text{Total mass} = 10 \text{ kg } 750 \text{ g}
 \end{array}$$

Hence, the total mass of fruits is 10 kg 750 g.



Activity

Write the mass of following fruits in the table and examine:

- Which fruit basket is heaviest?
- What is total mass of 4 fruit baskets?



3 kg



10 kg



12 kg



7 kg

Fruit	1	2	3	4
Mass				

Exercise 3

1 Solve the following:

(i)

$$\begin{array}{r}
 85 \text{ kg} \quad 245 \text{ g} \\
 + 10 \text{ kg} \quad 134 \text{ g} \\
 \hline
 \end{array}$$

(ii)

$$\begin{array}{r}
 28 \text{ kg} \quad 325 \text{ g} \\
 + 31 \text{ kg} \quad 550 \text{ g} \\
 \hline
 \end{array}$$



681 kg	845 g
+ 116 kg	102 g
<input type="text"/>	<input type="text"/>

(iv)

12 kg	340 g
+ 35 kg	257 g
<input type="text"/>	<input type="text"/>

962 kg	220 g
+ 36 kg	750 g
<input type="text"/>	<input type="text"/>

(vi)

342 kg	560 g
+ 37 kg	405 g
<input type="text"/>	<input type="text"/>



The mass of Zara and Suleman's bags are 10 kg 300 g and 12 kg 400 g respectively. What is the total mass?



Rizwan bought 6 kg 250 g sweet biscuits and 3 kg 500 g salty biscuits. Find the total mass of the biscuits.



Sohail bought 15 kg 500 g almond and 12 kg 250 g pistachio. What was the total mass?



## Subtraction of Mass

The mass of Salma's bag is 8 kg 675 g. After taking out some books the mass becomes 7 kg 550 g. What will be the mass of books that were taken out?



We will subtract to find the difference.

Subtract 7 kg 550 g from 8 kg 675 g.

Mass of Salma's bag	=	8 kg 675 g
Mass of bag after taking out books	=	- 7 kg 550 g
Mass of taken out books	=	1 kg 125 g

Thus, the mass of books that were taken out will be 1 kg 125g.

Subtract 22 kg 125 g from 35 kg 235 g.

35 kg	235 g		
- 22 kg	125 g		
13 kg	110 g		



### Try it

Which is the most suitable unit for the following masses:

- Mass of bicycle.
- Mass of pencil.





Areeba bought two watermelons with a total mass of 8 kilogram 656 gram. If the small watermelon is 3 kilogram 250 gram, then find the mass of the big watermelon.

Total mass of two watermelons =	8 kg	656 g
Mass of small watermelon =	- 3 kg	250 g
Mass of big watermelon =	5 kg	406 g



Thus, mass of big watermelon is 5 kg 406 g.



Jamil weighed 4 kg 850 g at the time of birth. He weighed 8 kg 960 g after a year. How much weight did he gain in one year?



Weight of Jamil after one year =	8 kg	960 g
Weight of Jamil at birth =	- 4 kg	850 g
Weight gained =	4 kg	110 g

Thus' Jamil gained weight of 4 kg 110 g in a year.

(Activity)



- Find the total weight of bags of 3 children.
- Which bag will have greater mass among the bags?



Note: In daily life, mass is used for the measurement of weight.



# Exercise 4



1 Solve the following:

(i)

29 kg	750 g
- 18 kg	250 g
<input type="text"/>	<input type="text"/>

(ii)

9 kg	763 g
- 7 kg	250 g
<input type="text"/>	<input type="text"/>

(iii)

87 kg	986 g
- 66 kg	350 g
<input type="text"/>	<input type="text"/>

(iv)

76 kg	565 g
- 34 kg	324 g
<input type="text"/>	<input type="text"/>

(v)

97 kg	850 g
- 53 kg	340 g
<input type="text"/>	<input type="text"/>

(vi)

82 kg	677 g
- 75 kg	500 g
<input type="text"/>	<input type="text"/>

2 A shopkeeper sold 16 kg 250 g chocolates from a chocolate carton of mass 27 kg 350 g. How much chocolates were left?



3 200 kilogram meat was used for cooking from 240 kilogram meat. How much meat was left?



# Capacity

Which container contains less than a litre of juice.



- A glass contains less than a litre of juice.
- The capacity of a jug is equal to 4 glasses of juice.



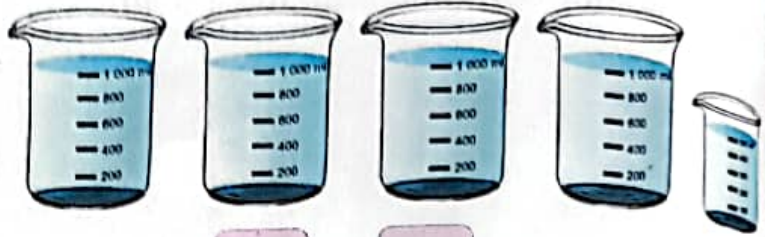
The capacity of water bottle is 1 000 millilitre or one litre.

Capacity is the quantity of liquid, a container can hold. Capacity is measured in litres or millilitres.  
 $1\text{ l} = 1,000\text{ ml}$





What is the capacity of water in the cooler?



ℓ  ml

**Key Fact**

1 litre (ℓ) = 1 000 millilitre (ml)  
The standard unit of capacity is litre.

When do we use litre and millilitre?

We use litre to measure capacity of large containers and millilitre of small containers.



Tick (✓) the containers with more capacity and cross (✗) the containers with less capacity.





# Addition of Capacity

A fish tank contains 3 litre 450 millilitre of water. 4 litre 500 millilitre of water is added to it. What is the total quantity of water?



To find out the total quantity of water, you will have to add the two quantities.

Add 3 litre 450 millilitre to 4 litre 500 millilitre.

$$\begin{array}{r}
 3\ell \quad 450\text{ ml} \\
 + 4\ell \quad 500\text{ ml} \\
 \hline
 7\ell \quad 950\text{ ml}
 \end{array}$$



### Key Fact

- Add millilitres to millilitres.
- Add litres to litres.
- 1ℓ = 1 000 ml

Add 12 litre 765 millilitre to 11 litre 231 millilitres.

$$\begin{array}{r}
 12\ell \quad 765\text{ ml} \\
 + 11\ell \quad 231\text{ ml} \\
 \hline
 23\ell \quad 996\text{ ml}
 \end{array}$$





Rizwan bought 10 litre 500 millilitre cooking oil from a shop. His mother demanded 20 litre 300 millilitre more cooking oil. How much total cooking oil Rizwan bought?

10 l	500 ml
+ 20 l	300 ml
30 l	800 ml



Thus, Rizwan bought total 30 litre 800 millilitre cooking oil.



Asif bought 2 litre 100 millilitre hand sanitizer on Monday and 3 litre 200 millilitre on Wednesday. How much did Asif buy altogether?

Monday	=	2 l	100 ml
Wednesday	=	+ 3 l	200 ml
Total	=	5 l	300 ml



Thus, Asif bought total 5 l 300 ml of hand sanitizer.

### Exercise 5



1 Solve the following:

(i)

15 l	675 ml
+ 32 l	312 ml

(ii)

8 l	350 ml
+ 9 l	245 ml

(iii)

42 l	651 ml
+ 21 l	248 ml

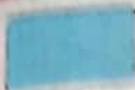
(iv)

35 l	459 ml
+ 63 l	510 ml



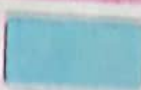
(v)

$$\begin{array}{r} 73\ell \\ + 23\ell \\ \hline \end{array} \quad \begin{array}{r} 342\text{ ml} \\ 610\text{ ml} \\ \hline \end{array}$$



(vi)

$$\begin{array}{r} 54\ell \\ + 25\ell \\ \hline \end{array} \quad \begin{array}{r} 800\text{ ml} \\ 125\text{ ml} \\ \hline \end{array}$$



One bottle has 3 litre 240 millilitre and other has 5 litre 350 millilitre of water. How many litres of water is in both bottles?



A house uses 35 litres of canola oil and 15 litres of soybean oil. How many litres of oil is used in total?



Farida asks for 3l 500 ml of milk for the children to drink and 4l of milk for tea. How many litres of milk does Farida order?





## Subtraction of Capacity

The capacity of a water cooler is 6 l 800 ml.  
Farhan has a bottle with a capacity of 1 l 500 ml. He fills the bottle from the cooler.  
How much water is left in the water cooler?



We will subtract to find the quantity of water.

Subtract 1 litre 500 millilitre from 6 litre 800 millilitre.

$$\begin{array}{r} 6 \text{ l } 800 \text{ ml} \\ - 1 \text{ l } 500 \text{ ml} \\ \hline 5 \text{ l } 300 \text{ ml} \end{array}$$

### Key Fact

- Subtract litres from litres.
- Subtract millilitres from millilitres.

Subtract 6 litre 425 millilitre from 8 litre 627 millilitre.

$$\begin{array}{r} 8 \text{ l } 627 \text{ ml} \\ - 6 \text{ l } 425 \text{ ml} \\ \hline 2 \text{ l } 202 \text{ ml} \end{array}$$

Remember!

litre = l

Millilitre = ml





Arif bought 45 litre 500 millilitre petrol and used 30 litre of petrol from it. How many litre of petrol is left in the car?

Petrol bought = 45 l 500 ml

Petrol used = - 30 l 000 ml

Petrol left = 15 l 500 ml



Thus, 15 l 500 ml of petrol is left in the car.

A container had 5 litre 750 millilitre of juice. Ahmad drank 550 ml and his elder brother drank 2 l of juice. How much juice is left?

Total Juice in the container = 5 l 750 ml

Juice drank by Ahmad and his elder brother = - 2 l 550 ml

Juice left = 3 l 200 ml



Thus, 3 litre 200 millilitre juice is left in the container.

Exercise 6



1 Solve the following:

(i) 
$$\begin{array}{r} 18 \text{ l} \quad 655 \text{ ml} \\ - 12 \text{ l} \quad 321 \text{ ml} \\ \hline \end{array}$$

(ii) 
$$\begin{array}{r} 8 \text{ l} \quad 742 \text{ ml} \\ - 7 \text{ l} \quad 421 \text{ ml} \\ \hline \end{array}$$



(iii) What is standard unit of mass?


- (a) metre
- (b) litre
- (c) kilometre
- (d) kilogram

(iv) What is abbreviation of units of litre?

- (a) ml
- (b) g
- (c) l
- (d) kg

(v) If I had two cans of 800 ml juice, what would be the total quantity?

- (a) 200 ml
- (b) 1 000 ml
- (c) 800 ml
- (d) 1 600ml

2  Solve the following:

(i)

5 m	35 cm
+ 3 m	42 cm
<input type="text"/>	<input type="text"/>

(ii)


7 km	219 cm
+ 3 km	340 cm
<input type="text"/>	<input type="text"/>

(iii)

8 m	42 cm
- 3 m	32 cm
<input type="text"/>	<input type="text"/>

(iv)

9 km	695 m
- 5 km	362 m
<input type="text"/>	<input type="text"/>

3  Solve the following:

(i)

4 kg	490 g
+ 3 kg	507 g
<input type="text"/>	<input type="text"/>

(ii)

7 kg	600 g
+ 6 kg	250 g
<input type="text"/>	<input type="text"/>



(iii)

$$\begin{array}{r} 9 \text{ kg } 500 \text{ g} \\ - 7 \text{ kg } 300 \text{ g} \\ \hline \end{array}$$

--	--

(iv)

$$\begin{array}{r} 15 \text{ kg } 750 \text{ g} \\ - 11 \text{ kg } 250 \text{ g} \\ \hline \end{array}$$

--	--



Solve the following:

(i)

$$\begin{array}{r} 8 \ell \quad 780 \text{ ml} \\ + 5 \ell \quad 217 \text{ ml} \\ \hline \end{array}$$

--	--

(ii)

$$\begin{array}{r} 7 \ell \quad 500 \text{ ml} \\ + 4 \ell \quad 250 \text{ ml} \\ \hline \end{array}$$

--	--

(iii)

$$\begin{array}{r} 9 \ell \quad 300 \text{ ml} \\ - 4 \ell \quad 200 \text{ ml} \\ \hline \end{array}$$

--	--

(iv)

$$\begin{array}{r} 6 \ell \quad 500 \text{ ml} \\ - 5 \ell \quad 200 \text{ ml} \\ \hline \end{array}$$

--	--

5

The mass of two sacks of rice is 100 kg and 80 kg respectively. What is the total mass of both sacks?



