Textbook

3

Mathematics

Test Edition

Based on Single National Curriculum 2020

یہ کتاب محکمہ تعلیم حکومت بلوچستان کی جانب سے تعلیمی سال 2025 کیلئے مفت تقسیم کی جارہی ہے اور ناقابل فروخت ہے

حکومت بلوچستان کا پروگرام "معیاری تعلیم سب کے لیے"

Balochistan Textbook Board, Quetta

بِسۡمِ اللّٰہِ الرَّحۡمٰنِ الرَّحِیۡمِ

شروع اللہ کے پاک نام سے جو بڑا مہربان نہایت رحم والا ہے۔

Textbook

Mathematics

Grade 3

Based on Single National Curriculum

One Nation, One Curriculum

یہ کتاب محکمہ تعلیم حکومت بلوچستان کی جانب سے تعلیمی سال 2025 کیلئے مفت تقسیم کی جارہی ہے اور نا قابل فروخت ہے

Publishers:
New College Publication Quetta
BALOCHISTAN TEXTBOOK BOARD,QUETTA

Approved by the provincial Education Department the Secondary Education Department, Government of Balochistan letter No. SO (Acad:)2-1/2021/2289-93, Dated October 4th, 2021. According to the National Curriculum SNC, 2020. N.O.C. No. 248-51/CB, dated 17/12/2021 Office of the Director Bureau of Curriculum & Extension Centre Balochistan Quetta. This textbook has been published by Balochistan Textbook Board for free/sale in all government/Private Schools and Madaris in Balochistan. No part of this book can be copied in any form especially guides, help books etc.

Textbook

Mathematics

Grade 3

Experimental Edition

Author:

Prof. Abdul Khaliq Bughlani
(M. Phil Maths),

Prof. Muhammad Asif Bhatti
(M.Sc. (Maths) B.Ed)

Supervision

Muhammad Rafique Tahir
Joint Educational Advisor National Curriculum Council
Ministry of Federal Education and Professional Training,
Islamabad

The book is based on Single National Curriculum 2020 and has been approved by the National Review Committee

Endorsed by National Review Committee

Muhammad Akhter Shirani
Punjab Curriculum & Textbook Board, Lahore.

Sherzad Ali
Sir Syed Ahmad Khan, Govt. Boys Higher Secondary School No.1, Gilgit.

Tayyaba Saqib
Pak Turk Maarif, International School & Colleges, H/9, Islamabad

Abbas Khan
Directorate of Curriculum & Teacher Education Abbottabad, KPK

Dr. Razia Fakir Mohammad
Aga Khan University, Institute for Education Development Karachi, Pakistan

Saeeda Parveen
Islamabad College for Girls, F-6/2, Islamabad

Gul Muhammad
Bureau of Curriculum & Extension Centre, Balochistan, Quetta.

Raihana Ghulam Hussain
F.G Sir Syed Public School (Girls) II, Rawalpindi

Dr. Muhammad Irfan Ali
Islamabad Model College for Boys, G-11/1, Islamabad

Provincial review committee Balochistan

Abdul Razzaq(BOC&EC), Syed Abdul Rauf(BOC&EC),Asif Naveed(BOC&EC),Aqila (BOC&EC), Bahauddin Kakar(BOC&EC),Nadira Ismail (BOC&EC),Tayyab Mehmood(BOC&EC),Zahida Khan (GG inter-College Killi Shaikhan Quetta),Haroon khan (G Science College Quetta),Abdul Majid(BEAC), Saira khan (BEAC),Abdul Malik(GBHS Pashtoonabad Quetta),Iram Nazneen (GGHS Shafiq Ahmed Khan Quetta),Asmatullah(GBHS Pashtoonabad Quetta),Sadiqa ishaq (GGHSS Duki),Syed Saifullah (GBHS Pashtoonabad Quetta),Liaqat Sangat(Learning coordinator Noshki),Ghulam Ahmed (GBHS Civil Colony Dera Bugti),Sazuddin(GBPS killi Seralla,Umerzai Pishin),Sajida Bashir(GGHS Pishin)

Technical Assistant: Nighat Lone, Asfundyar Khan
Desk Officer: Sikandra Ali (National Curriculum Council)
Coordinator: Muhammad Sarfraz Ahmad, Jaffar Khan Tareen.
Designers: Enaam Khan, Faisal Ghafoor Sheikh, Muhammad Umer Hayat
Composer: Faheem Ahmed
Illustrator: Uffaq Aamir, Shutterstock
Supervision: Obaidullah Mirwani
Printer: Urdu Book Stall Lahore

APPEAL

Balochistan Textbook Board is committed to ensure the publication of quality Textbooks in line with the approved Curriculum. These textbooks are the outcome of intellectual contribution of renowned educationists, researchers and subject experts. Despite our constant endeavors, possibilities of inadvertent errors cannot be ruled out and there is always margin of improvement. Therefore, we always look forward to constructive feedback from students, teachers, parents and society at large. In this regard a feedback and textbooks review mechanism (though online portal) has been established at Balochistan Textbook Board. The feedback received will be referred to the Research Center, recently established at Balochistan Textbook Board for analysis and drawing conclusions. We are highly hopeful that this research based feedback analysis will prove to be catalyst in the improvement of overall quality of the Textbooks. Feedback regarding the provision of textbooks at school level can also be shared.

Feedback can be shared through the following methods:

I. Website:www.btbb.com
II. Official App on playstore: "btbb official:
III. Email: btbb_quetta@yahoo.com
IV. Phone: 081-2470501-2470503

Dr. GULAB KHAN KHILJI
CHAIRMAN
BALOCHISTAN TEXTBOOK BOARD, QUETTA

محکمہ تعلیم
حکومت بلوچستان
کا تعلیمی نظام سے
متعلق شکایات
کے ازالے کا نظام

www.emis.gob.pk

Performance Management System

081 111 098 765

Content

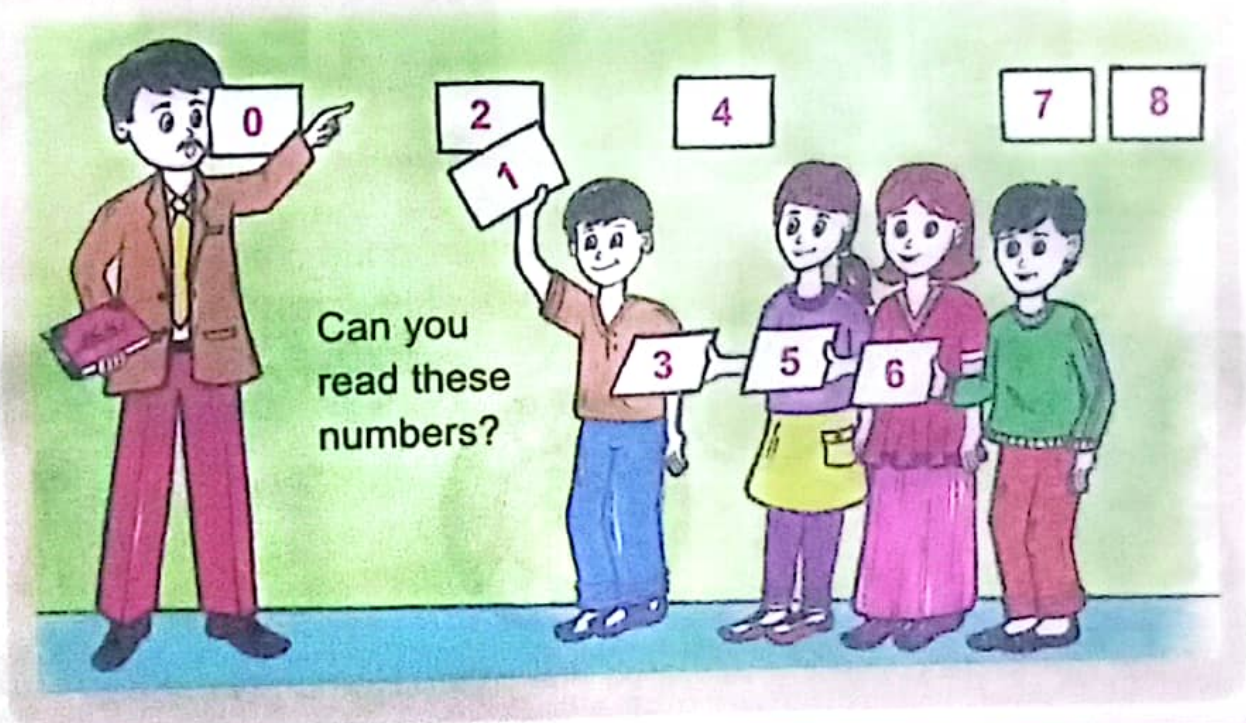
Unit 1

(Whole Numbers)

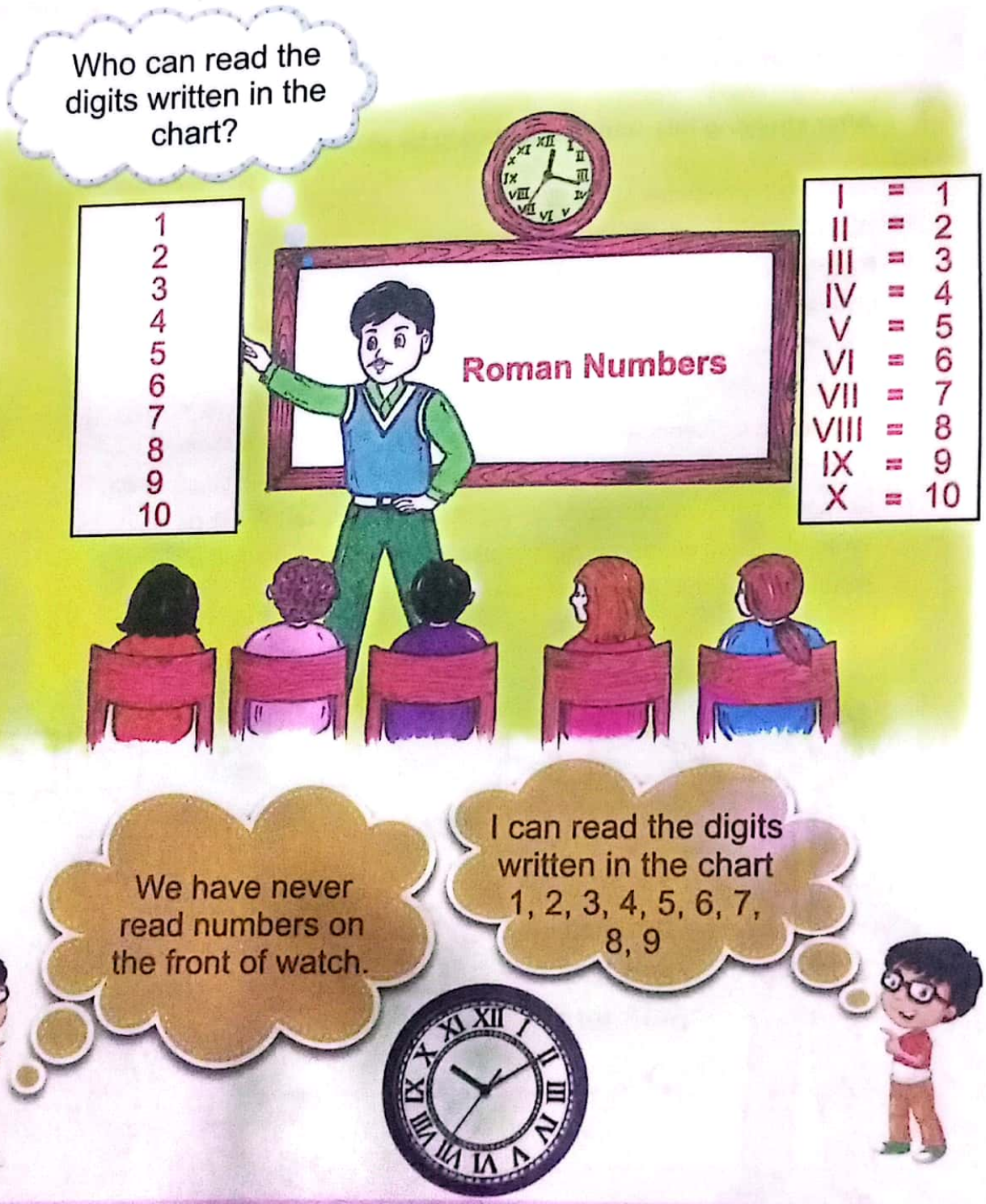
Learning Outcomes:

After studying this unit, students 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 - digits 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



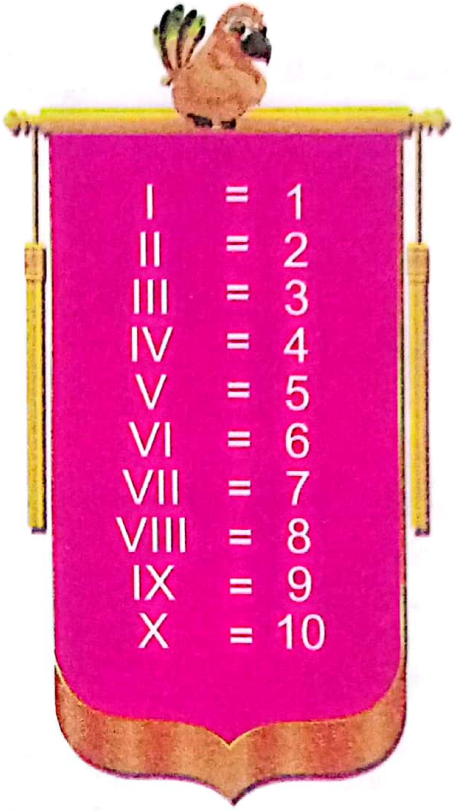
(Roman Numbers)



The numbers given in the watch are called Roman Numbers.

These are called Roman Numbers and can be read as.

Read the Roman numbers V, VII, IX and X

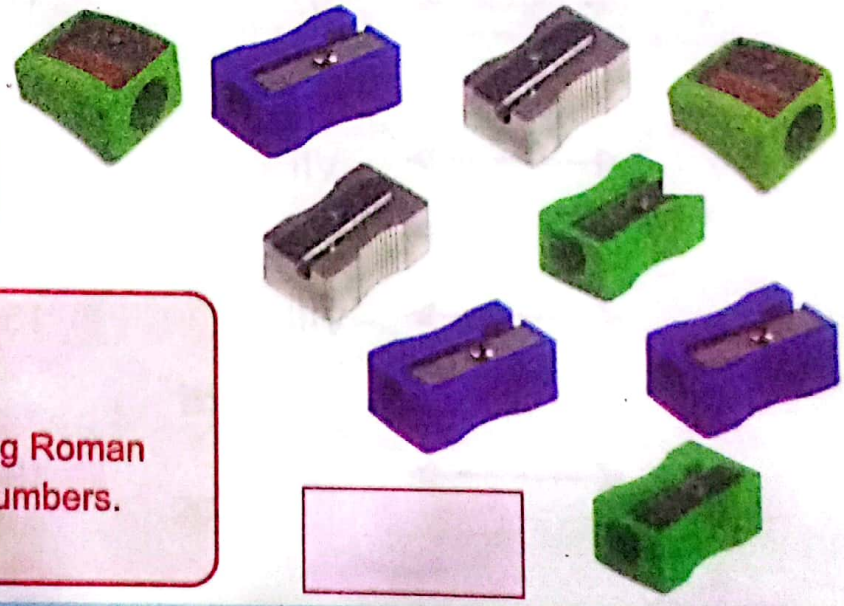


V is called 5
VII is called 7
IX is called 9
X is called 10

Count sharpeners and write in Roman numbers.