6

A shopkeeper sold 120 metre of ribbon out of 350 metre. Find out the length of the rest of ribbon.



7

The capacity of water bottle is 5 litres, there is 4 litres of water in it. How many more litres of water is needed to fill it?





# Unit 5

# Measurement: Time



## Learning Outcomes

After completing this unit, you will be able to:

- Use a.m. and p.m. to record the time from 12-hour clock.
- Read and write time from analog and digital clock.
- Read and write days and dates from the calendar.
- Add measurements of time in hours.
- Solve real life situations involving measurements of time for addition of hours.
- Subtract measurements of time in hours.
- Solve real life situations involving subtraction of measurements of time in hours.



Look at the clock, what is the time?



# Analog and digital clocks



Umair: Look Aziz! my father has bought this watch.

Aziz: Wow! it is a beautiful watch. Can you tell the use of time?



Umair: " Yes Aziz, why not: It has a minute hand and an hour hand. It is an analog clock."



Aziz: " My mother has also bought a clock for me in which no hour hand and minute hand are shown and we can see the time in this way."



Umair: " This is called a digital clock."





Look at the clocks and write the time.

We get up early in the morning.



6 : 00 a.m.

Children go to school.



a.m.

It is off time of school.



p.m.

We take dinner.



p.m.

**Key point**

The time from midnight to 12 noon is known as ante meridiem which can be written as (a.m.). Similarly, the time from 12 noon to midnight is known as post meridiem which can be written as (p.m.).



Read the time from analog clock and write in the given boxes.



**Key Fact**

- There are 1 to 12 digits on the dial of an analog clock.
- Long hand shows the minutes and small hand shows hours .
- 1 hour = 60 minutes.

From the given digital clock, read time and write in the given boxes.

**Key Fact**

There are only digits in the digital clock. Left side digits show the hours while right side digits show the minutes.



**Teaching Point**

Teacher place analog clock and digital clock in front of students and help them in reading time. Repeat this activity a number of time.





# Exercise 1

1 Write the time in a.m and p.m in the following boxes:

(i) Khalid goes to the office in the morning.





(ii) Children play football in the evening.





(iii) Ayesha rides on bus for going to school.





(iv) Bus reaches village from the city in the evening.





(v) We take dinner.








Read the time from the following analog clock and write in the given box:

(i)



(ii)



(iii)



(iv)



(v)



(vi)



(vii)



(viii)



(ix)





3 Match the time of analog clock with the digital clock in the following:



Read and write days and dates from the calendar.



Do you know my birthday is on 7th of March. You must come.

What day it will be? Let us look at the calendar.





# Calendar

January							February							March							April								
Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat		
					1	2	1	2	3	4	5	6	1	2	3	4	5	6						1	2	3			
3	4	5	6	7	8	9	7	8	9	10	11	12	13	7	8	9	10	11	12	13	4	5	6	7	8	9	10		
10	11	12	13	14	15	16	14	15	16	17	18	19	20	14	15	16	17	18	19	20	11	12	13	14	15	16	17		
17	18	19	20	21	22	23	21	22	23	24	25	26	27	21	22	23	24	25	26	27	18	19	20	21	22	23	24		
24	25	26	27	28	29	30	28							28	29	30	31				25	26	27	28	29	30			
May							June							July							August								
Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat		
						1			1	2	3	4	5						1	2	3	1	2	3	4	5	6	7	
2	3	4	5	6	7	8	6	7	8	9	10	11	12	4	5	6	7	8	9	10	8	9	10	11	12	13	14		
9	10	11	12	13	14	15	13	14	15	16	17	18	19	11	12	13	14	15	16	17	15	16	17	18	19	20	21		
16	17	18	19	20	21	22	20	21	22	23	24	25	26	18	19	20	21	22	23	24	22	23	24	25	26	27	28		
23	24	25	26	27	28	29	27	28	29	30				25	26	27	28	29	30	31	29	30	31						
September							October							November							December								
Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat		
						1	31						1	2	1	2	3	4	5	6						1	2	3	4
5	6	7	8	9	10	11	3	4	5	6	7	8	9	7	8	9	10	11	12	13	5	6	7	8	9	10	11		
12	13	14	15	16	17	18	10	11	12	13	14	15	16	14	15	16	17	18	19	20	12	13	14	15	16	17	18		
19	20	21	22	23	24	25	17	18	19	20	21	22	23	21	22	23	24	25	26	27	19	20	21	22	23	24	25		
26	27	28	29	30			24	25	26	27	28	29	30	28	29	30				26	27	28	29	30	31				

In calendar, March 7th is Sunday.

## Try Yourself

What date will be on the first Friday of July?

## Key Fact

1 day = 24 hours

1 week = 7 days

1 year = 12 months

## Teaching Point

Teacher will hang the calendar in the class and will ask the students to mark their birthdays.



Exercise 2



Calendar

January							February							March							April						
Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat
31					1	2	1	2	3	4	5	6	1	2	3	4	5	6					1	2	3		
3	4	5	6	7	8	9	7	8	9	10	11	12	13	7	8	9	10	11	12	13	4	5	6	7	8	9	10
10	11	12	13	14	15	16	14	15	16	17	18	19	20	14	15	16	17	18	19	20	11	12	13	14	15	16	17
17	18	19	20	21	22	23	21	22	23	24	25	26	27	21	22	23	24	25	26	27	18	19	20	21	22	23	24
24	25	26	27	28	29	30	28							28	29	30	31				25	26	27	28	29	30	
May							June							July							August						
Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat
30	31					1	1	2	3	4	5					1	2	3	1	2	3	4	5	6	7		
2	3	4	5	6	7	8	6	7	8	9	10	11	12	4	5	6	7	8	9	10	8	9	10	11	12	13	14
9	10	11	12	13	14	15	13	14	15	16	17	18	19	11	12	13	14	15	16	17	15	16	17	18	19	20	21
16	17	18	19	20	21	22	20	21	22	23	24	25	26	18	19	20	21	22	23	24	22	23	24	25	26	27	28
23	24	25	26	27	28	29	27	28	29	30				25	26	27	28	29	30	31	29	30	31				
September							October							November							December						
Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4	31					1	2	1	2	3	4	5	6					1	2	3	4
5	6	7	8	9	10	11	3	4	5	6	7	8	9	7	8	9	10	11	12	13	5	6	7	8	9	10	11
12	13	14	15	16	17	18	10	11	12	13	14	15	16	14	15	16	17	18	19	20	12	13	14	15	16	17	18
19	20	21	22	23	24	25	17	18	19	20	21	22	23	21	22	23	24	25	26	27	19	20	21	22	23	24	25
26	27	28	29	30			24	25	26	27	28	29	30	28	29	30				26	27	28	29	30	31		



Look at the calendar and answer the following questions.

- (i) What is the day on January 31?
- (ii) Umair's birthday is on the second Wednesday of April. What is the date?
- (iii) Ahsan's examination starts from 3rd to December. What is the day?
- (iv) What is the date on last Friday of February?
- (v) What is the day on 23rd of March?




# Addition of time

A train takes 12 hours from Quetta to Sukhur and 9 hours from Sukhur to Multan. How much time it takes from Quetta to Multan?



Time taken by train from Quetta to Sukhur = 12 h

Time taken by train from Sukhur to Multan = + 9 h

Total time taken = 21 h

Thus, train will reach in 21 hours from Quetta to Multan

(i) Add 5 hours to 4 hours

(ii) Add 12 hours to 8 hours

5 h  
+ 4 h  
-----  
9 h

12 h  
+ 8 h  
-----  
20 h

**Key Fact**  
Hours are denoted by "h"


Teaching Point

Teacher will ask questions about real life situations related to addition of time from different groups of the students.



# Exercise 3



1  Solve the following:

(i) 
$$\begin{array}{r} 5 \text{ h} \\ + 3 \text{ h} \\ \hline \end{array}$$


(ii) 
$$\begin{array}{r} 6 \text{ h} \\ + 4 \text{ h} \\ \hline \end{array}$$


(iii) 
$$\begin{array}{r} 10 \text{ h} \\ + 5 \text{ h} \\ \hline \end{array}$$

(iv) 
$$\begin{array}{r} 10 \text{ h} \\ + 8 \text{ h} \\ \hline \end{array}$$


(v) 
$$\begin{array}{r} 7 \text{ h} \\ + 8 \text{ h} \\ \hline \end{array}$$

(vi) 
$$\begin{array}{r} 15 \text{ h} \\ + 5 \text{ h} \\ \hline \end{array}$$

2  Saiqa's mother spends 5 hours for household chores and 2 hours for reading books. How much time dose she spend altogether?

3  Waleed studies Science for 10 hours and Mathematics for 8 hours in a week. How much time dose he spend for both the subjects?



4  A bus takes 9 hours to reach from Peshawar to Zhob and takes 8 hours from Zhob to Quetta. What is the total time taken from Peshawar to Quetta?





Subtraction of time in hours

Ahmad took 8 hours for preparation of Mathematics test while Bilal took 12 hours. How much more time did Bilal spend?



Time taken by Bilal for preparation of Mathematics = 12 h

Time taken by Ahmad for preparation of Mathematics = - 8 h

More time taken by Bilal than Ahmad = 4 h

Bilal spent 4 hours more than Ahmad

Subtract the following:

$$\begin{array}{r} 9 \text{ h} \\ - 5 \text{ h} \\ \hline 4 \text{ h} \end{array}$$

$$\begin{array}{r} 15 \text{ h} \\ - 8 \text{ h} \\ \hline 7 \text{ h} \end{array}$$

**Key point**

Always subtract the lesser time from the greater time.

**Teaching Point**

Teacher will ask questions about real life situations related to subtraction of time from different groups of the students.



# Exercise 4



1 Solve the following:

(i) 
$$\begin{array}{r} 8 \text{ h} \\ - 5 \text{ h} \\ \hline \end{array}$$

(ii) 
$$\begin{array}{r} 18 \text{ h} \\ - 7 \text{ h} \\ \hline \end{array}$$

(iii) 
$$\begin{array}{r} 15 \text{ h} \\ - 6 \text{ h} \\ \hline \end{array}$$

(iv) 
$$\begin{array}{r} 18 \text{ h} \\ - 11 \text{ h} \\ \hline \end{array}$$

(v) 
$$\begin{array}{r} 16 \text{ h} \\ - 10 \text{ h} \\ \hline \end{array}$$

(vi) 
$$\begin{array}{r} 21 \text{ h} \\ - 8 \text{ h} \\ \hline \end{array}$$

2 Affan took 4 hours while his sister Areesha took 2 hours for cycling. How much more hours did Affan spend for cycling than Areesha? If Areesha started cycling at 11:00 a.m, then at what time did she stop cycling?

3 Nasir can build a wall in 8 hours while Umair builds the same wall in 5 hours. How much more time does Nasir spend to build the wall?



4 Saira spends 8 hours for studying Science while 5 hours for studying Mathematics. How much more time dose she spend for Mathematics than Science?