(Check Point)

Can you write the value of X and VIII?



Key Point

Can you write the following Roman numbers into numeral numbers.
IV, X, IX and VII.

Teaching Point	Show/give different objects written on Roman numbers to the children 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)

I		III			VI				
X		XI			XV				

Exercise 1

1 Write in the Roman Numbers

2 = ⬡ 5 = ⬡

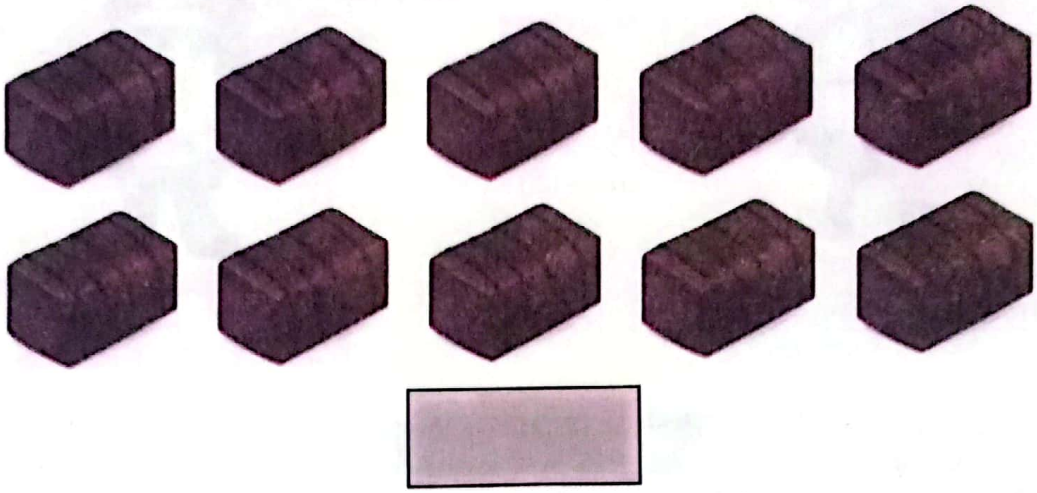
7 = ⬡ 9 = ⬡

12 = ⬡ 16 = ⬡

19 ⬡ 20 ⬡

Teaching Point Give different cards to children containing digit numbers and Roman numbers. Ask them to recognize numbers from them.

2 Count the chocolate and write in Roman numbers.



3 Count the given figures and write in Roman numbers.

4 Write the missing numbers.

(Even and Odd Numbers

Count the beads in pair of 2 to understand even and odd numbers.

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 divisible by 2 are called even numbers.

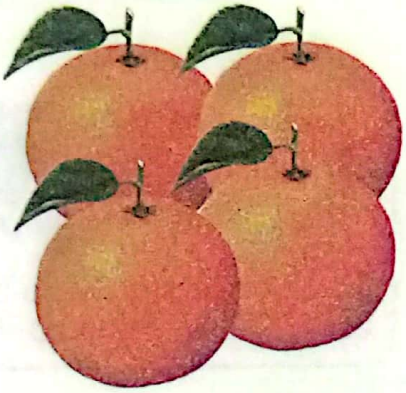
Key Fact

The numbers 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	Even
1	2
3	4
5	6

Count the following and write even or odd at appropriate space.



Odd Even

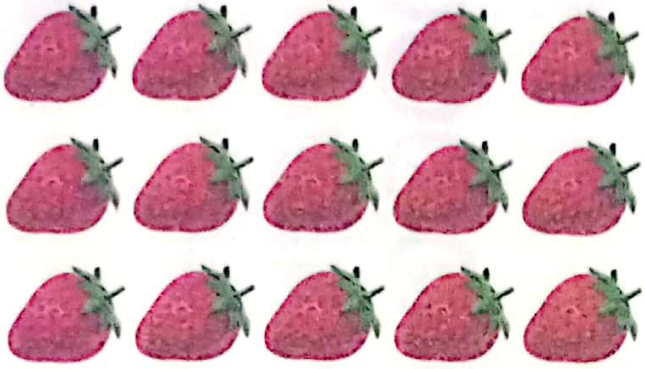
Odd Even

Odd Even

Odd Even

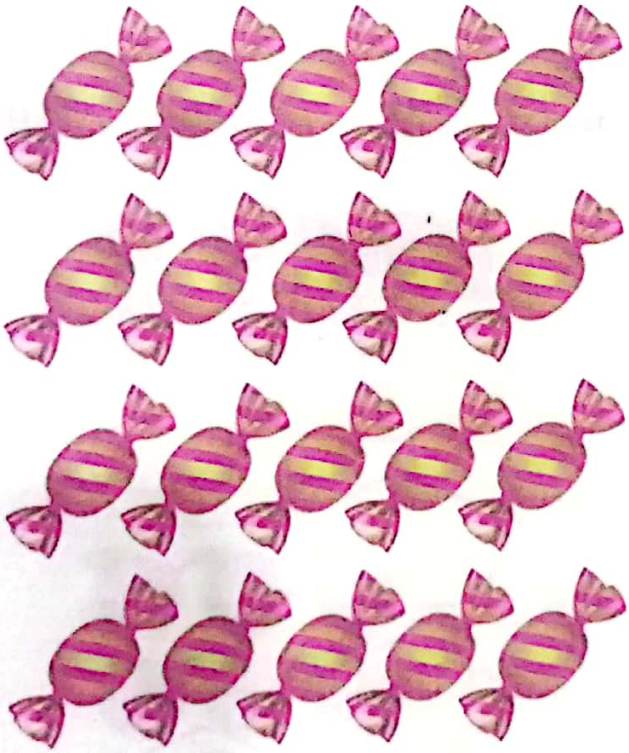
Teaching Point Divide the students of your class into pairs and ask them if they are even or odd.

Count the following and write even and odd at the appropriate space.



Even | Odd

Even | Odd



Even | Odd

Even | Odd

Write even or odd in front of the given numbers.

2	Even	15	Odd
9		23	
16		64	
42		79	

Separate the even and odd in the given numbers.

8 12 25 31 40 54 67

41 76 53 82 71 90 95

Even

8

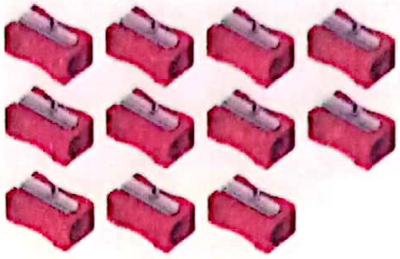
Odd

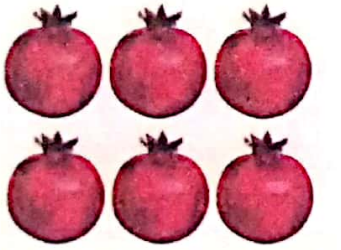
25

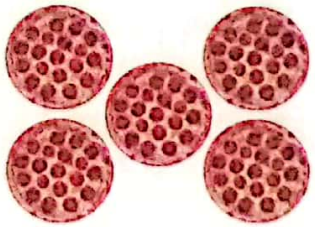
Exercise 2

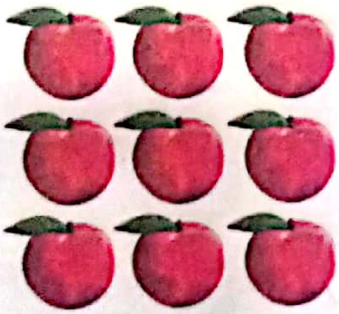
1. Look at the number of following pictures and identify if even or odd number.

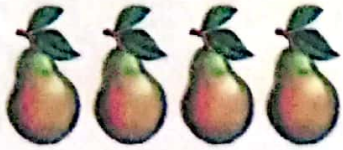
Odd	3



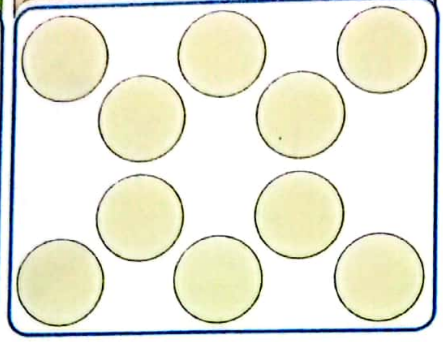
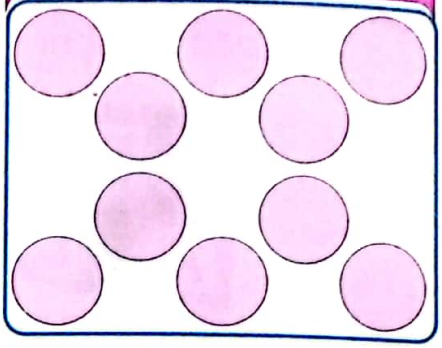








2. Identify even and odd from the given numbers and write them separately.

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

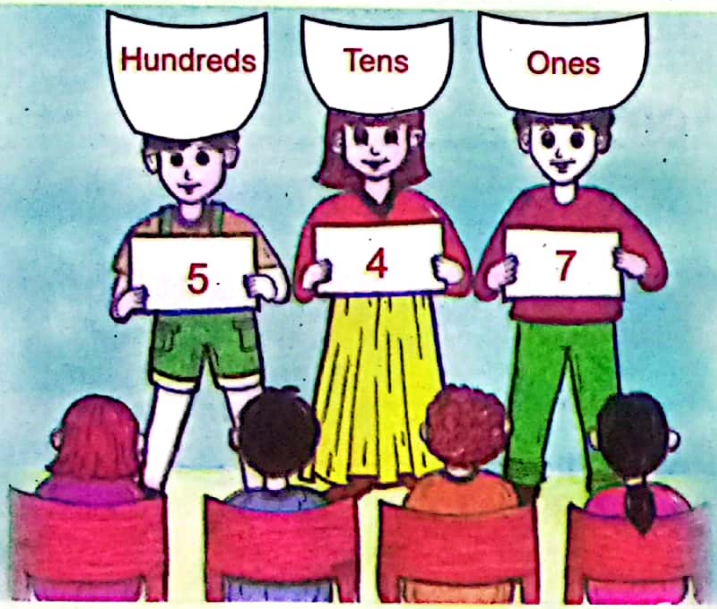
4. Write the even numbers in between the given number.

(i) 1 and 10 (ii) 21 and 35

5. Sort the even and odd numbers from the following.

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 give it to the other children.

The teacher called four children and gave them hats on which was written ones, tens, hundreds and thousands and also gave them cards. Find out the place value of each number in it.

Thousands	Hundreds	Tens	Ones
8	3	1	3

- 8 is at thousands, place value of 8 is — 8 x 1000 = 8000
- 3 is at hundreds, place value of 3 is, — 3 x 100 = 300
- 1 is at tens, place value of 1 is, — 1 x 10 = 10
- 3 is at ones place, place value of 3 is, — 3 x 1 = 3

The, number is,

8000 + 300 + 10 + 3 = 8313

The place value of a digit is determined based on the position of the digit in that number.

Key Fact

10 = 1 tens = 10 ones
100 = 1 hundreds = 10 tens
1000 = 1 thousands = 10 hundreds

Numbers upto 100,000

By adding 1 to 999, we get 1000 as:

```
  9 9 9
+     1
-------
1 0 0 0
```

It can be written in the place value chart as:

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

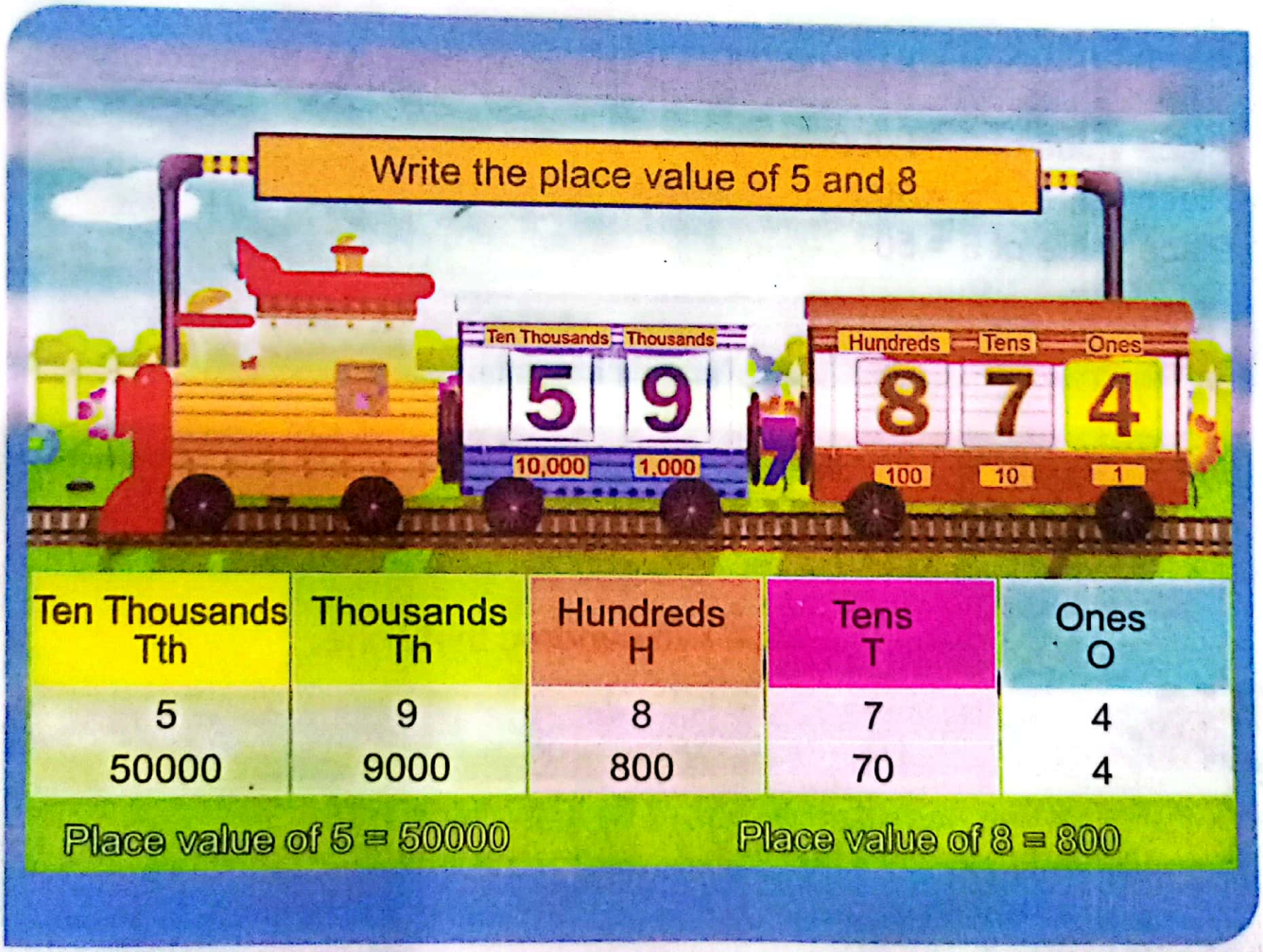
Teaching Point The teacher give number cards of different numbers up to 5 digits to the students. Ask the children about the place values.