# I have learnt to:

- there are 12 digits on the dial of an analog clock.
- long hand shows the minutes and the small hand shows the hours.
- addition and subtraction of time is similar to the addition and subtraction of numbers.

## Vocabulary

- Digital Clock
- Analog Clock
- Hour Hand
- Minute Hand

## Review Exercise




Match the time of analog clock with digital clock in the following figures:





Mathematics-3


2  Ahmad studies Mathematics for 3 hours, English for 2 hours and Islamiyat for 1 hour. How much time does Ahmad spend altogether?

3  Answer the following questions:


Calendar

- (i) What is the date on the first Monday of May?
- (ii) What is the day on 15th of May?
- (iii) What is the date on the second Friday of May?
- (iv) What is the date on the third Saturday of May?
- (v) What is the day on 31st of May?

January							February							March							April							
Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	
					1	2	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4	5	6	7			
3	4	5	6	7	8	9	7	8	9	10	11	12	13	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
10	11	12	13	14	15	16	14	15	16	17	18	19	20	14	15	16	17	18	19	20	11	12	13	14	15	16	17	
17	18	19	20	21	22	23	21	22	23	24	25	26	27	21	22	23	24	25	26	27	18	19	20	21	22	23	24	
24	25	26	27	28	29	30	28							28	29	30	31				25	26	27	28	29	30		
May							June							July							August							
Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	
30	31				1		6	7	8	9	10	11	12	4	5	6	7	8	9	10	8	9	10	11	12	13	14	
2	3	4	5	6	7	8	13	14	15	16	17	18	19	11	12	13	14	15	16	17	15	16	17	18	19	20	21	
9	10	11	12	13	14	15	20	21	22	23	24	25	26	18	19	20	21	22	23	24	22	23	24	25	26	27	28	
16	17	18	19	20	21	22	27	28	29	30				25	26	27	28	29	30	31	29	30	31					
23	24	25	26	27	28	29																						
September							October							November							December							
Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	
					1	2	31					1	2	1	2	3	4	5	6						1	2	3	4
5	6	7	8	9	10	11	10	11	12	13	14	15	16	7	8	9	10	11	12	13	5	6	7	8	9	10	11	
12	13	14	15	16	17	18	17	18	19	20	21	22	23	14	15	16	17	18	19	20	12	13	14	15	16	17	18	
19	20	21	22	23	24	25	24	25	26	27	28	29	30	21	22	23	24	25	26	27	19	20	21	22	23	24	25	
26	27	28	29	30										28	29	30				26	27	28	29	30	31			

4  A car took 5 hours from Rawalpindi to Lahore while 6 hours from Lahore to Multan. How much time did the car take to reach from Rawalpindi to Multan?



5  A train took 13 hours from Lahore to Sukhur. If the same train took 6 hours from Lahore to Multan. How much time did the train take to reach Sukhur from Multan?





# Unit 6

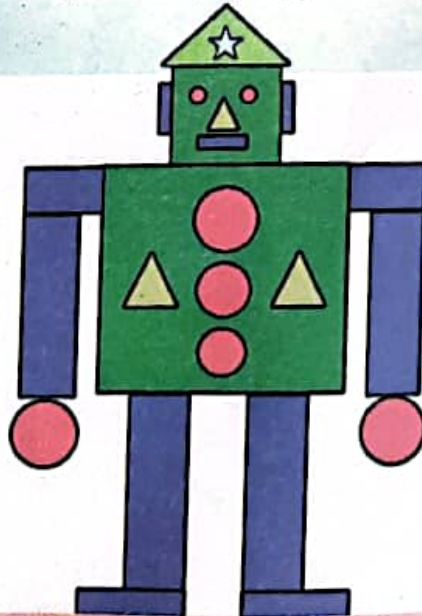
# Geometry



## Learning Outcomes

After completing this unit, you will be able to:

- Draw and measure line segments to the nearest centimetre and millimetre.
- Recognize point, line, ray and line segment.
- Classify figures according to number of sides as quadrilaterals (rectangles, square) and triangles.
- Calculate perimeter of square, rectangle and triangle
- Identify centre, radius and diameter of a circle.
- Identify reflective symmetry in two-dimensional (2-D) shapes.
- Identify and draw lines of symmetry
- Describe 3-D objects (cubes, cuboids, and pyramids) with respect to the number of edges and faces.
- Differentiate 3-D objects (cubes, cuboids, and pyramids) with respect to number of edges and faces.



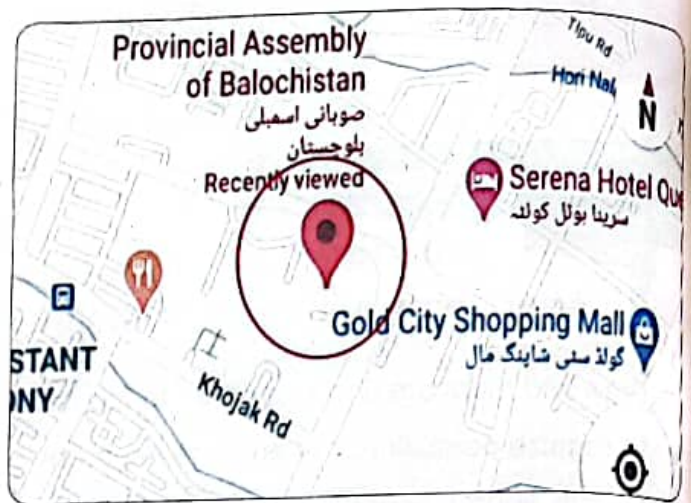
List down the shapes, you can see in the figure.



# Point, line, ray and line segment

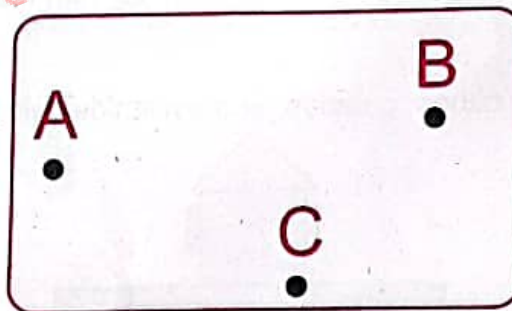
## Point

Ayesha and Rizwan are navigating Quetta on Google Map. Ayesha searched for Provincial Assembly and Rizwan for Serena hotel. They saw that both places are identified by points on the Google Map.



These points identify the correct location of the places

The points are used for location of place or position of objects. A point is represented by dot (.), on paper, and is denoted by capital letters as shown below.



## Line

On Google Map, the distance between Quetta and Khuzdar is shown by a line.







A line is a straight path that keeps going on in both directions. It is represented by  $\overleftrightarrow{AB}$ .



The above line can be represented by  $\overleftrightarrow{AB}$

### Key Fact

- A line has no end point
- A line extends in both directions

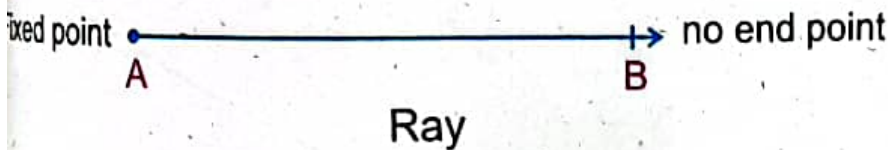
### Ray



A ray is a part of a line. It has fixed initial point but can be extended to other directions. It is represented by  $\overrightarrow{AB}$

### Key point

- A ray has one end point
- A ray extends only in one direction.



### Check Point

Can we write?

$$\overrightarrow{AB} = \overrightarrow{BA}$$



# Line Segment



Line segment is a part of a line. It has two end points. It can be written as AB.

**Key point**

- Line segment cannot be extended to any direction. It has fixed length.



The length of the line segment AB is 4cm and is written as:  $AB = 4\text{cm}$



Label the following as a point, a line, a line segment or a ray.

**Teaching Point** Give flash cards of different shapes and instruct to the students to identify point, line, line segment and ray.



# Draw and measure line segment (centimetre and millimetre)



Draw a line segment AB  
 $AB = 4\text{cm}$

(i) Place the scale on the paper



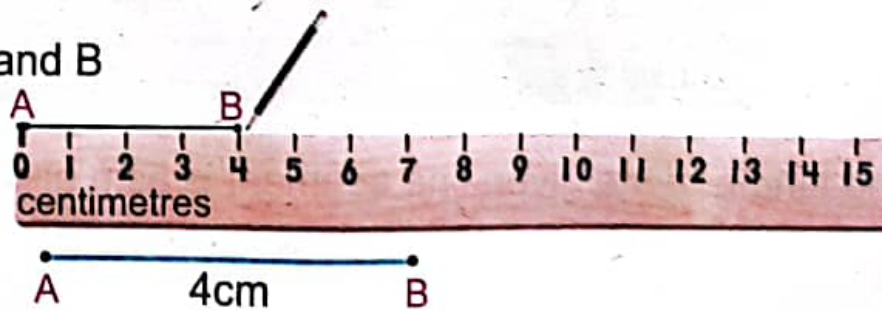
(ii) Mark a point A at 0 of the scale.



(iii) Mark a point B on 4 cm of the scale



(iv) Join the points A and B



Thus, the required line segment  $AB = 4\text{ cm}$

Teaching Point

Write the lengths of different line segments on white board for students to draw.

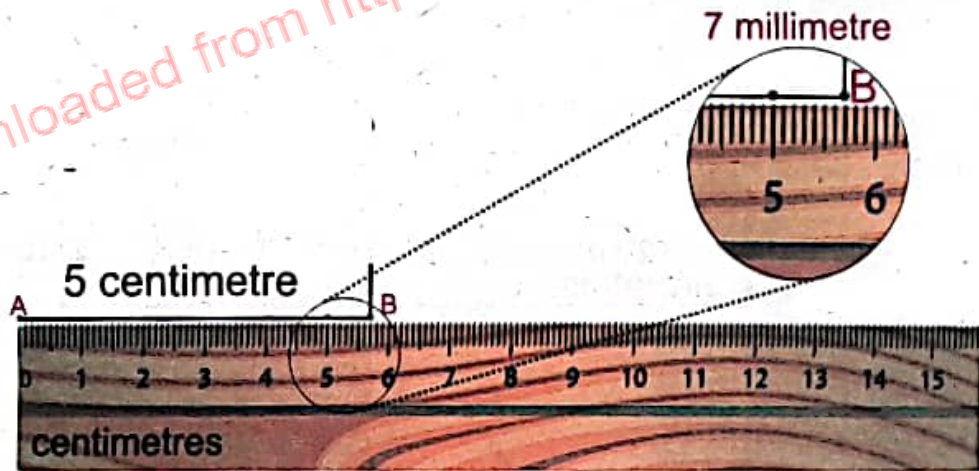




Measure the given line segment AB in centimetre and millimetre



- (i) Place the ruler on the line segment AB that zero of the scale matches with the point "A"
- (ii) Read the value on the scale that matches with the point "B"
- (iii) The value of the scale that matches with point "B" is the length of the line segment