Greatest 4-digit number is 9999

9 9 9 9
+ 1
10000

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

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

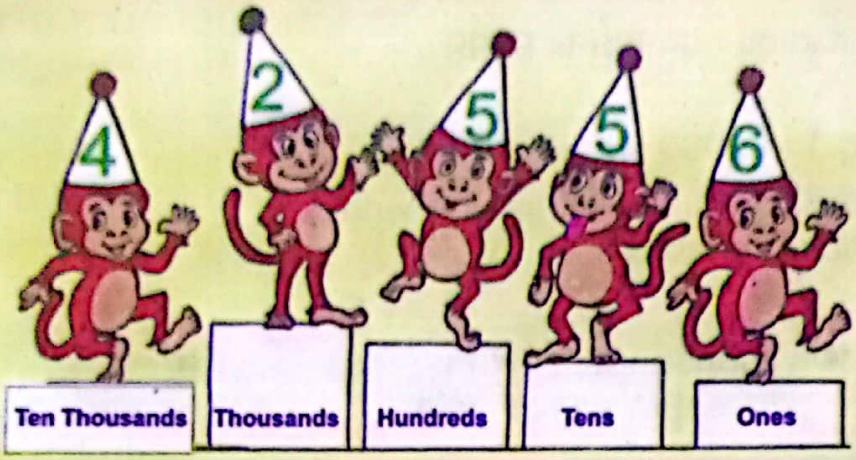


Ten Thousands Tth	Thousands Th	Hundreds H	Tens T	Ones O
5	9	8	7	4
50000	9000	800	70	4

Place value of 5 = 50000

Place value of 8 = 800

Write the place value of 2 and 5 in the following.



Ten Thousands TTh	Thousands Th	Hundreds H	Tens T	Ones O
4	2	5	5	6
40000	2000	500	50	6

Place value of 2 = 2000
Place value of 5 = 500
Place value of 5 = 50

Read and write 9,231 in words.

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

Nine thousand two hundred thirty one.

Read and write 27616 in words.

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

Twenty seven thousand six hundred sixteen.

Read and write 85405 in words.

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

Eighty five thousand four hundred five.

Write four thousand seven hundred nineteen in numerals.

4,719

Write forty two thousand eight hundred sixty eight in numerals.

42,868

Write sixty eight thousand nine hundred fifty one in numerals

68,951

Exercise 3

1. Write the following numbers in words.

(a) 5342 _____

(b) 7123 _____

(c) 5321 _____

(d) _____

(e) 9899 _____

(f) 80321 _____

2 Write the following numbers in numerals

(a) Five thousand eight hundred forty

(b) Six thousand three hundred sixty three

(c) Thirty two thousand three hundred eight

(d) Eighty thousand five hundred eighty seven

(e) Sixty four thousand thirty three

(f) Forty one thousand nine hundred ninety nine

3 Fill in the blanks.

(a) 2347 = ☐ Thousand + ☐ Hundred + ☐ Tens + ☐ Ones

(b) 6780 = ☐ Thousand + ☐ Hundred + ☐ Tens + ☐ One

(c) 34560 = ☐ Ten Thousand + ☐ Thousand + ☐ Hundred + ☐ Tens + ☐ One

(d) 53406 = ☐ Ten Thousand + ☐ Thousand + ☐ Hundred + ☐ Tens + ☐ One

(e) 92341 = ☐ Ten Thousand + ☐ Thousand + ☐ Hundred + ☐ Tens + ☐ One

4 Match with correct number

Seven thousand eight hundred	384
Eighty two thousand six hundred fifty one	2357
Fifteen thousand seven hundred sixty three	5326
Fifty three thousand one hundred two	7800
Two thousand three hundred fifty seven	15763
Five thousand three hundred twenty six	53102
Three hundred eighty four	82651

5 Write the place value of 4 and 6.

Thousands Th	Hundreds H	Tens T	Ones O
4	6	3	9

6 Write the place value of digits in the following numbers.

	Ten Thousands Tth	Thousands Th	Hundreds H	Tens T	Ones O
2357					
67815					
82301					
75389					

7 Write the place value of circled 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 ☐

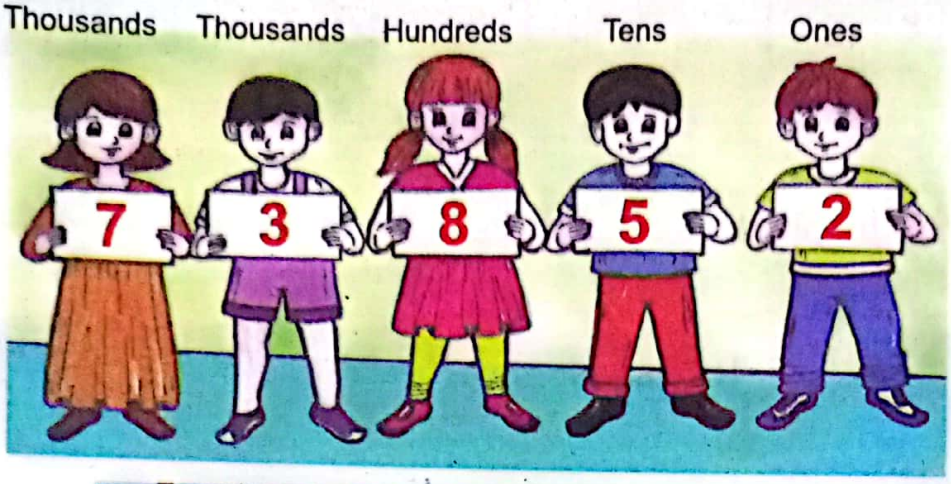
(viii)(6)8037 ☐

(ix) 5(4)136 ☐

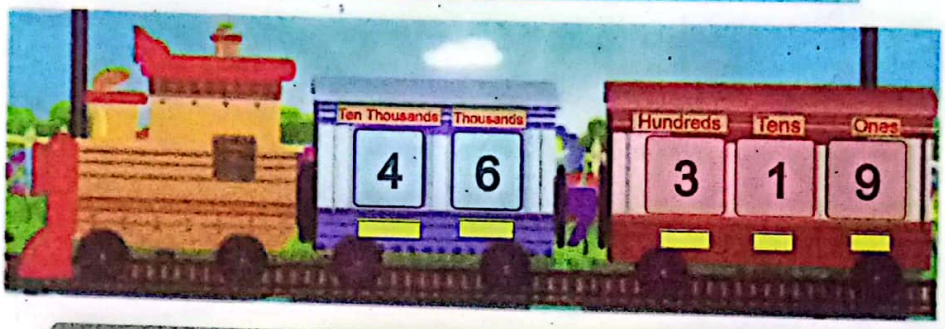
(x) 8(9)791 ☐

8 Write the place value of all digits.

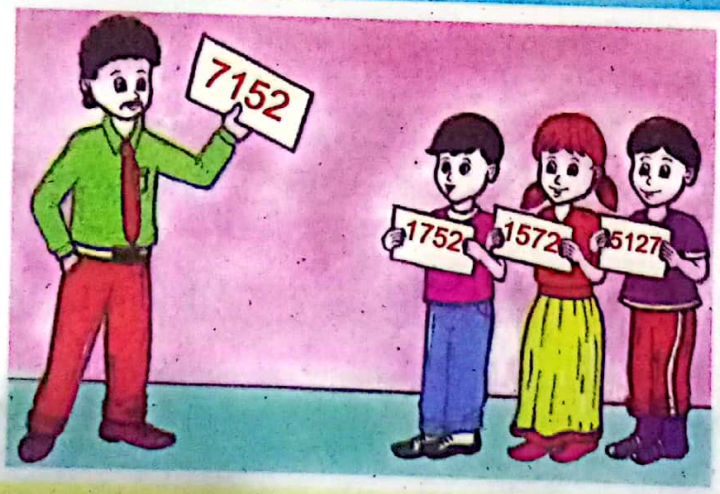
(i)



(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 students and ask them to make smaller or larger number.

Find the given numbers in crossword puzzle. It may be horizontal or verticle. 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	1	6	7	3	5	8

☆ Seven thousand three hundred forty three

☆ Thirty seven thousand seven hundred twenty nine

☆ Six thousand three hundred seventy one

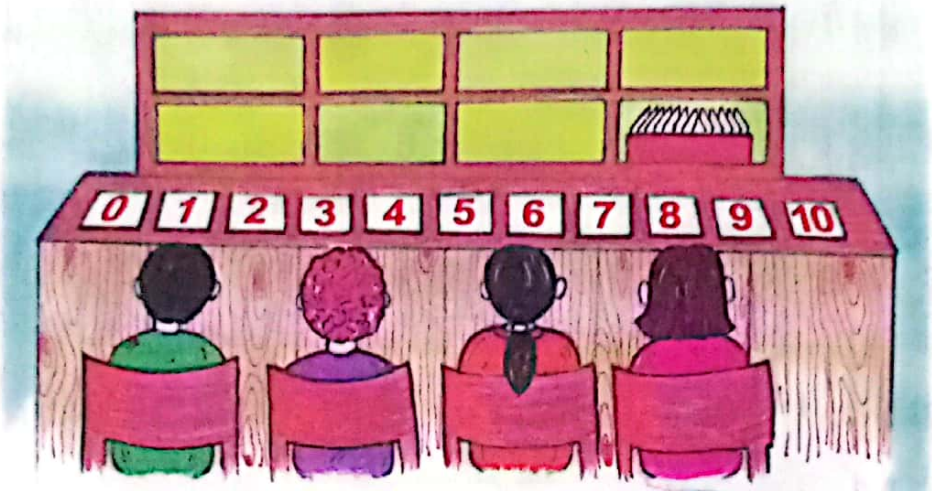
☆ 4 Thousand + 5 Hundred + 9 Tens + 8 ones

☆ 7 Ten thousand + 2 thousand + 2 hundred + 7 tens + 1 ones

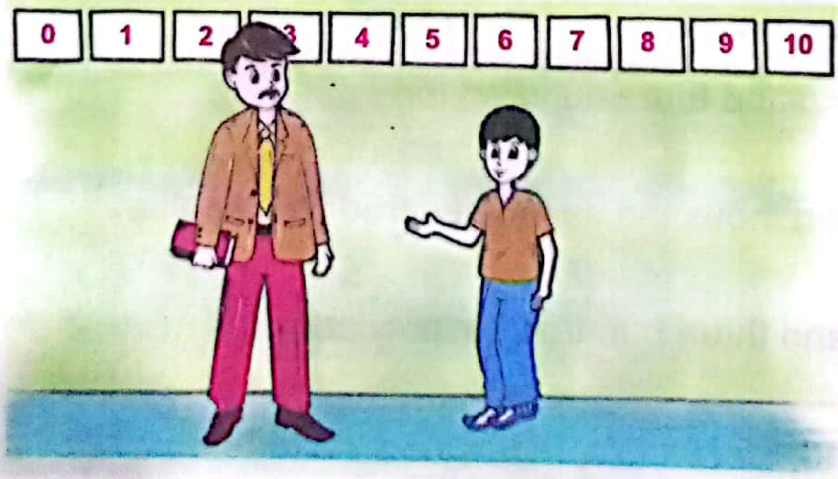
☆ 3 Ten thousand + 5 thousand + 2 hundred + 7 tens + 6 ones

Number Line

Place the given numbers on a number line.

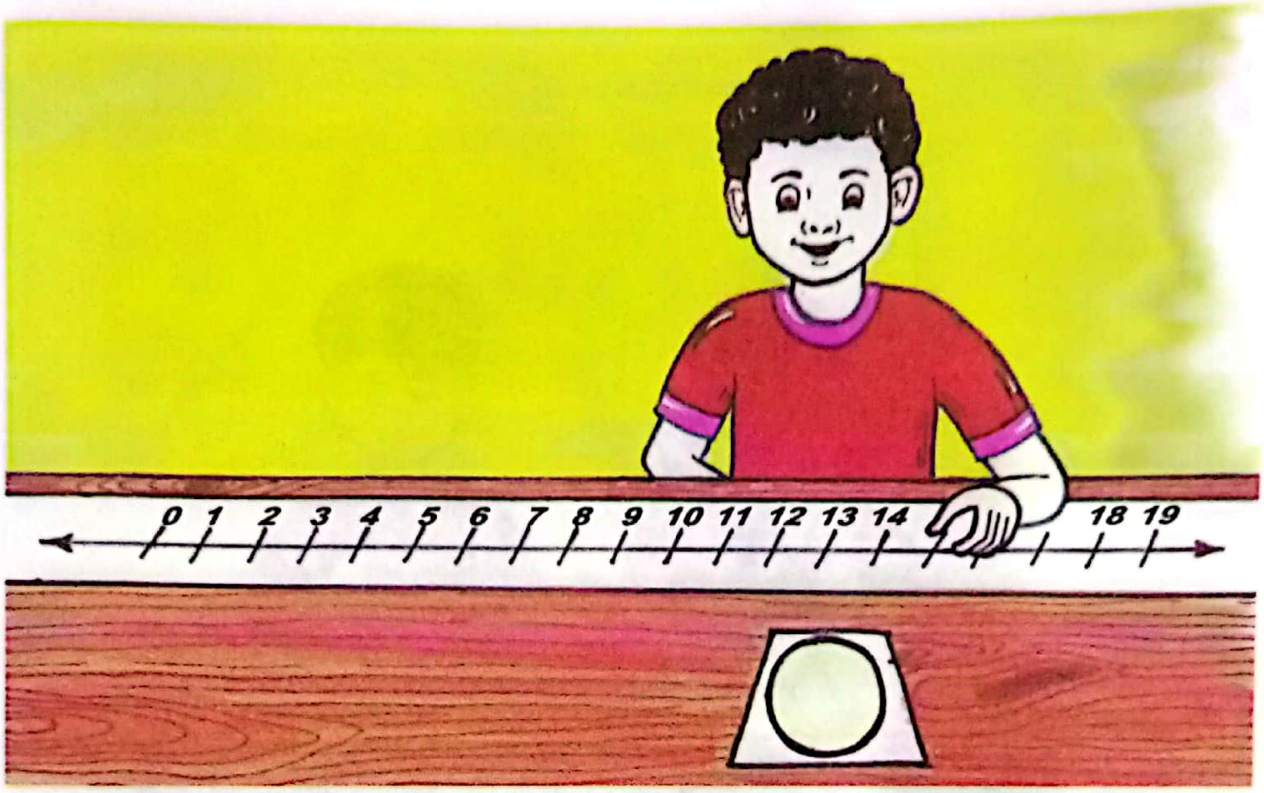


A straight line on which numbers are represented at equal intervals is called number line.