The length of the given line segment is 5cm and 7mm

**Key Fact**  
1 cm = 10 mm



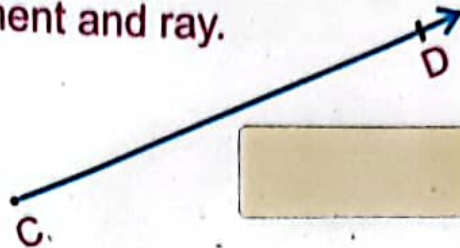


# Exercise 1

1 Identify point, line, line segment and ray.














2 Measure the length of the given line segments in centimetres and millimetres.








3 Draw the line segments of the given lengths.

(i) 1.9cm

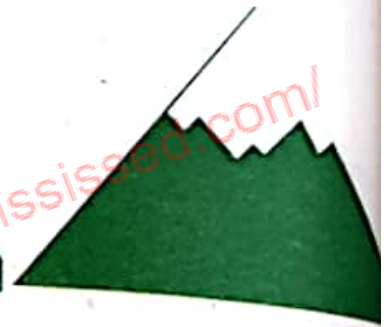
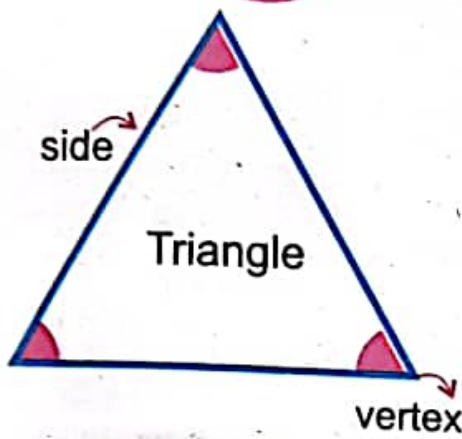
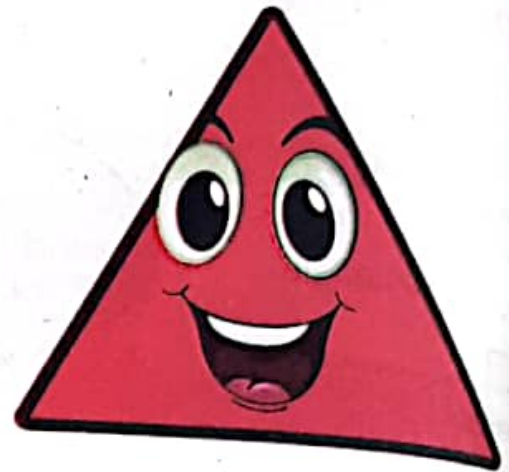
(ii) 4.2cm

(iii) 5.6cm



# Triangle

I am a triangle.  
 I have 3 straight  
 sides and 3 vertices.  
 My sides may or  
 may not be equal.



# Circle

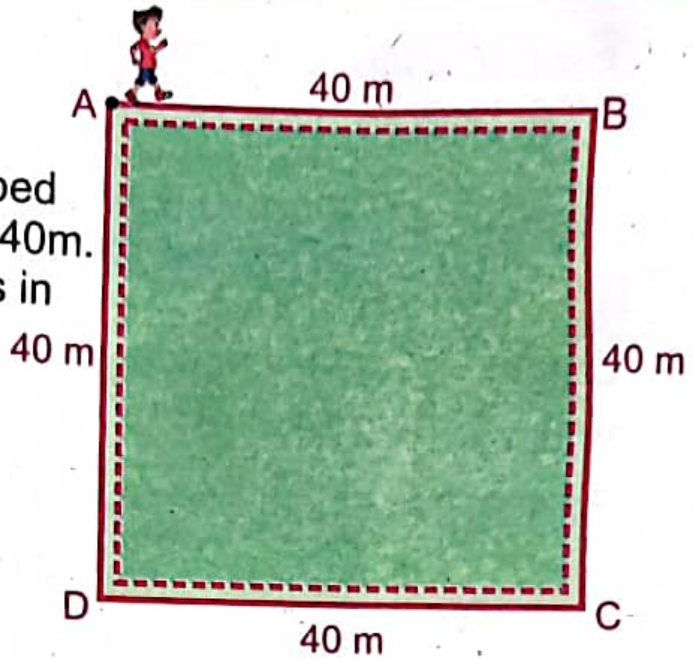
I am a circle. The  
 distance of my all points  
 from the centre is equal.  
 I have no side and  
 no vertex.





# Perimeter of Square

Furqan runs around a square shaped ground with the length of a side is 40m. How much distance Furqan covers in one round?



To find the total distance he covers in one round, we will add lengths of all sides

$$\begin{aligned} \text{Total distance} &= \text{side} + \text{side} + \text{side} + \text{side} \\ &= 40\text{m} + 40\text{m} + 40\text{m} + 40\text{m} \\ &= 160\text{m} \end{aligned}$$

The sum of all lengths of a closed figure is called perimeter.

Perimeter of a square = sum of all sides.

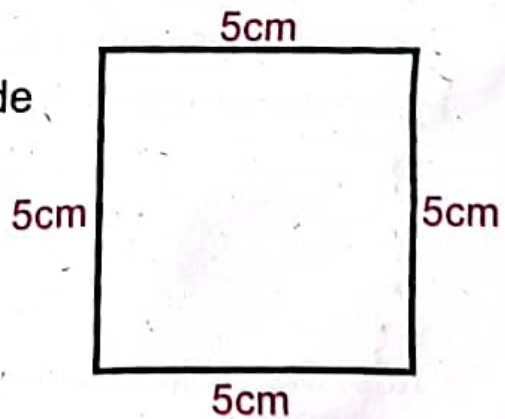
Thus, perimeter of a square =  $4 \times$  length of a side



The length of a side of a square is 5 cm. Find its perimeter.

Length of a side = 5cm

$$\begin{aligned} \text{Perimeter of a square} &= 4 \times \text{length of a side} \\ &= 4 \times 5 \text{ cm} \\ &= 20 \text{ cm} \end{aligned}$$



Thus, the perimeter of a square is 20 cm.



# Perimeter of Rectangle

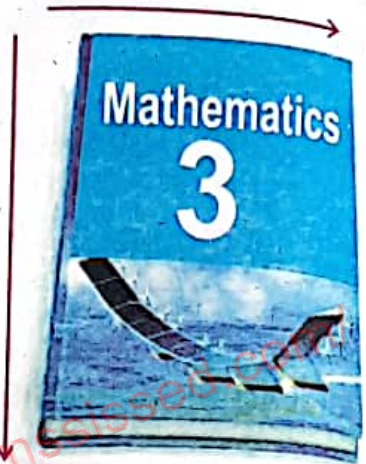


Find the perimeter of the book with length of 27 cm and width of 21 cm.

Length = 27cm

Width = 21cm

$$\begin{aligned} \text{Perimeter} &= \text{length} + \text{length} + \text{width} + \text{width} \\ &= 27 \text{ cm} + 27 \text{ cm} + 21 \text{ cm} + 21 \text{ cm} \\ &= 54 \text{ cm} + 42 \text{ cm} \\ &= 96 \text{ cm} \end{aligned}$$



Thus, the perimeter of the book is 96 cm.



### Key fact

Perimeter of a closed figure = Sum of lengths of all sides

$$\text{Perimeter of a rectangle} = 2(\text{length} + \text{width})$$



A door with a length of 210 cm and width of 118 cm. Find its perimeter.

Length of door = 210cm

Width of door = 118cm

$$\begin{aligned} \text{Perimeter of door} &= \text{Sum of all sides} \\ &= \text{Length} + \text{Length} + \text{Width} + \text{Width} \\ &= 210 + 210 + 118 + 118 \\ &= 656 \text{ cm} \end{aligned}$$

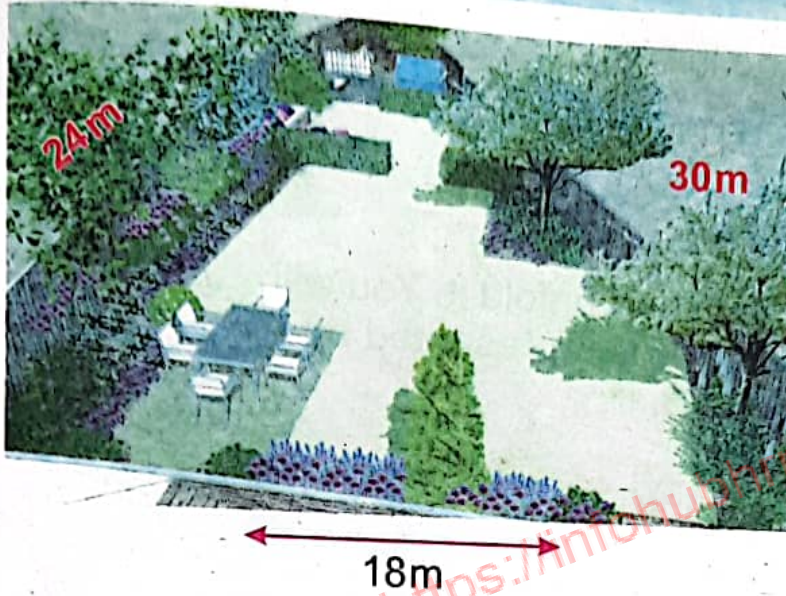


Thus, the perimeter of the door is 656 cm.



# Perimeter of a Triangle

I have a triangular shaped garden in my house with lengths of 18m, 30m and 24m. Find perimeter of the garden.

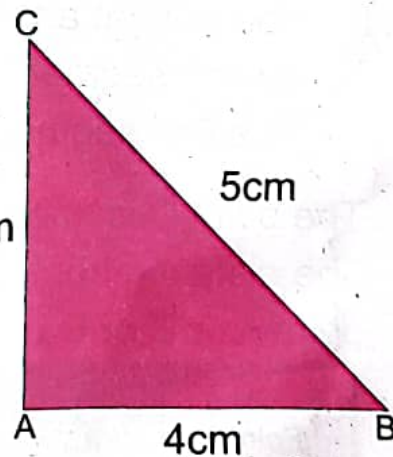


$$\begin{aligned} \text{Perimeter of a triangular garden} &= \text{Sum of all three sides} \\ &= 18\text{m} + 24\text{m} + 30\text{m} \\ &= 72\text{m} \end{aligned}$$

Thus, the perimeter of the garden is 72m.

Find the perimeter of a triangle whose length of sides are AB = 4cm, BC = 5cm and AC = 3cm.

$$\begin{aligned} \text{Perimeter of a triangle} &= \text{Sum of all three sides} \\ &= 4\text{cm} + 5\text{cm} + 3\text{cm} \\ &= 12\text{cm} \end{aligned}$$



Thus, the perimeter of a triangle is 12 cm.

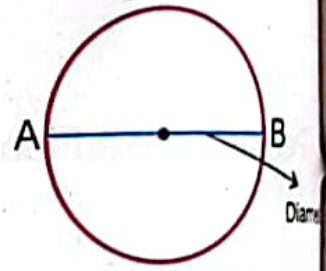


# Identify centre, radius and diameter of a circle

(i) Cut this page in circular shape.



(ii) Fold it into half and unfold it. You will get a crease that is represented by line segment AB.



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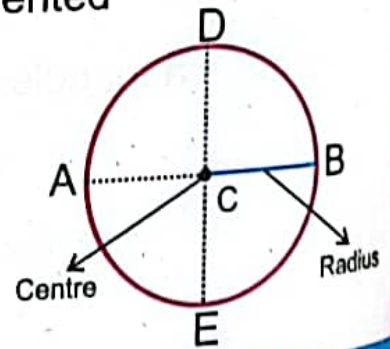
The line segment AB is called the diameter of the circle.

(iii) Now fold the paper into quarter and unfold it.



(iv) You will get another crease that is represented by line segment DE.

The line segment DE cuts at point C.



The point C is the **Centre** of the circle.  
 The distance from centre C to point A or B or D or E is called the **Radius**.

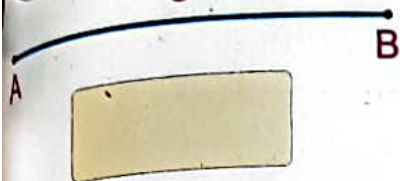
**Teaching Point** Write the lengths of different line segments on white board for practice of the students.

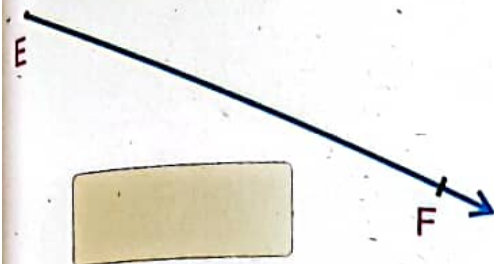


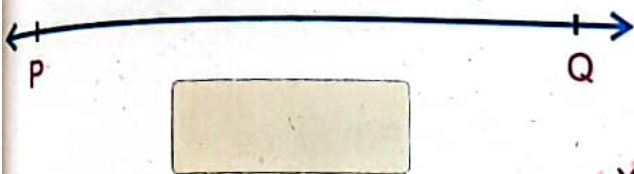
Exercise 2

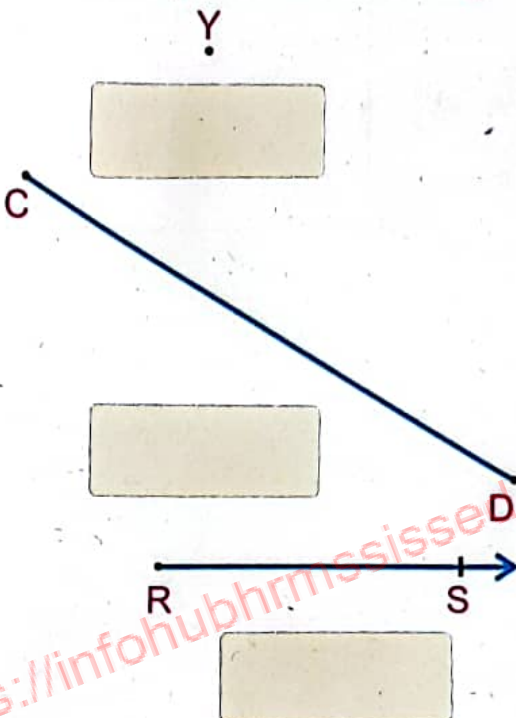


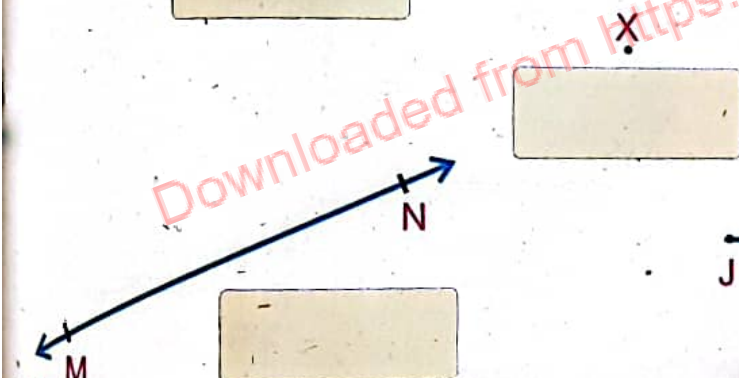
1 Identify point, line, line segment and ray in the following figures:

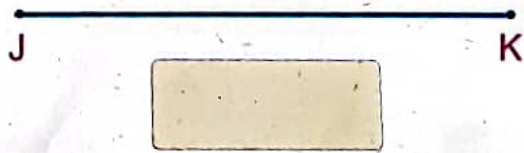






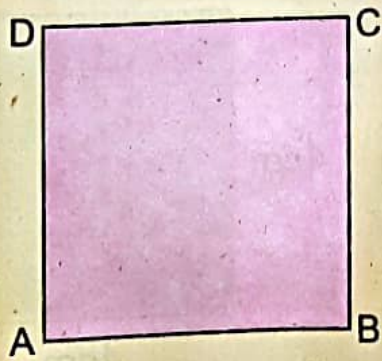






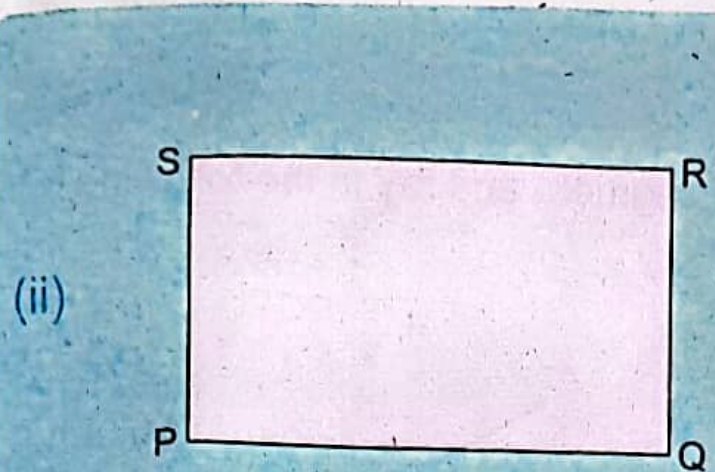

2 Write name, measure the length of sides, then find the perimeter of the following:

(i)



- Name = .....
- AB = .....
- BC = .....
- CD = .....
- AD = .....
- perimeter = .....





Name = .....

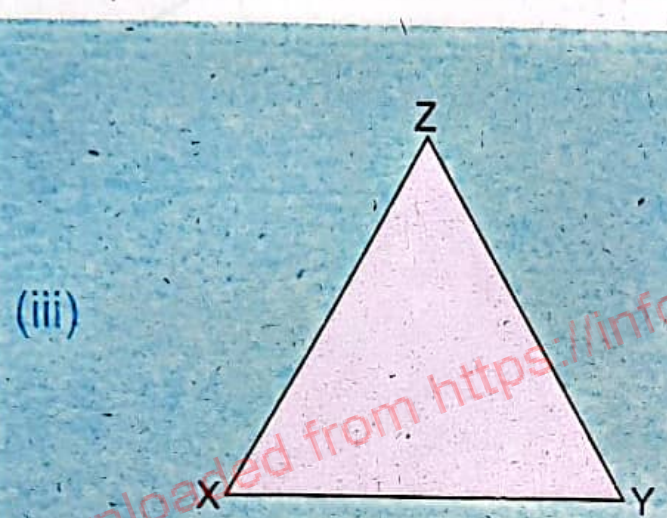
PQ = .....

QR = .....

RS = .....

PS = .....

perimeter = .....




Name = .....

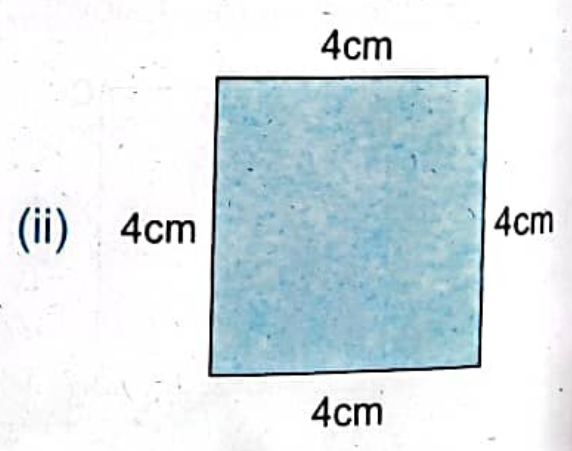
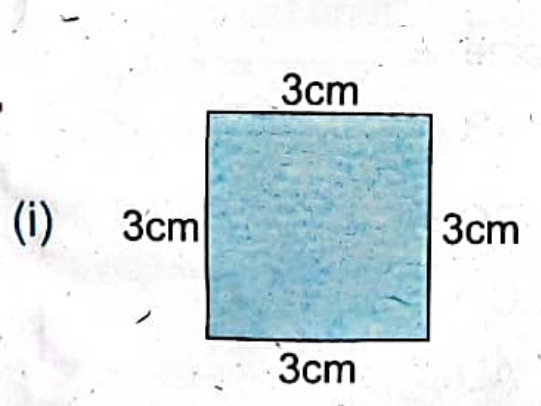
XY = .....

YZ = .....

XZ = .....

perimeter = .....

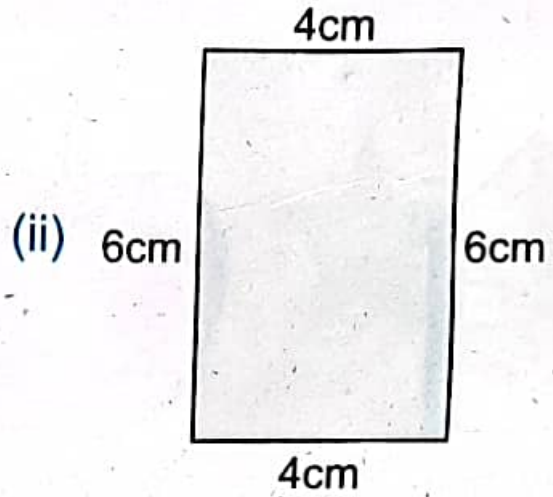
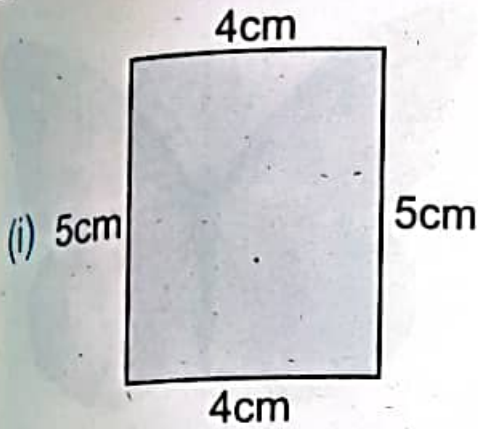
3  Find the perimeter of the following:



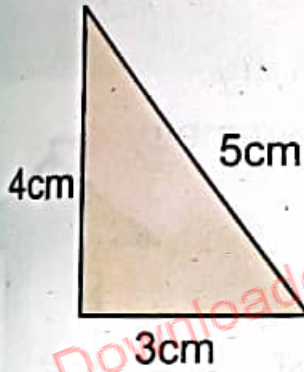




Find the perimeter of the following rectangular figures:



Find the perimeter of the following triangles:

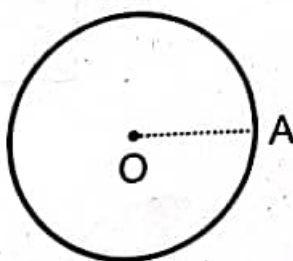


Identify the centre, radius and diameter in the following circles:

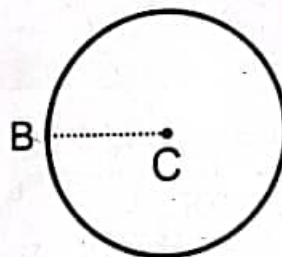
(i)



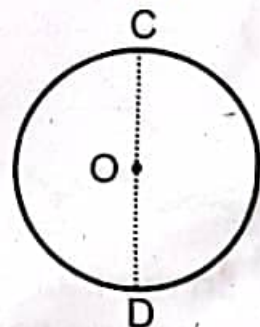
(ii)



(iii)

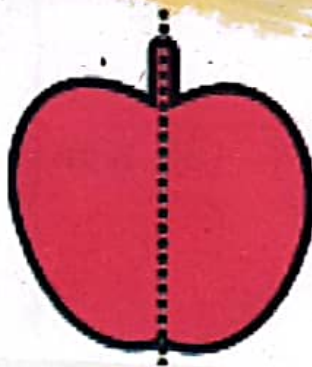


(iv)





# Reflective Symmetry



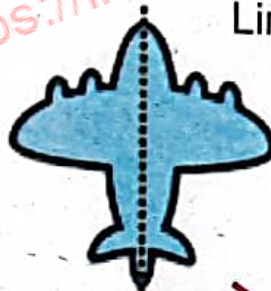
Many things around us are symmetrical. Things in nature animals, plants and buildings have symmetrical shapes. Look at the objects given below. There are symmetrical shapes because one part of the figure to the left of the line when folded, it exactly covers the right part of the figure. This "line" is called line of symmetry.