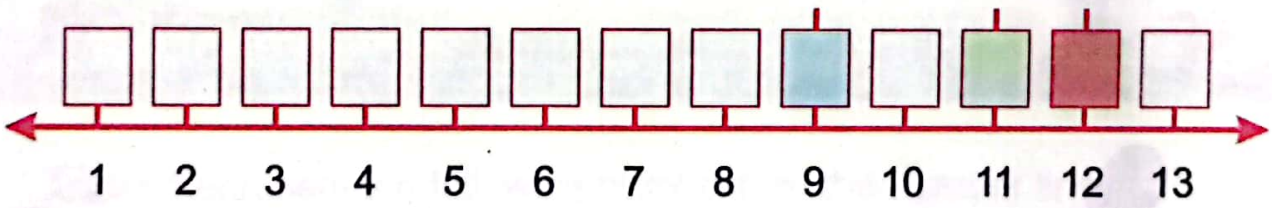


Teaching Point To explain the concept of number line to the students, give example of students standing in school assembly or sitting in a classroom.

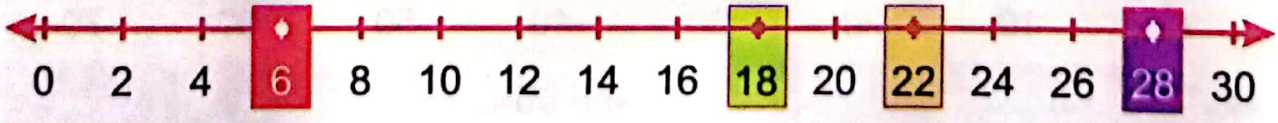
Represent 16 and 17 on number line.



Represent 9, 11 and 12 on number line.

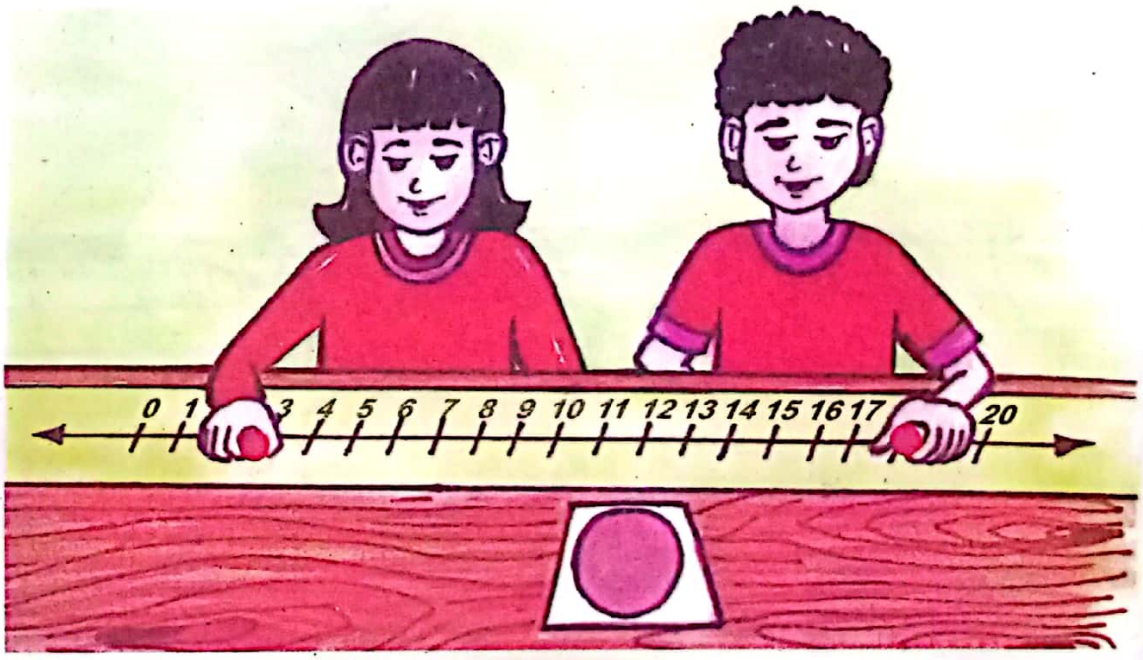


Represent 6 , 18 , 22 and 28 on number line.



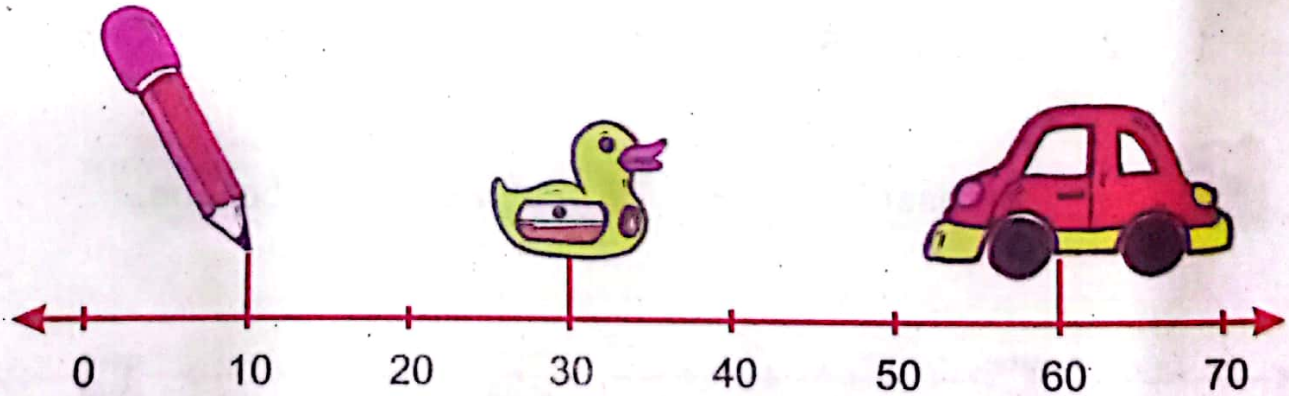
Identify value of number from number line

Identify the value of number given on the number line.



3 and 18

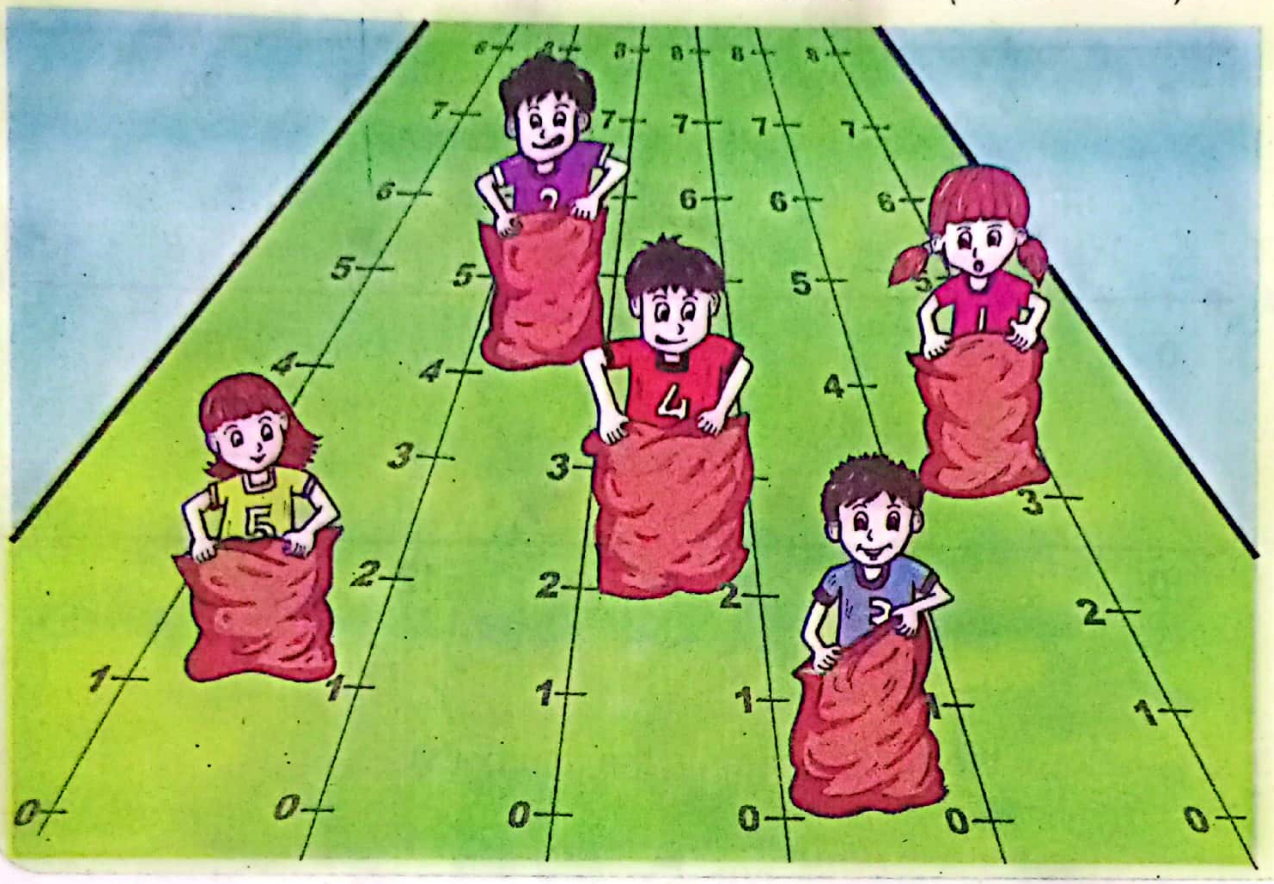
What were the value of objects on number line?



10, 30 and 60

Activity

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



Exercise 4

1. Represent the following numbers on the number line.

(i) 9, 4

(ii) 5, 15, 25

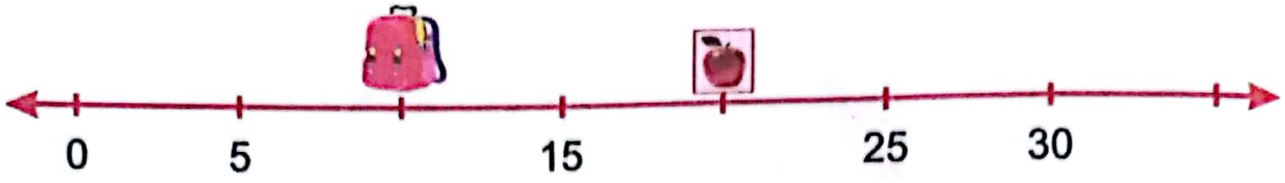
(iii) 6, 12, 24, 36

(iv) 4, 12, 20, 28

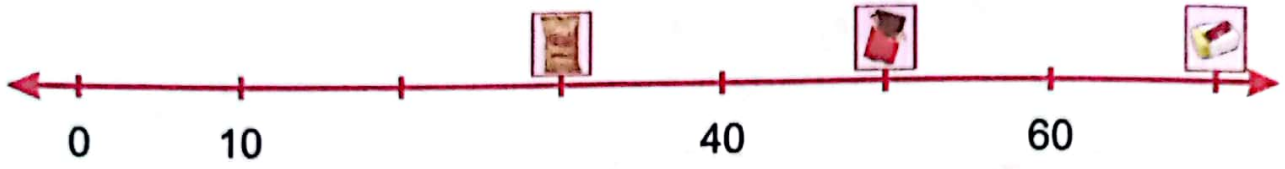
(v) 0, 15, 30, 60

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

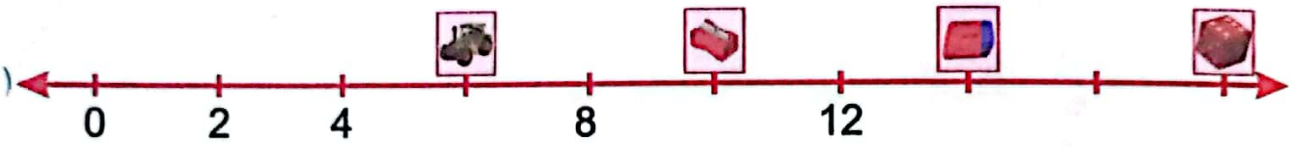
2 Write the value of objects on the number line.



(ii)



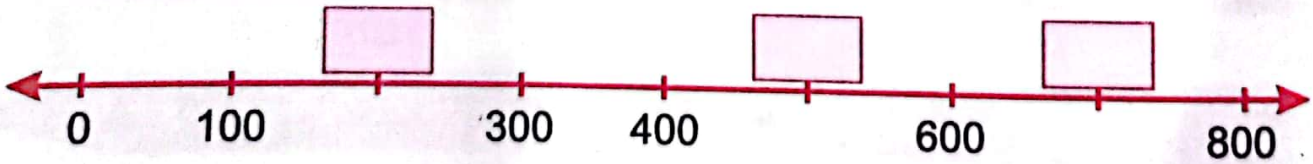
(iii)



3 Place the correct card on the number line.

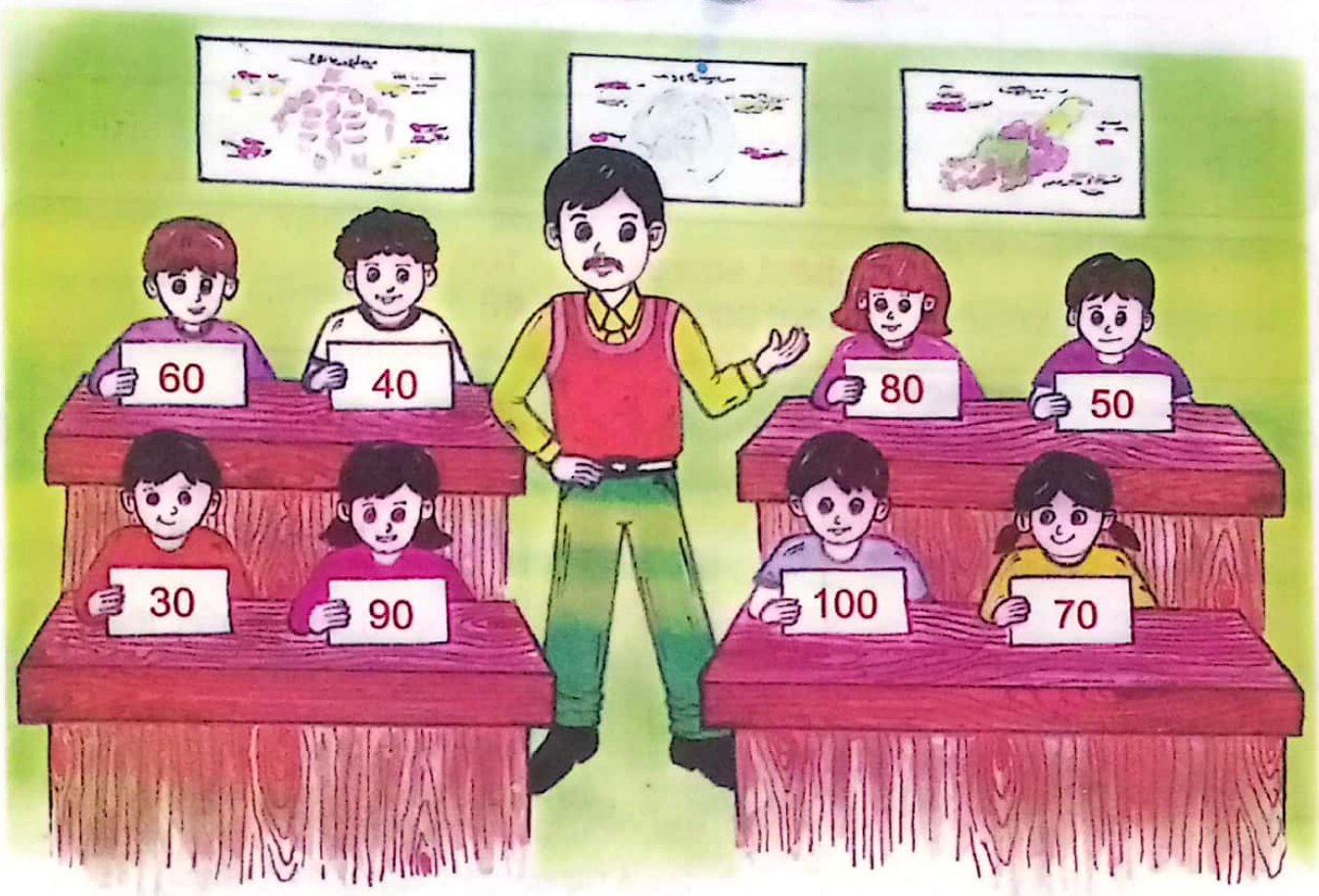
6 , 9 , 18 and 21

200 , 500 and 700



Comparing and Ordering Numbers

In a cricket match different player scored different runs as shown. What is the highest score?