The following objects have only one line of symmetry.

Line of symmetry ←

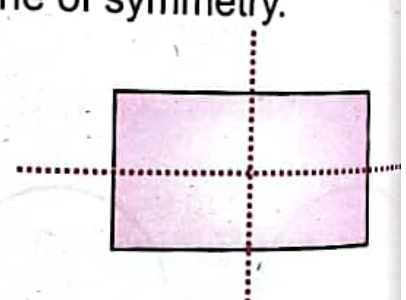
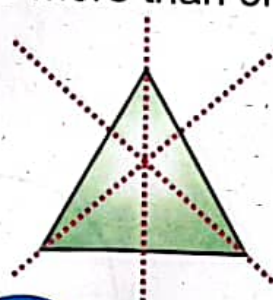
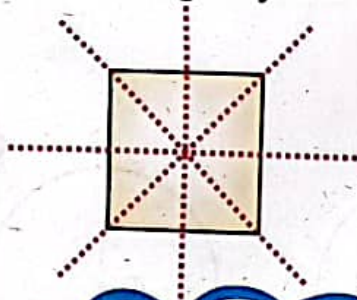


Line of symmetry ←



Line of symmetry →

The following objects have more than one line of symmetry.

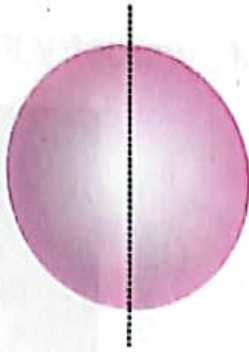


Put the mirror on the half side of an object we can see complete object. It is an example of line of symmetry.

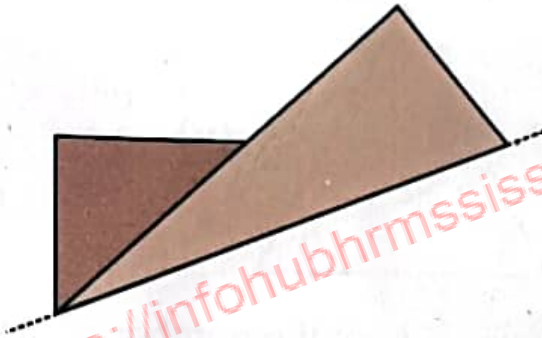
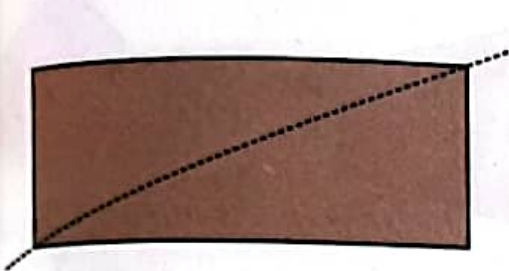




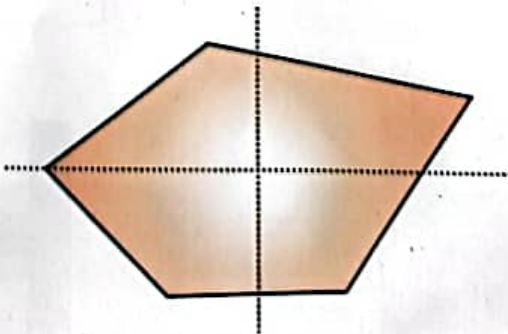
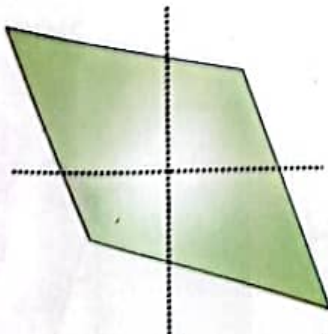
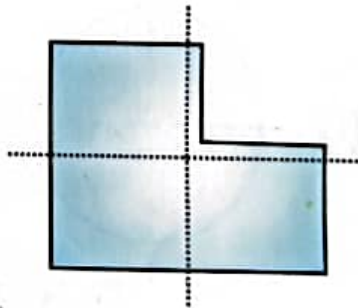
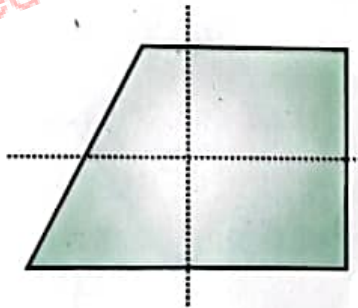
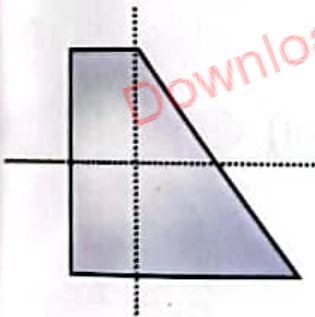
A line which divides a shape into two or more than two equal parts, is called line of symmetry.



Fold rectangle in this way that the line is not a line of symmetry.



Look at these objects/shapes.



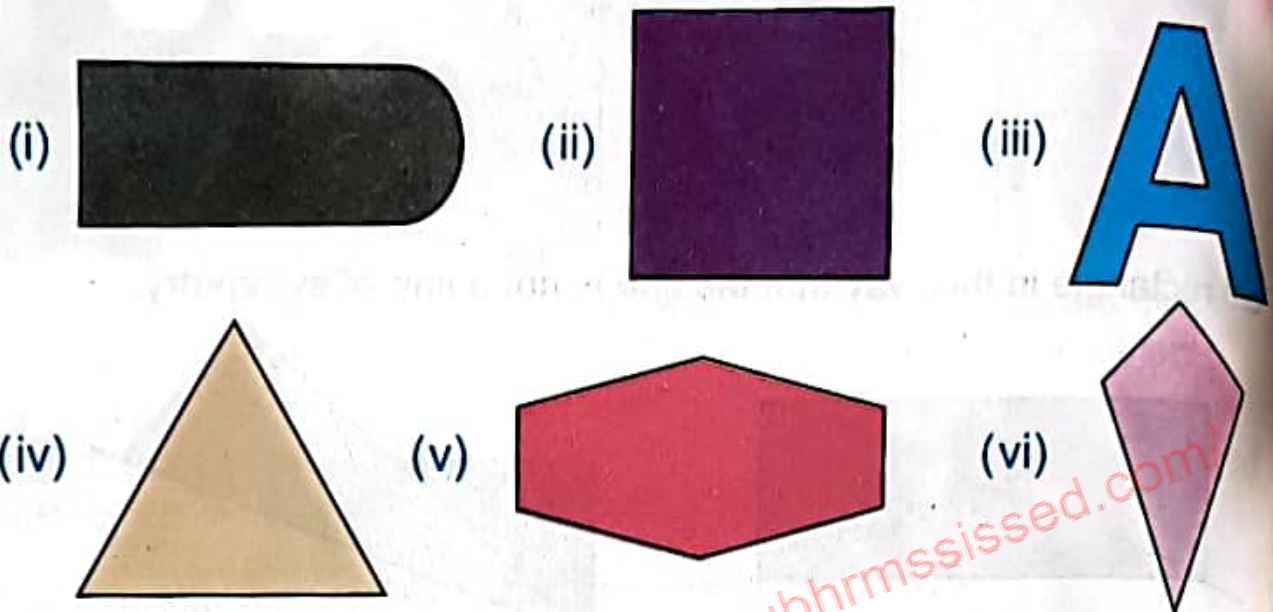
They have no line of symmetry. The shapes which have no line of symmetry are called non-symmetrical shapes.




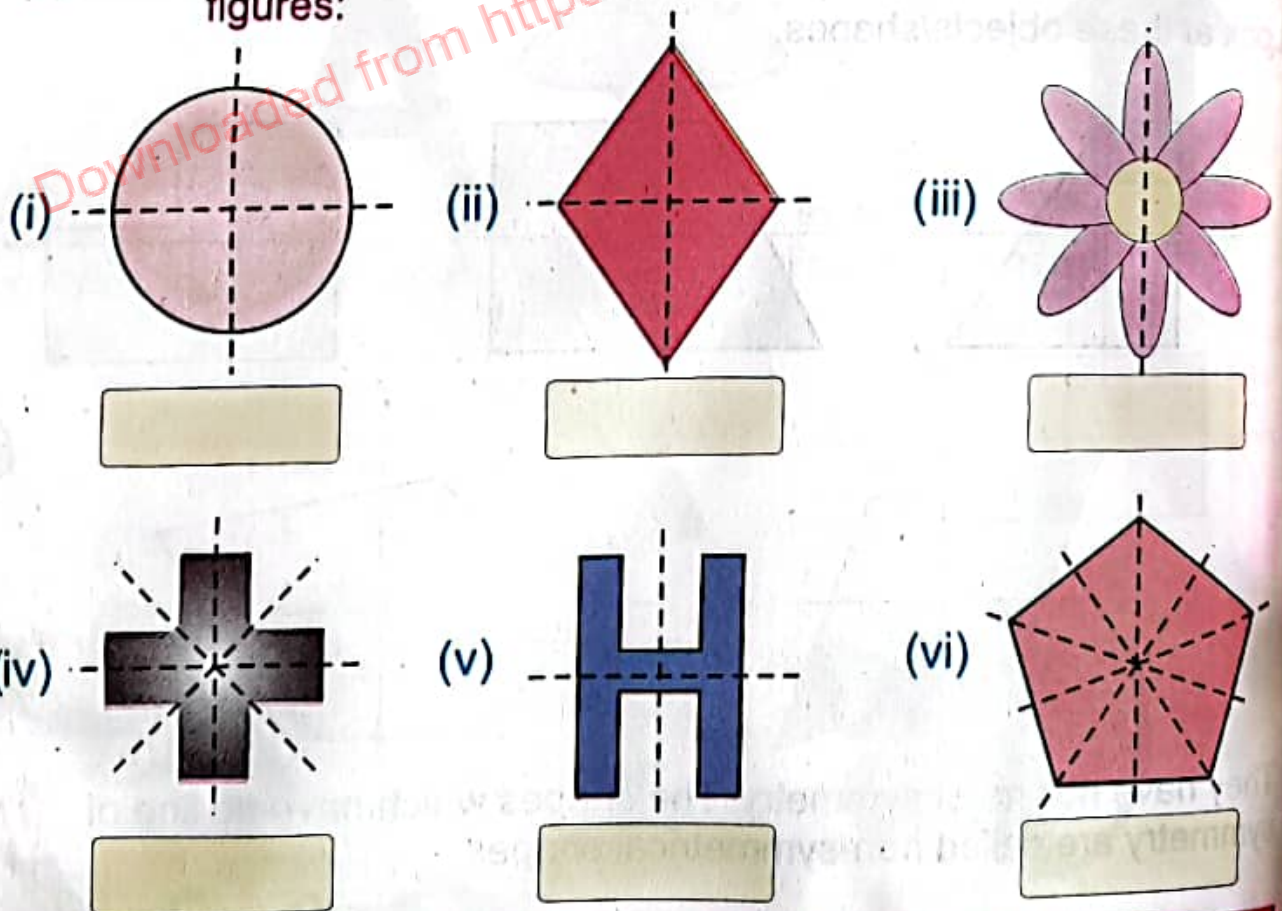
Exercise 3



1  Draw the line of symmetry in the following figures:



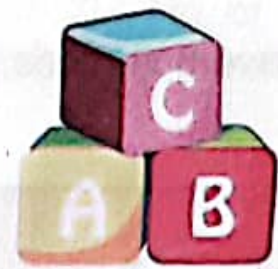
2  Count the number of lines of symmetry in the following figures:



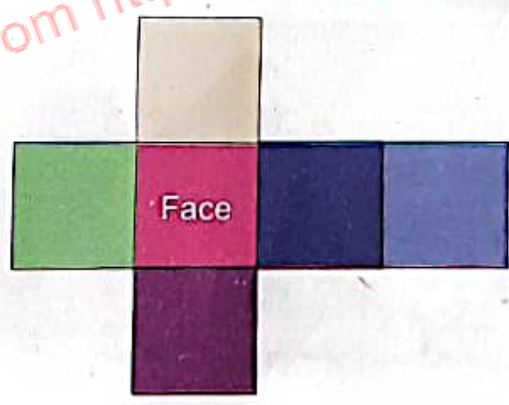
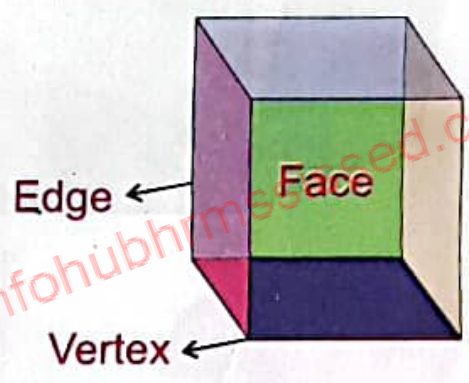


# Three Dimensional Objects (3-D)

## Cube



- My name is cube.
- I have 6 faces.
- My all faces are square.
- I have 12 edges with same length.
- I have 8 vertices.