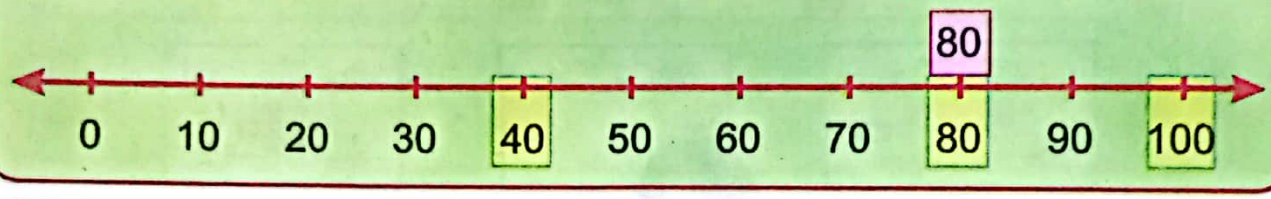


How can we find the highest and the lowest score?

on number line:

- Numbers increase as we move from left to right.
- Each number is greater than the number on the left.
- With the help of number line it is easy to know which number is bigger or smaller.

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



Highest score = 100
Lowest score = 40

Key Fact

Use these symbols when comparing numbers:

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

So, 80 $<$ 100 — 100 is greater than 80

80 $=$ 80 — 80 is equal to 80

and 40 $<$ 80 — 80 is greater than 40

80 $>$ 40 — or 40 is less than 80

I have two toy cars, which one costs more.

Rs 350

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 number at hundreds place. 3 at hundreds place is greater than 2 at hundreds place.
Therefore,

350 > 245

A toy worth Rs. 350 is 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.

Then compare the digits at tens place.:

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

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

582 > 567

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

Compare
892 and 895

Key Point

Two numbers will be equal when that place value of all their digits is same.

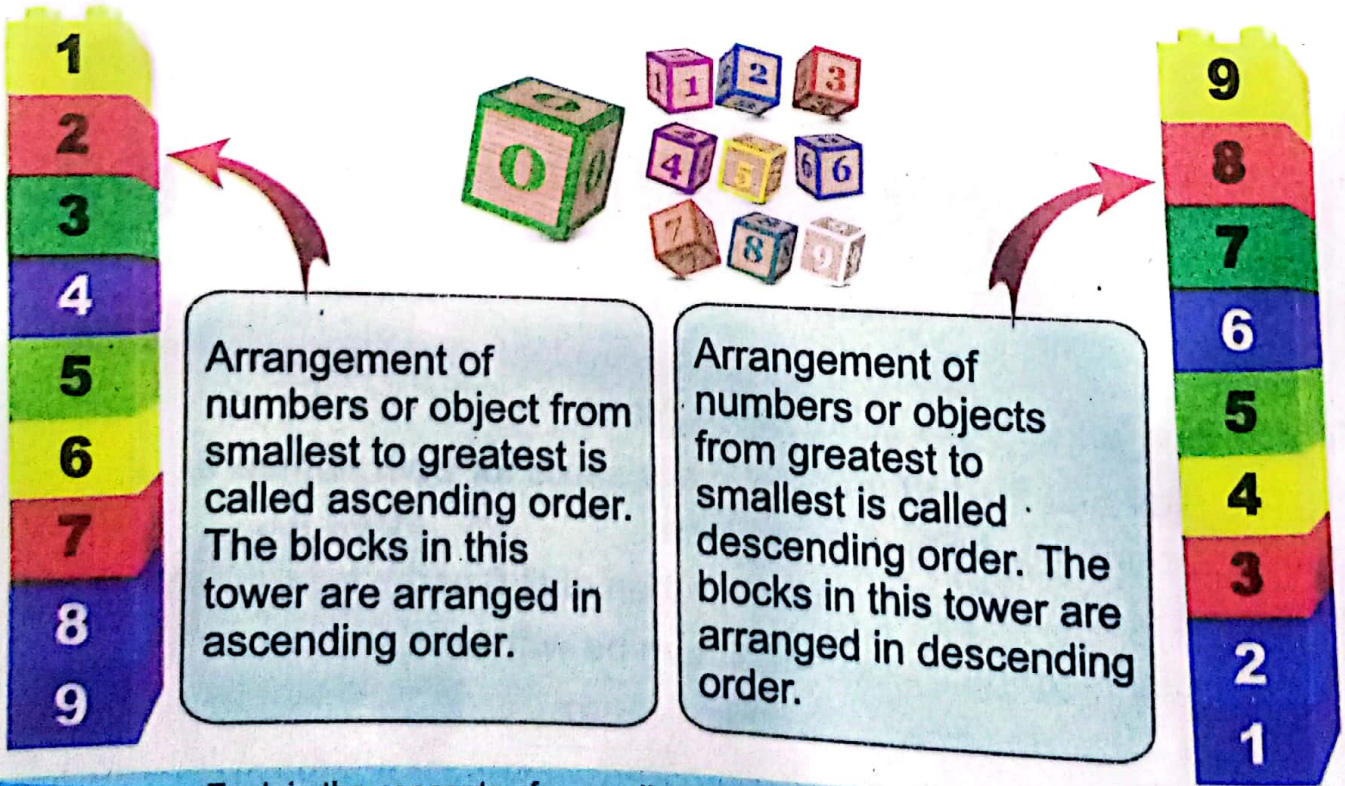
- ☆ The digit 8 at hundreds place in both numbers is same.
- ☆ The digit 9 at tens place in both numbers is same.
- ☆ The digit 5 at ones place is greater than digit 2 at one place.

Therefore,

$895 > 892$

Ordering Numbers

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



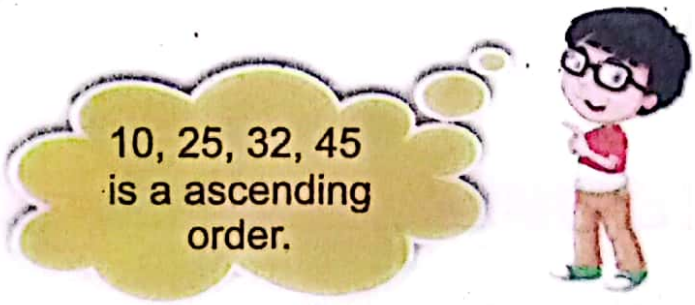
Arrangement of numbers or object from smallest to greatest is called ascending order. The blocks in this tower are arranged in ascending order.

Arrangement of numbers or objects from greatest to smallest is called descending order. The blocks in this tower are arranged in descending order.

Teaching Point Explain the concepts of ascending and descending giving example from real life for example use of stairs.

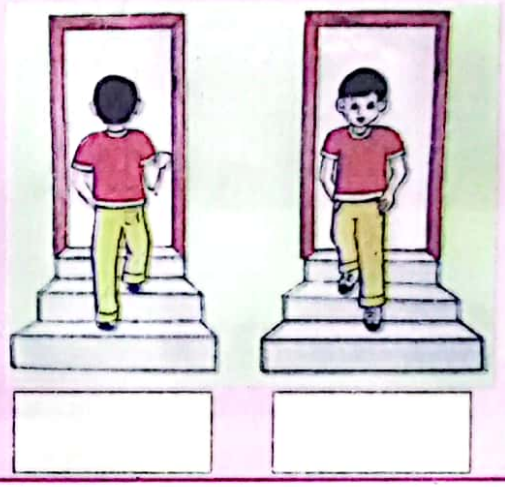
Write 25, 45, 10 and 32 in ascending order.

Arrange these numbers starting from the smallest value.



Try Yourself

Which picture represents ascending and descending order.



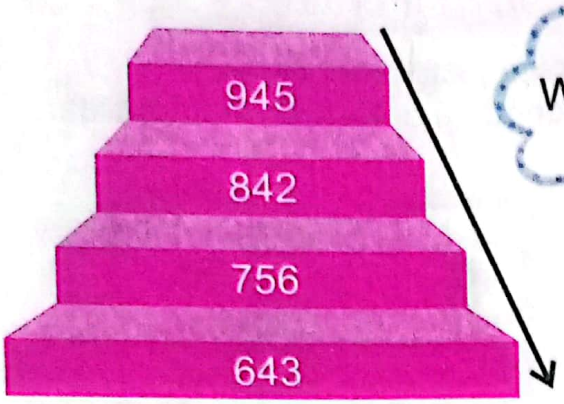
Write the numbers 325, 470 and 532 in
(i) Ascending order (ii) Descending order

Ascending order = 325 | 470 | 532

Descending order = 532 | 470 | 325

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

Ascending order	Descending order
265	281
273	279
279	273
281	265



Write 643, 756, 842 and 945 in descending order.

Exercise 5

1 Use symbols "<", ">" and "=" in the given boxes.

(i) 873 ☐ 426

(ii) 694 ☐ 706

(iii) 857 ☐ 857

(iv) 973 ☐ 824

(v) 574 ☐ 574

(vi) 817 ☐ 619

2 Compare the given numbers.

(i) 671 , 546

(ii) 248 , 249

(iii) 374 , 374

(iv) 738 , 659

(v) 937 , 936

(vi) 875 , 877

3 Write the given numbers in ascending and descending orders.

(i) 71 , 51 , 91 , 61

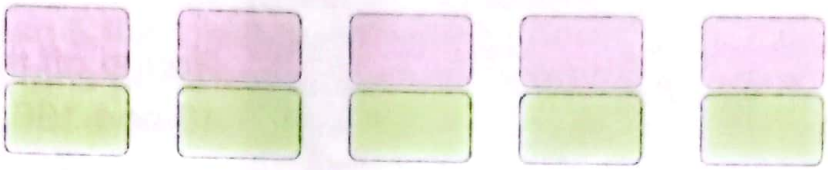
Ascending order ☐ ☐ ☐ ☐

Descending order ☐ ☐ ☐ ☐

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

Ascending order

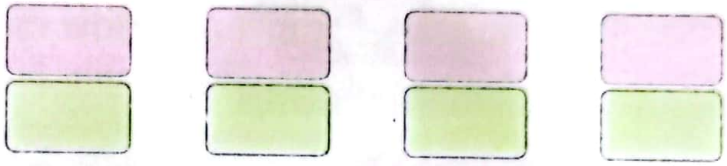
Descending order



(iii) 346 , 451 , 321 , 536

Ascending order

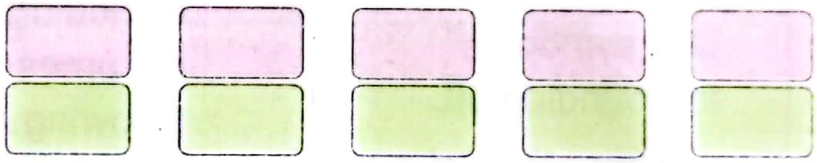
Descending order



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

Ascending order

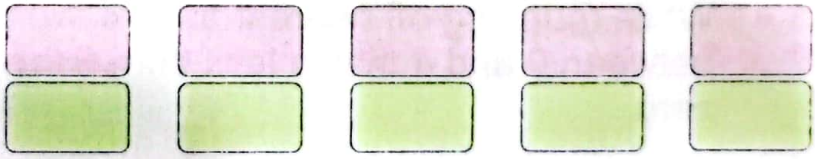
Descending order



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

Ascending order

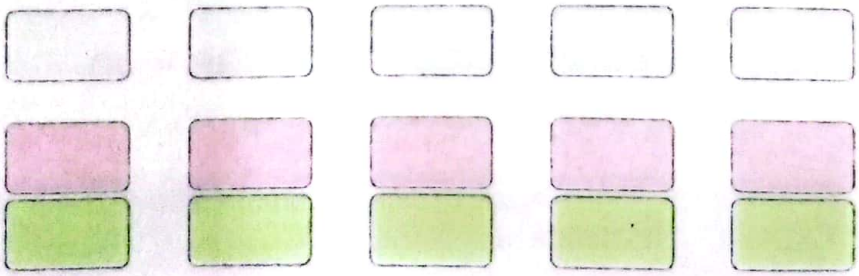
Descending order



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 nearest to 10 and 100.

My father paid Rs 1209 for buying fuel. How can we round off this amount nearest to 10

Key Fact

Use symbol "≈" for rounding off.

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

Rounding Off Nearest to 10

- While rounding off nearest to 10 if the digit at units place is between 0 and 4 that is less than 5 the unit digit is replaced by zero.

$$24 \approx 20$$

- If the digit at units place is 5 or greater than 5, then units place digit is replaced by '0' and tens place digit is increased by "1".
- While rounding off 36, 6 is the unit digit which is greater than 5, so 6 is replaced by 0, and 1 is added to 3, so that, it becomes 40.

$$36 \approx 40$$

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

Rounding off Nearest to 100

While rounding off to the nearest 100, if the digit at the tens place is between 0 and 5 or less than 5, then we replace the units and tens place digit with zero. If the digit at the tens place is equal to or greater than 5, then units and tens place digits are replaced by zero and hundred place digit is increased by 1.

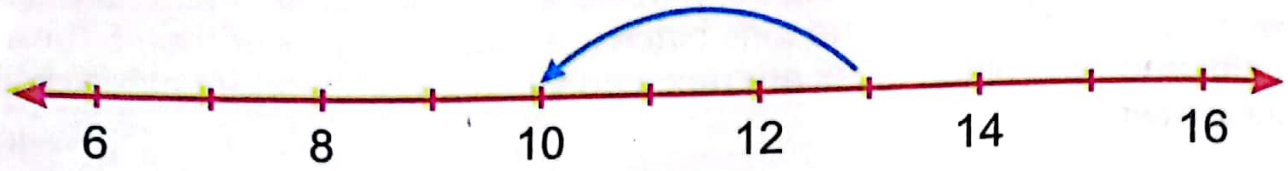
It can be written as:

$666 \approx 700$

Round off the following nearest to 10 and 100.

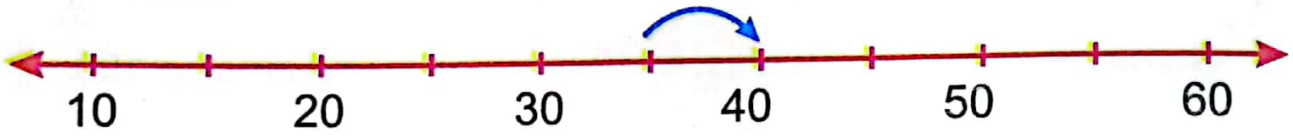
Numbers	Nearest to 10	Nearest to 100
37	40	0
82	80	100
187	190	200
345	350	300
653	650	700

Round off 13 nearest to 10 on number line.



$13 \approx 10$

Round off 35 nearest to 40 on number line.



$35 \approx 40$

Exercise 6

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

Numbers	Nearest to 10	Nearest to 100
26		
52		
327		
385		
750		

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

(i) Nearest to 10

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

(ii) Nearest to 100

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

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

4. Round off 65 nearest to 10 on number line.

I Have Learnt

- Roman numbers are another way to represent numbers.
- 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.
- Identify the place value of numbers up to 5 digits.
- A straight line on which the numbers are represented at equal intervals is called number line.
- Arrangement of numbers from lowest numbers to highest numbers is called ascending order.
- Arrangement of numbers from highest to lowest numbers is called descending order.
- Rounding off whole numbers nearest to 10 and 100.

Vocabulary

Even
Odd
Place value
Number line
Comparing
Ordering
Estimation

Review Exercise

1 Choose Correct Answers.

(i) Roman number XIX is equal to:

(a) 10 (b) 11 (c) 19 (d) 20

(ii) Place value of 2 in 2750 is:

(a) 2 tens (b) 2 ten thousands (c) 2 thousands (d) 2 hundreds

(iii) Eight thousand seven hundred twenty is equal to:

(a) 8720 (b) 8702 (c) 8072 (d) 87020

(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 nearest to 10 as:

(a) 10 (b) 15 (c) 20 (d) 16

2 Fill in the blanks.

(i) 25 can be rounded off as _____ nearest to 10.
(25 or 30)

(ii) In ascending order number can be written from _____.
(lowest to highest or highest to lowest)

(iii) Numbers of wheels in a vehicle are always _____.
(even or odd)

(iv) Numbers of sides of a triangle are _____
(even or odd)

(v) In an odd number unit digits 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.

$5\textcircled{3}42$	$7\textcircled{0}63$	$1286\textcircled{5}$	$8\textcircled{0}064$	$965\textcircled{6}3$

5 Write the given numbers in words.

647 _____

7265 _____

9999 _____

9765 _____

8701 _____

6 Write the given numbers in descending and ascending order.

(i) 27, 21, 3, 45

Ascending order

Descending order

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

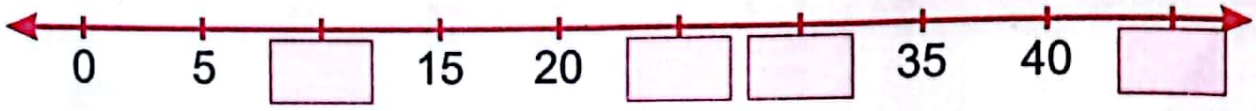
Ascending order

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.

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

Numbers	Nearest to 10	Nearest to 100
46		
83		
765		
847		
956		

Activity

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

Hint:
Count the number of boys and girls.

Unit 2

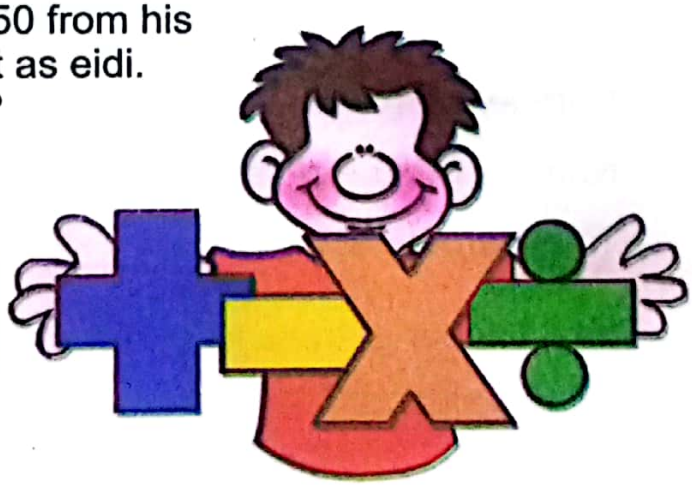
Number Operations

Learning Outcomes:

After studying this unit, students 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 numbers to 1 - digit numbers
- Solve real life situations involving multiplication of 2 - digit numbers by 1 - digit numbers
- 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. 50 from his uncle and Rs. 20 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 3516 mango and 2322 guava trees in an orchard. What is the total number of trees?

To find total number of trees, we add them

First Step

Add ones.

6 ones + 2 ones = 8 ones

Second Step

Add tens.

1 ten + 2 tens = 3 tens

Third Step

Add hundreds.

5 hundreds + 3 hundreds = 8 hundreds

Fourth Step

Add thousands.

3 thousand + 2 thousand = 5 thousand

	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

Total number of trees is 5838.

Teaching Point Teacher should guide students to write numbers in respective places 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 on Tuesday	=	2	5	4	6
Sale of on Wednesday	= +	3	4	4	3
Total sale	=	5	9	8	9

Total sale = Rs. 5989

Addition of numbers upto 4-digits with carrying

Addition

Areeba has Rs.6388 while Affan has Rs. 2424. What is the total amount they have?

		Th	H	T	O
Areeba has	=	6	3 (1)	8 (1)	8
Affan has	= +	2	4	2	4
Total	=	8	8	1	2

First Step

Add ones.

8 ones + 4 ones = 12 ones

and carry 1 ten

Write ones in ones column and carry 1 ten to the tens column.

Second Step

Now, add carry ten and tens.

8 tens + 2 tens + 1 ten = 11 tens

carry 1 hundred

Write 1 ten in column of tens and write a carry hundred in hundreds.

Third Step

Now add carry hundred and hundreds

3 hundreds + 4 hundreds + 1 hundred = 8 hundreds

Fourth Step

Now add thousands in thousands

6 thousands + 2 thousands = 8 thousands

Write 8 thousands in thousands column

Thus, Areeba and Affan have total amount Rs. 8812.

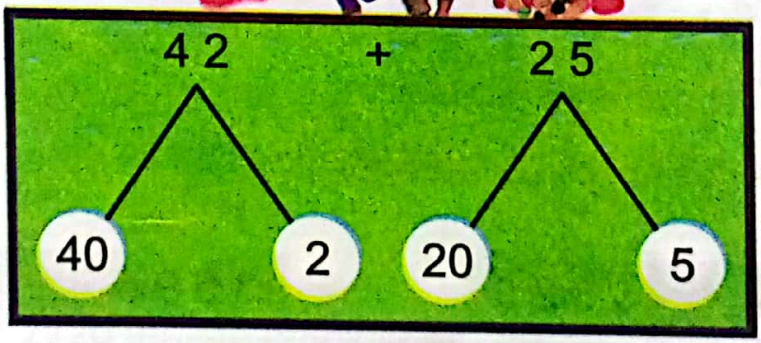
There are 2685 number of boys and 1520 number of girls in a school. What is the total number of students in the school?

		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

Total number of students in the school are 4205.

Add numbers upto 100 using mental strategies

Ahmed 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 with zero (0).

Exercise 1

1. Solve the following.

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

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

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

2. Add the following numbers.

i) 5794 , 3825

ii) 3596 , 4752

iii) 2179 , 5496

iv) 6243 , 5727

v) 6495 , 2156

vi) 3864 , 5676

3 There are 3454 orange trees and 2345 guava trees in an orchard.Find the total number of trees.

4 Zubair paid Rs. 6758 and Rs. 3441 in March and April respectively, as gas charges. Find the total amount paid by him.

5 Population of a village A is 4536 and population of village B is 3253. Find the total population of both the villages.

6 There are 6540 male and 2120 female employees in an organization. Find the total number of employees.

7 Aliyan and Shahwaiz saved Rs. 4056 and Rs. 5430 respectively. Find out their total saving.

8 Add using mental strategies:

i) 15 + 16 = ☐

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. 7545. How much amount is left with him?

		Th	H	T	O
Zubair had total money	=	9	8	9	9
Total purchases	=	− 7	5	4	5
Remaining amount	=	2	3	5	4

First Step

Subtract ones from ones.

9 ones - 5 ones = 4 ones

Write 4 in column of ones.

Second Step

Subtract tens from tens.

9 tens - 4 tens = 5 tens

Write 5 in column of tens.

Third Step

Subtract hundreds from hundreds.

8 hundreds - 5 hundreds = 3 hundreds

Write 3 in column of hundreds.

Fourth Step

Subtract thousands from thousands.

9 thousands - 7 thousands = 2 thousands

Thus, Rs. 3254 were left.

Key Fact

Always subtract a smaller number from a greater number.

Subtract 4342 from 8984.

Th	H	T	O
8	9	8	4
− 4	3	4	2
4	6	4	2

Difference = 4642.

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

In an Eid Gah, 1982 people prayed their Eid Namaz if 1670 of them were men. Find the number of children.

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

Number of children 312

Subtraction with borrowing

Ali has 2354 coins and Wali has 1260 coins. How much more coins Ali have than Wali?

		Th	H	T	O
Number of coins Ali has	=	2	²3	¹5	4
Number of coins Wali has	= −	1	2	6	0
Difference	=	1	0	9	4

Ali has 1094 coins more than Wali.

First Step

Subtracts ones from ones.

4 ones - 0 ones = 4 ones

Write 4 in column of ones.

Second Step

Subtract tens from tens.
We can not 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

Since, 1 hundred = 10 tens
Now, 15 tens - 6 tens = 9 tens
Write 9 in column of tens.

Third Step

Subtract hundreds from hundreds.
After giving 1 hundred as borrow to tens then there are 2 hundreds
2 hundreds - 2 hundreds = 0 hundred
Write 0 in column of hundreds.

Fourth Step

Subtract thousands from thousands.
2 thousands - 1 thousand = 1 thousand
Write 1 in column of thousands.
Thus, Ali has 1094 more coins than that of 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 of subtraction and give some questions for practicing.

Find the difference of 7650 and 2586.

Th	H	T	O
~~7~~	~~6~~ ^{5}	~~5~~ ^{4}	0
− 2	5	8	6
5	0	6	4

Difference = 5064.

There were 5434 bags of wheat in a godown. 2956 bags were sold. How many bags of wheat are left in godown?

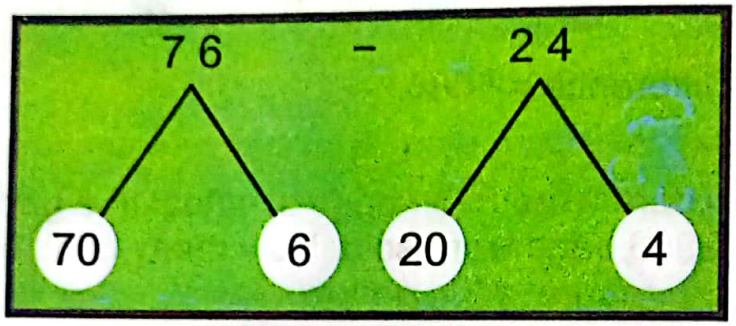
	Th	H	T	O
Total number of bags of wheat in godown =	~~5~~ ^{4}	~~4~~ ^{3}	~~3~~ ^{2}	4
Bags sold = −	2	9	5	6
Remaining bags of wheat =	2	4	7	8

Remaining bags of wheat in godown were 2478.

Subtraction of numbers upto 100 using mental strategies.

Bilal has Rs. 76. Spends Rs. 24. How much money is left with him?

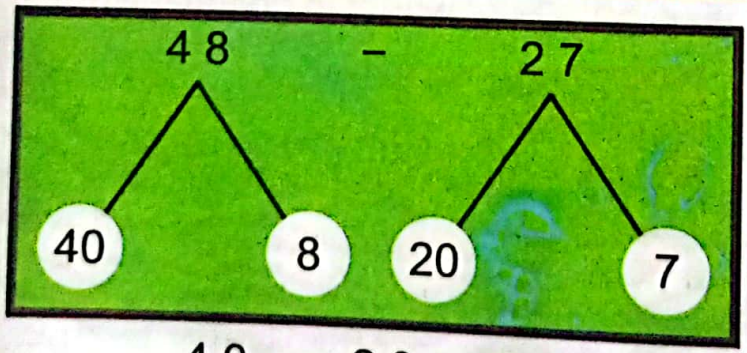
We solve it by mental strategies as follows:



$$70 - 20 = 50$$
$$6 - 4 = 2$$
$$= 52$$

Bilal has Rs. 52.

Find the difference between 48 and 27?



$$40 - 20 = 20$$
$$8 - 7 = 1$$
$$= 21$$

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

Exercise 2

Solve the following.

1
$$\begin{array}{r} 3546 \\ -2324 \\ \hline \end{array}$$

2
$$\begin{array}{r} 5796 \\ -3453 \\ \hline \end{array}$$

3
$$\begin{array}{r} 6354 \\ -4041 \\ \hline \end{array}$$

4
$$\begin{array}{r} 8764 \\ -3653 \\ \hline \end{array}$$

5
$$\begin{array}{r} 4754 \\ -3532 \\ \hline \end{array}$$

6
$$\begin{array}{r} 9876 \\ -6754 \\ \hline \end{array}$$

Solve the following.

7
$$\begin{array}{r} 9765 \\ -8974 \\ \hline \end{array}$$

8
$$\begin{array}{r} 8754 \\ -3974 \\ \hline \end{array}$$

9
$$\begin{array}{r} 6495 \\ -3546 \\ \hline \end{array}$$

10
$$\begin{array}{r} 7965 \\ -6876 \\ \hline \end{array}$$

11
$$\begin{array}{r} 8678 \\ -7896 \\ \hline \end{array}$$

12
$$\begin{array}{r} 8543 \\ -7654 \\ \hline \end{array}$$

13 Subtract mentally.

i) 80 − 24 = ☐

ii) 65 − 41 = ☐

iii) 67 − 25 = ☐

iv) 76 − 35 = ☐

v) 87 − 36 = ☐

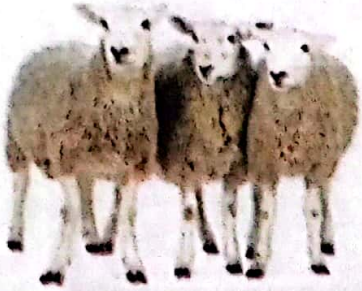
vi) 57 − 21 = ☐

14 A book has 1535 pages in all. Zarina has read 424 pages. How many pages of the book are left?

15 Aamir and Gulraiz sell cloths. One day sell of Aamir is Rs. 6456 and sell of Gulraiz is Rs. 4340. How much more money Aamir has made after sell than Gulraiz?