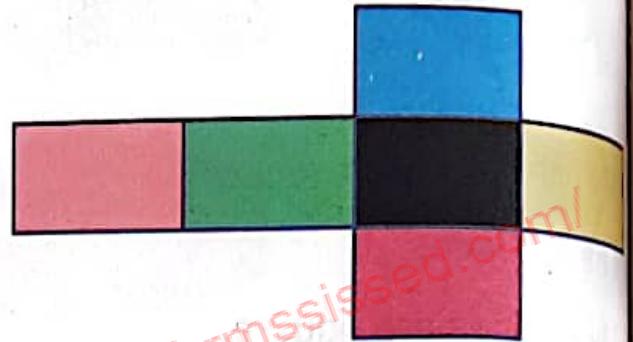
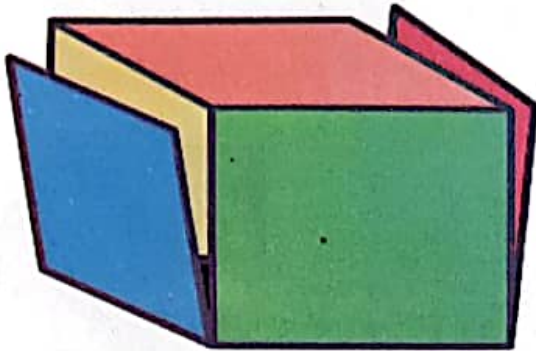
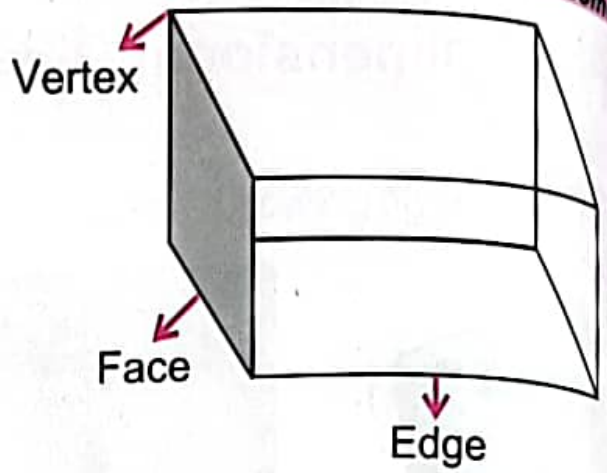


## Cuboid

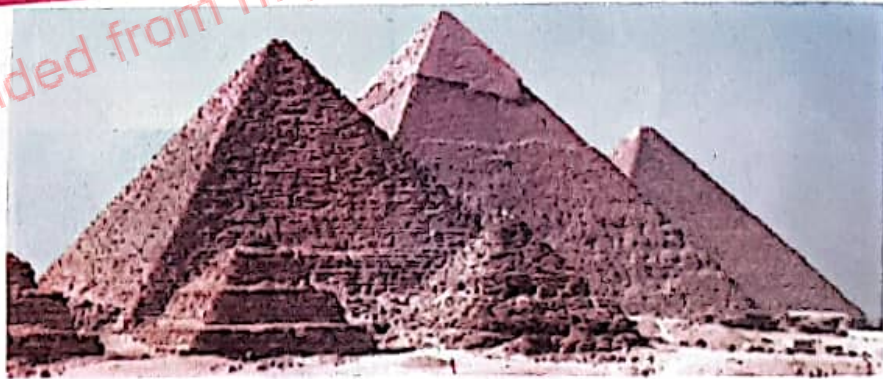




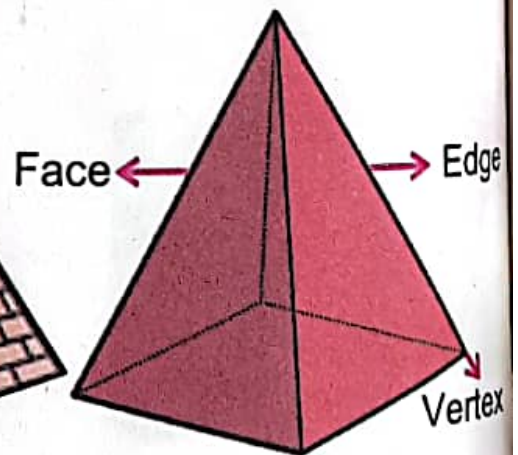
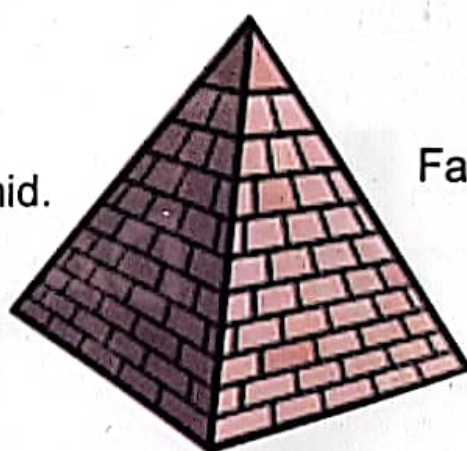
My name is cuboid.  
I have 6 faces.  
My all faces are rectangles.  
I have 12 edges.  
I have 8 vertices.



### Pyramid



My name is pyramid.  
I have 8 edges.  
I have 5 faces.  
I have 5 vertices.










# Exercise 4



Write the required information in the following table:

Shape	Name	No. of faces	No. of edges	No. of vertices
				
				
				
				
				

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## I have learnt to:


- a point is used for location of any place or position.
- a closed figure with 4 sides and 4 vertices is called quadrilaterals.
- a closed figure with 4 sides and 4 vertices is called rectangle. the length of its opposite sides are equal and straight.
- a quadrilateral with equal length of 4 sides is called square.
- sum of all lengths of a closed figure is called perimeter.
- a triangle has 3 sides and 3 vertices. the sides may or may not be equal.

## Vocabulary

- Line
- Ray
- Line Segment
- Perimeter
- Diameter
- Reflective Symmetry
- Cube

## Review Exercise



1  Tick (✓) the correct option.

(i) Number of sides in a quadrilateral are

- (a) 1                      (b) 2                      (c) 3                      (d) 4

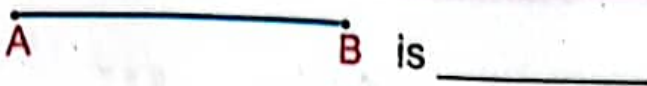
(ii) In a cube, number of edges are

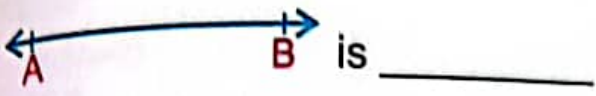
- (a) 2                      (b) 6                      (c) 8                      (d) 12


(iii) A triangle has \_\_\_\_\_ vertices.

- (a) 2                      (b) 3                      (c) 4                      (d) 5



- (iv) Given figure  is \_\_\_\_\_  
 (a) Point (b) line (c) line segment (d) Ray


- (v)  is \_\_\_\_\_  
 (a) line (b) Ray (c) line segment (d) Point


2  Fill in the blanks.


- (i) Line of symmetry divides any shape into \_\_\_\_\_ equal parts.  
 (ii) Line segment has \_\_\_\_\_ end points.  
 (iii) A square shape has \_\_\_\_\_ sides and \_\_\_\_\_ vertices.  
 (iv) The sum of all sides of any closed shape is equal to \_\_\_\_\_.  
 (v) Perimeter of rectangle = \_\_\_\_\_.

3  Draw the line segments according to the given measurements.

- (i)  $RS = 7\text{cm}$  (ii)  $XY = 3\text{cm}$  (iii)  $AB = 5\text{cm}$

4  Ahmad walks a square shaped ground with length 249 m. How much distance does he cover in one round?

5  Classroom door is 210 cm long and 120 cm wide. Find its Perimeter .

6  Find the Perimeter of a triangular field with lengths of 15 m, 25 m and 40 m.



# Unit 7

# Data Handling

## Learning Outcomes

After completing this unit, you will be able to:

- Representation of data by
  - Carroll diagram
  - Tally chart
- Read and interpret a Carroll diagram and Tally chart
- Read and interpret Picture Graph



How can you show the number of birds in a diagram?



# Carroll Diagram



I want to sort out different things with the help of Carroll diagram. What should I do for this?

You can sort according to the colour and shapes



Shirts in blue colour

Caps in blue colour

Shirts

Caps



Shirts not in blue colour

Caps not in blue colour

Carroll diagram is a diagram in which different things are sorted according to two characteristics. Figures, numbers and different things can be sorted out using Carroll diagram.

In above Carroll diagram, we can observe that:

- three shirts are in blue colour
- three shirts are not in blue colour
- three caps are in blue colour
- four caps are not in blue colour





Sort out the given numbers by Carroll diagram

3, 8, 10, 12, 16, 18, 21, 25, 28, 33



On the basis of which two characteristics, can we sort these numbers?



We can use the size of the number for sorting smaller than 15 and greater than 15. Similarly, the numbers divisible by 4 and not divisible by 4

	Numbers smaller than 15 and divisible by 4	Numbers greater than 15 and divisible by 4
Numbers smaller than 15	8, 12	16, 28
Numbers greater than 15	18, 21, 25, 33	
Numbers not divisible by 4	3, 10	
Numbers divisible by 4		

Numbers smaller than 15 and not divisible by 4

Numbers greater than 15 and not divisible by 4



In the Carroll diagram, we can observe that:

- Numbers smaller than 15 and divisible by table of 4 are 8, 12.
- Numbers greater than 15 and divisible by table of 4 are 16, 28.
- Numbers smaller than 15 and not divisible by table of 4 are 3, 10.
- Numbers greater than 15 and not divisible by table 4 are 13, 21, 25, 33.

## Tally Chart



Umair obtained marks in monthly test as given below. Mathematics = 8, Islamiat = 6, Social Studies = 7, Urdu = 9 and science = 4

Let's prepare a Tally Chart using given data.



Name of subjects	Tally marks	Marks obtained
Mathematics	#####	8
Islamiat	#####	6
Social Studies	#####	7
Urdu	#####	9
Science	####	4

### (Key Point)

Marks in Tally column are equal to the number of observations in the data.