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

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



Multiplication

Multiplication table of 6

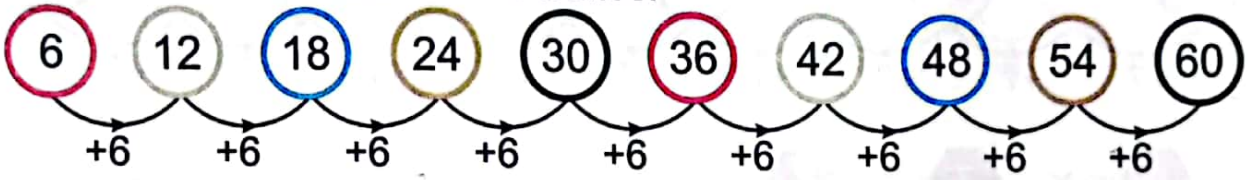
Faheem has 3 chocolate boxes. In each box, there are 6 chocolates. What is the total number of chocolates?

Chocolates in 1 box = 6

Chocolates in 3 boxes = 6 + 6 + 6 = 18

6 chocolates in 3 boxes = 6 × 3 = 18

There are 18 chocolates in 3 boxes.



Key Fact

When an even number is multiplied by 6 then we get the same even number in one's place.

2 x 6 = 12

4 x 6 = 24

6 x 6 = 36

8 x 6 = 48

1 × 6 = 6

2 × 6 = 12

3 × 6 = 18

4 × 6 = 24

5 × 6 = 30

6 × 6 = 36

7 × 6 = 42

8 × 6 = 48

9 × 6 = 54

10 × 6 = 60

Teaching Point Teacher should guide students to develop multiplication of 6 using repeated addition.

Multiplication table of 7

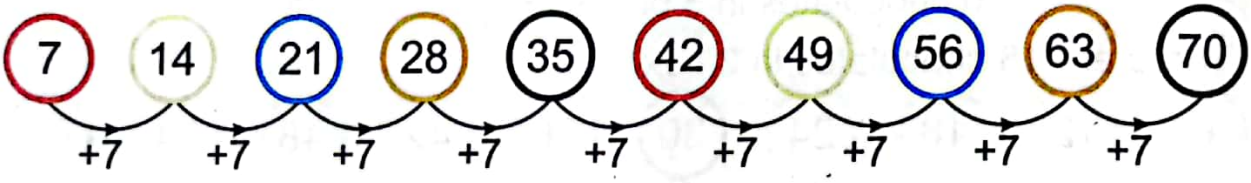
Faheem has 3 chocolate boxes on each box there are 7 chocolates. What is the total number of chocolates.

chocolates in 1 box = 7

chocolates in 3 boxes = 7+7+7=21

7 chocolates in 3 boxes = 7 x 3 = 21

There are 21 chocolates in 3 boxes.



$1 \times 7 = 7$

$2 \times 7 = 14$

$3 \times 7 = 21$

$4 \times 7 = 28$

$5 \times 7 = 35$

$6 \times 7 = 42$

$7 \times 7 = 49$

$8 \times 7 = 56$

$9 \times 7 = 63$

$10 \times 7 = 70$

Key Fact

$6 \times 7 = 42$

or

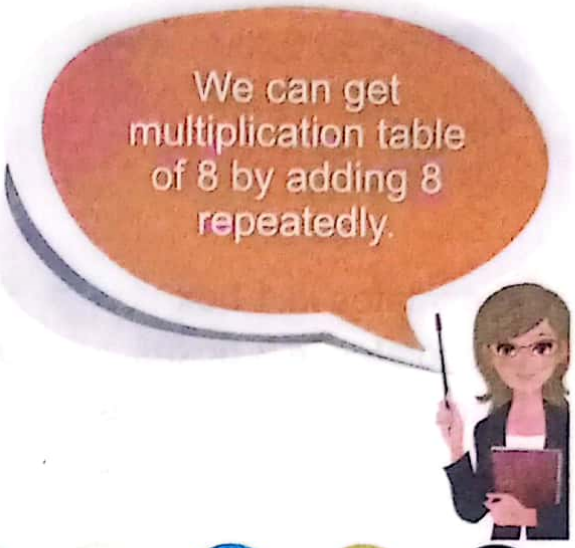
$6 \times 7 = 7 \times 6 = 42$

Key Fact

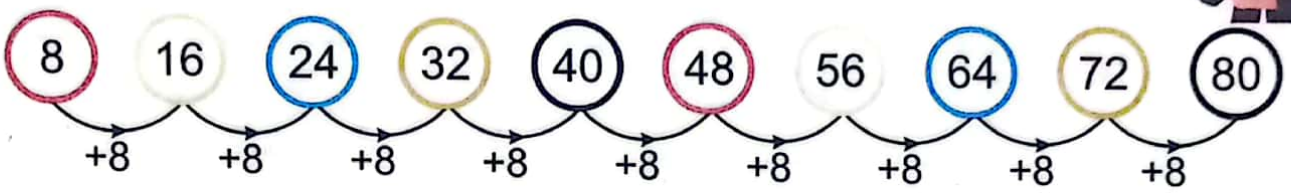
Repeated addition of numbers is called multiplication.

Teaching Point Teacher should guide students to develop multiplication table of 7 using repeated addition.

Multiplication table of 8



chocolates in 1 box = 8
chocolates in 3 boxes = 8+8+8=24
8 chocolates in 3 boxes = 8 x 3 = 24
There are 24 chocolates in 3 boxes.



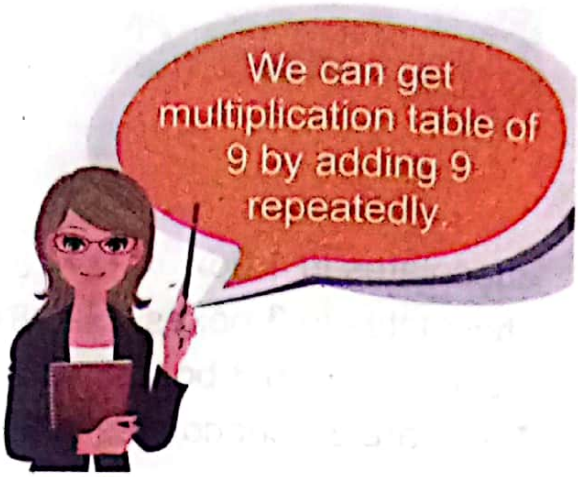
1 × 8 = 8
2 × 8 = 16
3 × 8 = 24
4 × 8 = 32
5 × 8 = 40
6 × 8 = 48
7 × 8 = 56
8 × 8 = 64
9 × 8 = 72
10 × 8 = 80

Key Fact

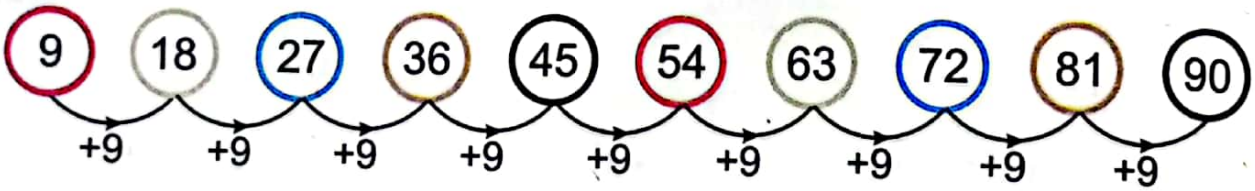
3 × 8 = 24
or
3 × 8 = 8 × 3 = 24

Teaching Point Teacher should guide students to develop multiplication table of 8 using repeated addition

Multiplication table of 9



chocolates in 1 box = 9
chocolates in 3 boxes = 9+9+9=27
9 chocolates in 3 boxes = 9 x 3 = 27
There are 27 chocolates in 3 boxes.



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

Key Point

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

Teaching Point Teacher should guide students to develop multiplication table of 9 using repeated addition.

Exercise 3

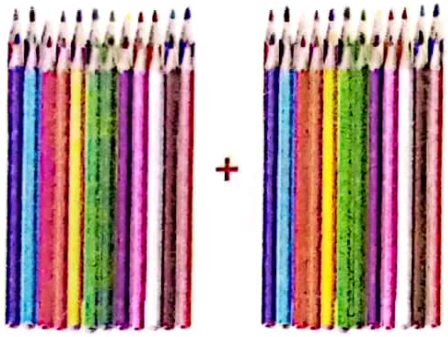
1. Complete the following tables.

2. Fill in the boxes.

×	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 with 24 pencils each. How many total number of pencils he has?



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

Now we multiply 24 by 2.

First Step

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

T	O
2	4
×	2

Second Step

Multiply the digits at ones as

$4 \times 2 = 8$

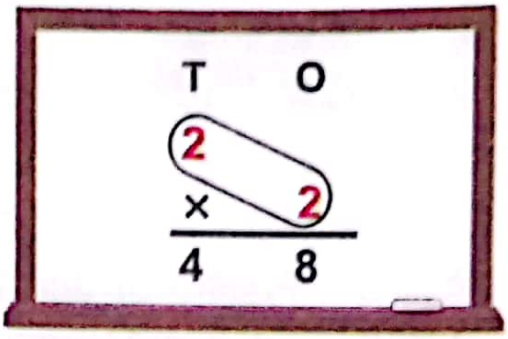
Write 8 in column of ones.

T	O
2	4
×	2
	8

Third Step

Multiply 2 at tens place by 2 at ones place as given.

$$2 \times 2 = 4$$



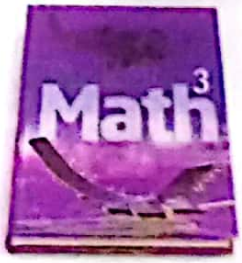
There are 48 pencils in the two boxes.

Cost of a Mathematics book of class III is Rs. 65. Then what is the price of 6 books?

Price of 1 book = 6 5

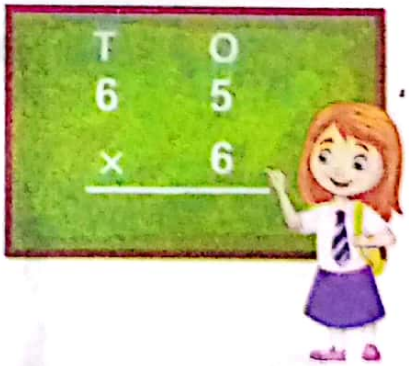
Price of 6 books = 6 5 × 6

= Rs 390



First Step

Write the numbers in vertical form.

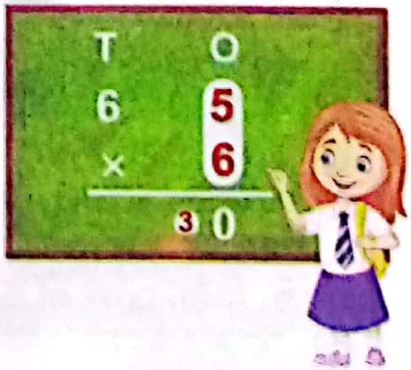


Second Step

Multiply 6 by 5 in ones place.

as 6 × 5 = 3 0

Write 0 in column of ones and carry 3 in tens.



Third Step

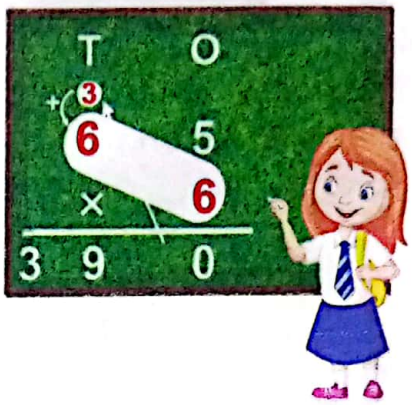
$6 \times 6 = 36$

And add 3 tens.

36 tens + 3 tens = 39 tens

Write 9 in column of tens

and 3 in column of hundreds.



Price of 1 book = 65

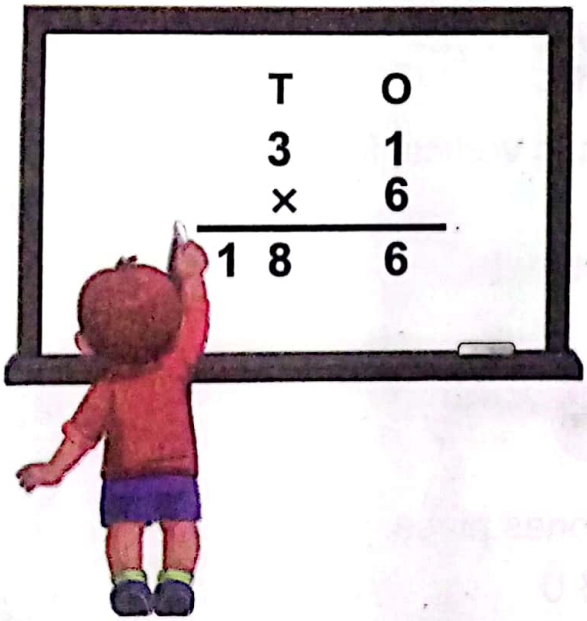
Price of 6 books = 65 x 6

Cost of 6 books = Rs. 390

Mahwish has 6 toys. If cost of one toy is Rs. 31
What is the cost of 6 same toys?

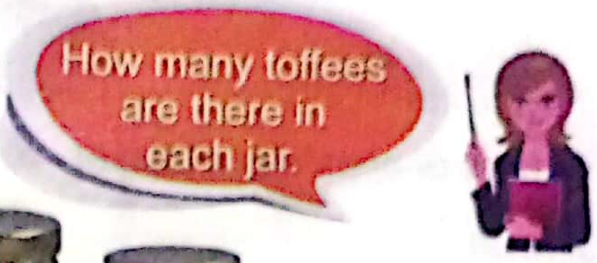
Cost of one toy = 31

Cost of 6 toys = 6×31



Thus, total cost of 6 toys is Rs. 186.

Multiply a number by 0 and 1



(1) (2) (3)

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

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

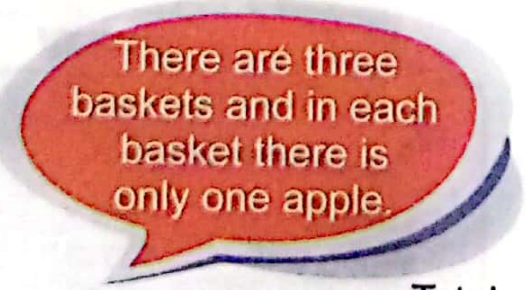
or

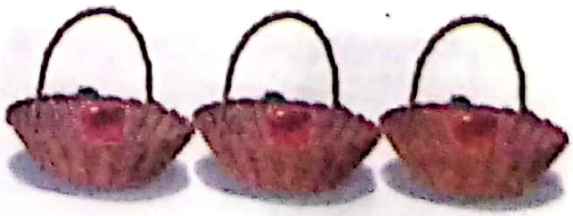
Multiply 3 by 0 = 3 x 0 = 0

Similarly,

4 × 0 = 0

Multiplying a number by 0 we always get 0.





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

Number of apples in three baskets = 3 x 1

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

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

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

Similarly, $1 \times 4 = 4$

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.