Answer the following questions by interpreting the Carroll diagram:

	Even numbers	Odd numbers
Numbers divisible by 5	10, 20, 30	5, 15, 25
Numbers not divisible by 5	4, 8, 14	3, 9, 19, 21

- (i) What is the smallest even number which is divisible by 5?
- (ii) What are the odd numbers which are divisible by 5?
- (iii) What is the smallest even number which is not divisible by 5?
- (iv) What is the greatest odd number which is not divisible by 5?

10



By using Tally Chart, answer the questions given below.

Animals	Tally marks
Monkey	
Lion	
Bear	
Zebra	
Elephant	



Which animals is least in numbers?

Elephant

Which animals is greatest in number?

Which two animals are equal in number?

What is the total number of monkey and lion?

What is the total number of animals?



**Exercise 1**



Show the following fruits and vegetables by using Carroll diagram:



Complete the Carroll diagram using the given numbers

10, 18, 22, 25, 29, 30, 35, 37, 45, 43, 48, 52

	Even numbers	Odd numbers
Numbers divisible by 5		
Numbers not divisible by 5		





Observe the Carroll diagram and answer the questions given below.

	Numbers less than 25	Numbers greater than 25
Numbers divisible by 7	7, 14, 21	28, 35, 42
Numbers not divisible by 7	5, 9, 15, 19	27, 29, 38, 43



- (i) Find the numbers greater than 25 and divisible by 7
- (ii) Find the numbers greater than 25 and not divisible by 7
- (iii) Find the numbers less than 25 and divisible by 7
- (iv) Find the numbers less than 25 and not divisible by 7

4  A dice is rolled 20 times and the following numbers are obtained:  
 1, 3, 5, 6, 3, 2, 4, 5, 3, 2, 4, 6, 3, 4, 3, 4, 2, 5, 1, 6  
 By using above numbers, prepare a Tally Chart

5  In a school, following number of students celebrated their birthdays in different months:  
 Answer the questions given below in the table.

Month	Tally marks
January	///
February	//// /
March	//// ////
April	//// //
May	////

- (i) In which month least number of students celebrate the birthday?
- (ii) In which month greatest number of students celebrate the birthday?
- (iii) In January and April, how many total number of students celebrate their birthday?
- (iv) How many total number of students celebrate their birthday in 5 months?



# Picture Graph



I want to arrange pencils according to their colours.



We can arrange these pencils by using picture graph

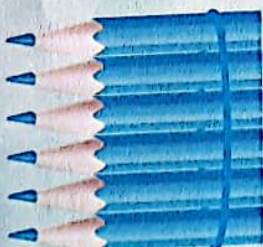
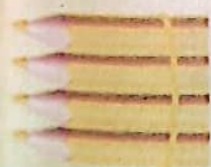


Yellow pencils

Blue pencils

Green pencils

Red pencils



In this picture graph,

- (i) There are 4 yellow pencils.
- (ii) There are 6 blue pencils.
- (iii) There are 7 green pencils.
- (iv) There are 5 red pencils.



In the following picture graph, favourite sports of students are shown:

1 picture = 2 students



Observe the above Picture graph and answer the following questions:

- (i) What is the number of students playing hockey?
- (ii) What is the number of students playing cricket?
- (iii) Which is the most favourite game?
- (iv) Which is the least favourite game?
- (v) What is the number of students playing tennis?

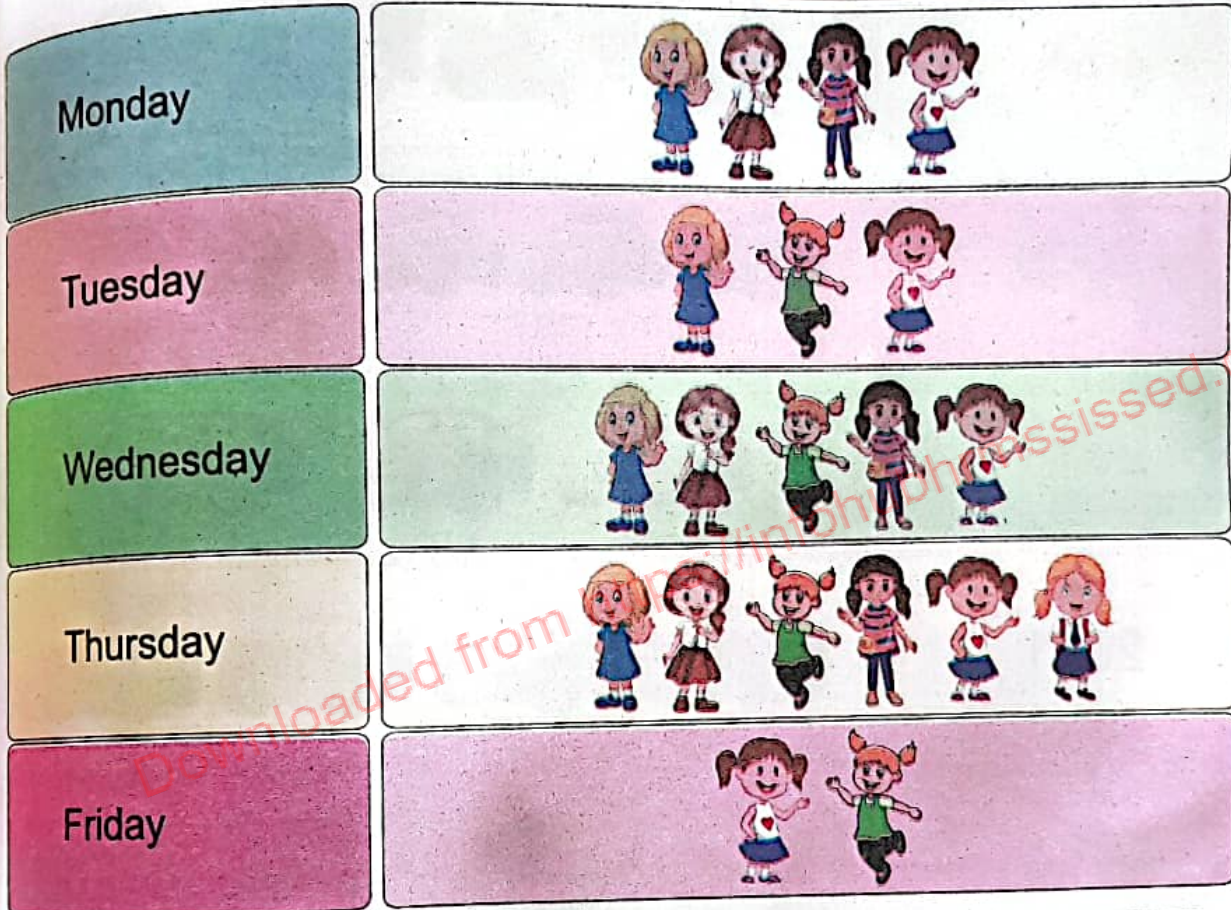


Exercise 2



1 The following picture graph shows the number of students absent during a week:

1 picture = 1 student



Observe the above graph and answer the following questions:

- (i) How many students were absent on Monday?
- (ii) How many students were absent on Tuesday?
- (iii) On which day, the most number of students were absent?
- (iv) On which day, least number of students were absent?
- (v) What is the total number of students absent on Wednesday and Thursday?




2  The following picture graph shows the production of cars in different years:

1 picture = 100 cars



Observe the graph and answer the following questions:

- (i) How many cars were manufactured in 2008?
- (ii) How many cars were manufactured in 2010?
- (iii) In which year, most number of cars were manufactured?
- (vi) In which year, least number of cars were manufactured?
- (v) In which two years, equal number of cars were manufactured?



I have learnt to:

In Carroll diagram, different things are sorted out due to its two characteristics.

Figures, numbers and different things are sorted out in Carroll diagram.

In Tally chart data is collected and organized by tally marks.

In picture graph, different things are shown in different boxes.

Vocabulary

- Carroll Diagram
- Tally Chart
- Picture Graph
- Characteristics

Review Exercise



1 Prepare Carroll diagram from the given data.

12, 15, 16, 18, 17, 19, 21, 23, 28, 30, 32, 37, 39


	Even numbers	Odd numbers
Numbers less than 20		
Numbers greater than 20		

2 Observe the following Tally chart and answer the following questions:

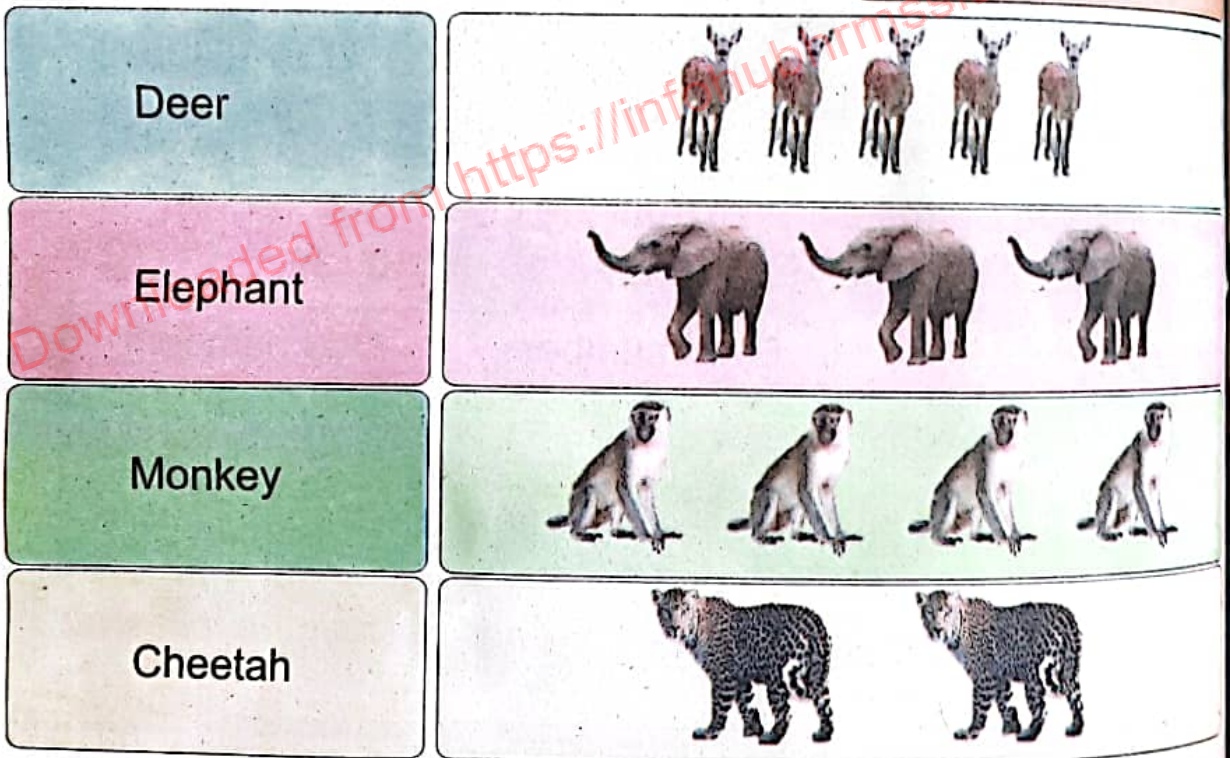
Subjects	Tally marks
Urdu	//// //
Science	//// ///
English	//// ////
Mathematics	//// /
General Knowledge	////



- (i) Which subject is the least favourite?
- (ii) Which subject is the most favourite?
- (iii) How many students like Science?
- (iv) How many students like Urdu?
- (v) How many students like Mathematics?

3  Answer the following questions by using the picture graph.

1 picture = 2 animals



- (i) Which animal is the greatest in number?
- (ii) Which animal is least in number?
- (iii) What is the total number of elephants and monkeys?
- (iv) What is the total number of all animals?