Exercise 4

Solve

1
$$\begin{array}{r} 24 \\ \times\ 3 \\ \hline \\ \hline \end{array}$$

2
$$\begin{array}{r} 35 \\ \times\ 4 \\ \hline \\ \hline \end{array}$$

3
$$\begin{array}{r} 32 \\ \times\ 5 \\ \hline \\ \hline \end{array}$$

4
$$\begin{array}{r} 38 \\ \times\ 6 \\ \hline \\ \hline \end{array}$$

5
$$\begin{array}{r} 45 \\ \times\ 7 \\ \hline \\ \hline \end{array}$$

6
$$\begin{array}{r} 48 \\ \times\ 8 \\ \hline \\ \hline \end{array}$$

7
$$\begin{array}{r} 54 \\ \times\ 9 \\ \hline \\ \hline \end{array}$$

8
$$\begin{array}{r} 56 \\ \times\ 7 \\ \hline \\ \hline \end{array}$$

9
$$\begin{array}{r} 62 \\ \times\ 6 \\ \hline \\ \hline \end{array}$$

10 Solve the following using tables.

(i) $7 \times 6 =$ ☐

(ii) $5 \times 6 =$ ☐

(iii) $4 \times 7 =$ ☐

(iv) $9 \times 7 =$ ☐

(v) $4 \times 9 =$ ☐

(vi) $8 \times 7 =$ ☐

11 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) $31 \times 1 =$ ☐

12 Solve using mental strategies:

(i) $4 \times 9 =$ ☐

(ii) $5 \times 4 =$ ☐

(iii) $6 \times 3 =$ ☐

(iv) $6 \times 5 =$ ☐

(v) $8 \times 4 =$ ☐

(vi) $7 \times 5 =$ ☐

13 If Habib spends Rs. 24 in one day. Then how much money will he spend in 4 days?

14 There are 7 days in a week then how many days are there in 52 weeks?

January

S	M	T	W	T	F	S
					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						

February

S	M	T	W	T	F	S
	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						

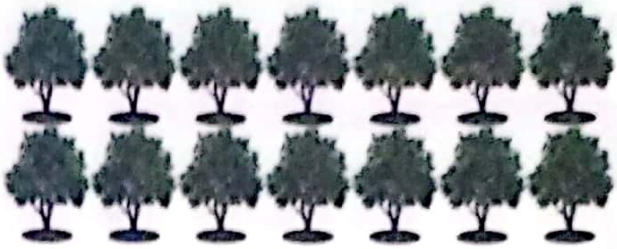
May

S	M	T	W	T	F	S
						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					

June

S	M	T	W	T	F	S
		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			

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



16 A motorcycle can cover a distance of 62 kilometers in one litre of petrol. How many km will it cover in 4 litres?

Divide 2-digit number by 1-digit number (with zero remainder)

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 marble = 30

Number of jars = 6

Number of marbles in one jar = 30 ÷ 6

= 5

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

Divisor →

5 marbles can be placed in 1 jar.

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

Number of mango trees = 72

Rows of trees = 6

Number of trees in 1 row = 72 ÷ 6

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

There are 12 trees in 1 row.

Distribute 84 pencils in 4 boxes equally.

Number of pencils = 84

Number of boxes = 4

Number of pencils in 1 box = 84 ÷ 4

= 21

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

There are 21 pencils in 1 box.

Key Fact

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

Key Fact

Division means distributing things equally.

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

Consider the division of the following numbers.

6 ÷ 2 = 3

9 ÷ 3 = 3

8 ÷ 2 = 4

8 ÷ 4 = 2

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

Exercise 5

Solve

1- 20 ÷ 4 =

2- 25 ÷ 5 =

3- 42 ÷ 6 =

4- 49 ÷ 7 =

5- 72 ÷ 8 =

6- 81 ÷ 9 =

7- 48 ÷ 4 =

8- 72 ÷ 6 =

9- 84 ÷ 7 =

10- 51 ÷ 3 =

11- 96 ÷ 8 =

12- 99 ÷ 9 =

Solve using mental strategies.

13- 4 ÷ 2 =

14- 8 ÷ 4 =

15- 9 ÷ 3 =

16 During school assembly 96 students are standing in 6 rows. How many students are there in 1 row?

17 Afzal covered a distance of 56 kilometers in 4 days. How many kilometers he covered in one day?

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

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

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

I Have Learnt

- Addition upto 4-digit number (with an without carrying)
- Subtraction upto 4-digit number (with and without borrowing)
- When 0 is added in any number then we get the same number.
- Subtraction is basically difference of two numbers.
- Always subtract smaller number from a greater number.
- When 0 is subtracted from any number then we get the same number.
- When 6 is multiplied by an even number then we get the same even number in ones place.

Vocabulary

Addition
Subtraction
Multiplication
Division
Mental strategies
Box

For example, ④ × 6 = 2④, ⑥ × 6 = 3⑥

② × 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 in tens place firstly and then in ones place.

Review Exercise

1 Choose the correct answer.

i) Sum of 1564 and 7325 is _____.

(a) 8888 (b) 8889 (c) 8899 (d) 8886

ii) Difference of 6351 and 1265 is _____.

(a) 5056 (b) 5076 (c) 5086 (d) 5096

iii) 1886 is _____ less than 3246.

(a) 1350 (b) 1360 (c) 1370 (d) 1380

vi) There are 6 eggs in a basket. Then _____ eggs are in 7 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) Multiplying 12 by 1. We get _____.

(a) 13 (b) 112 (c) 12 (d) 14

vii) Dividing 24 by 6, we get_____.

(a) 4 (b) 5 (c) 6 (d) 7

viii) Dividing 84 by 4, we get _____.

(a) 18 (b) 19 (c) 20 (d) 21

Unit 3

Fractions

(Learning Outcomes)

After studying this unit, students will be able to:

- Express the fractions in figures and vice versa
- Match the fractions with related figures
- Recognize proper and improper fractions
- Differentiate between proper and improper fractions
- Identify equivalent fractions from the given figures
- Write three equivalent fractions for a given fraction
- Compare fractions with same denominators using symbols "<", ">", or "="
- Add two fractions with same denominators
- Represent addition of fractions through figures
- Subtract fractions with same denominators
- Represent subtraction of fractions through figures

Common Fractions

Saima's father brought a watermelon for Iftar. When mother started cutting watermelon, Saima was observing keenly.

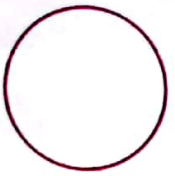
Mother explained her that each piece of watermelon is half or $\frac{1}{2}$.

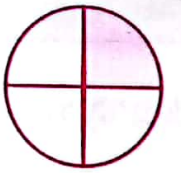
Saima asked her mother! It was a watermelon but you have to cut it into two pieces.

One whole = 1

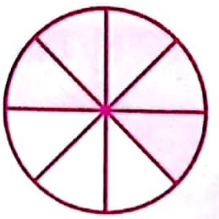
Half = $\frac{1}{2}$

One fourth = $\frac{1}{4}$





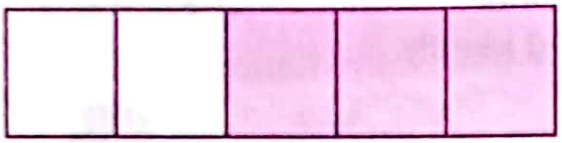
In the figure at the right, three out at four parts are white.
The figure below is divided into 8 equal parts. Five parts out of eight are coloured.



The colour parts can be written as: $\frac{5}{8}$

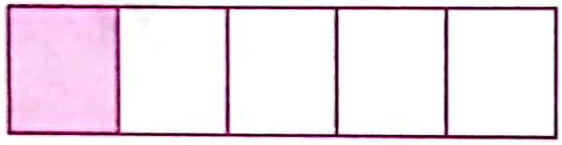
Teaching Point Explain the concept of common fraction, using daily life examples.

Match the given figures to the fraction.

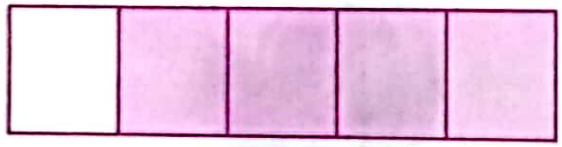


$\frac{2}{5}$

$\frac{3}{5}$



$\frac{4}{5}$



$\frac{1}{5}$

Key Fact

How many parts of a whole:

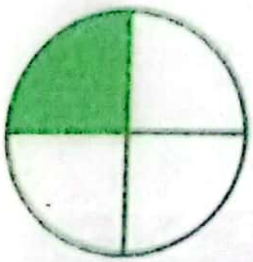
- The top number, the numerator, says how many parts have used.
- The bottom number, the denominator, says how many equal parts the whole is divided into.

Exercise 1

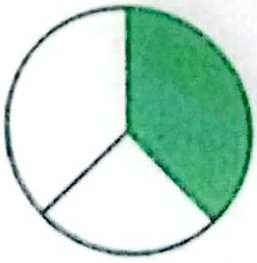
1. Identify numerator and denominator in the following fractions.

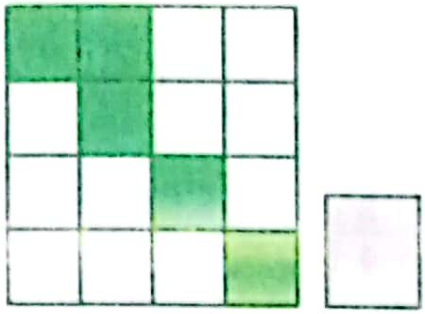
$\frac{2}{7}$, $\frac{3}{7}$, $\frac{5}{8}$, $\frac{2}{5}$, $\frac{10}{13}$, $\frac{9}{10}$, $\frac{1}{8}$, $\frac{2}{3}$, $\frac{4}{7}$, $\frac{3}{4}$

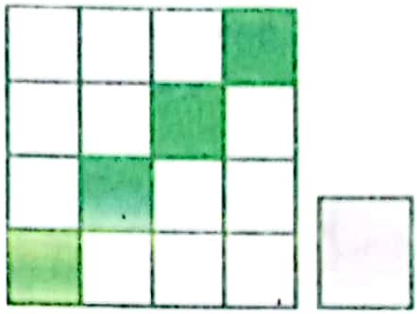
2. Write the fraction represented by the shaded part of the following figures.

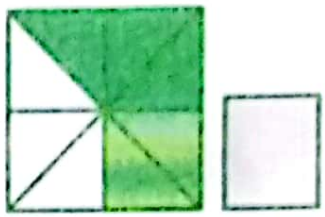


$\frac{1}{4}$

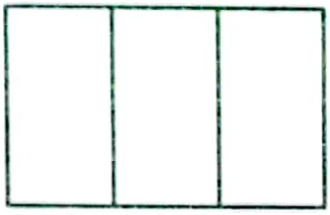




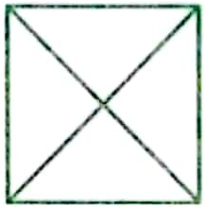




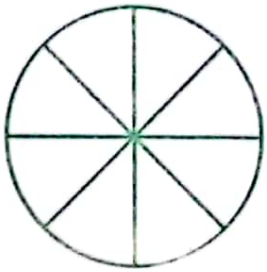
3 Colour the following figures according to the given fractions.



$\frac{2}{3}$



$\frac{3}{4}$



$\frac{3}{8}$

$\frac{3}{6}$

4 Write the fraction from the given numerator and denominator.

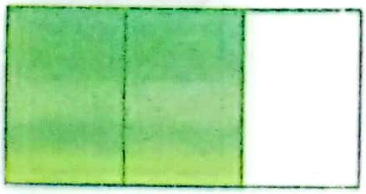
(i) Numerator = 4, Denominator = 11 → $\frac{4}{11}$

(ii) Numerator = 3, Denominator = 11 → —

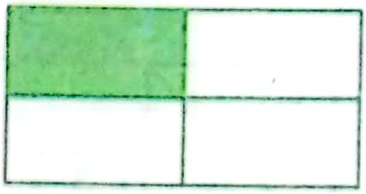
(iii) Numerator = 4, Denominator = 9 → —

(iv) Numerator = 5, Denominator = 7 → —

5 Match the following figures to the given fractions.

(i) 

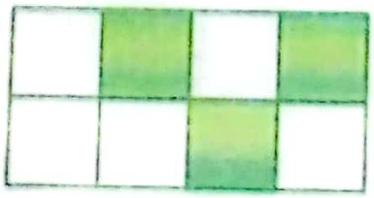
$\frac{3}{4}$

(ii) 

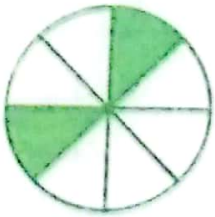
$\frac{3}{8}$

(iii) 

$\frac{1}{4}$

(iv) 

$\frac{2}{8}$

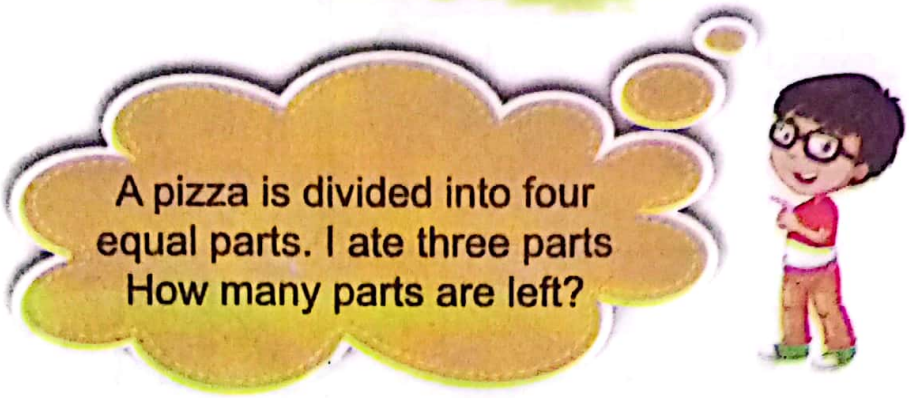
(v) 

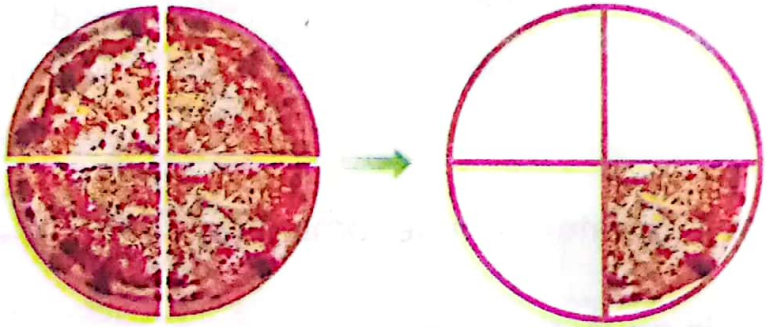
$\frac{2}{3}$

(vi) 

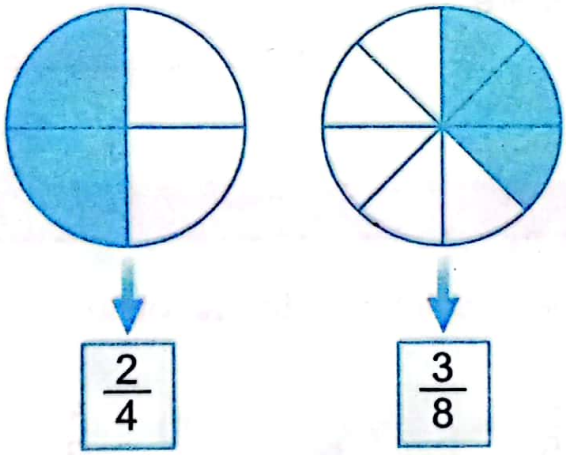
$\frac{2}{5}$

Proper and Improper Fractions





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

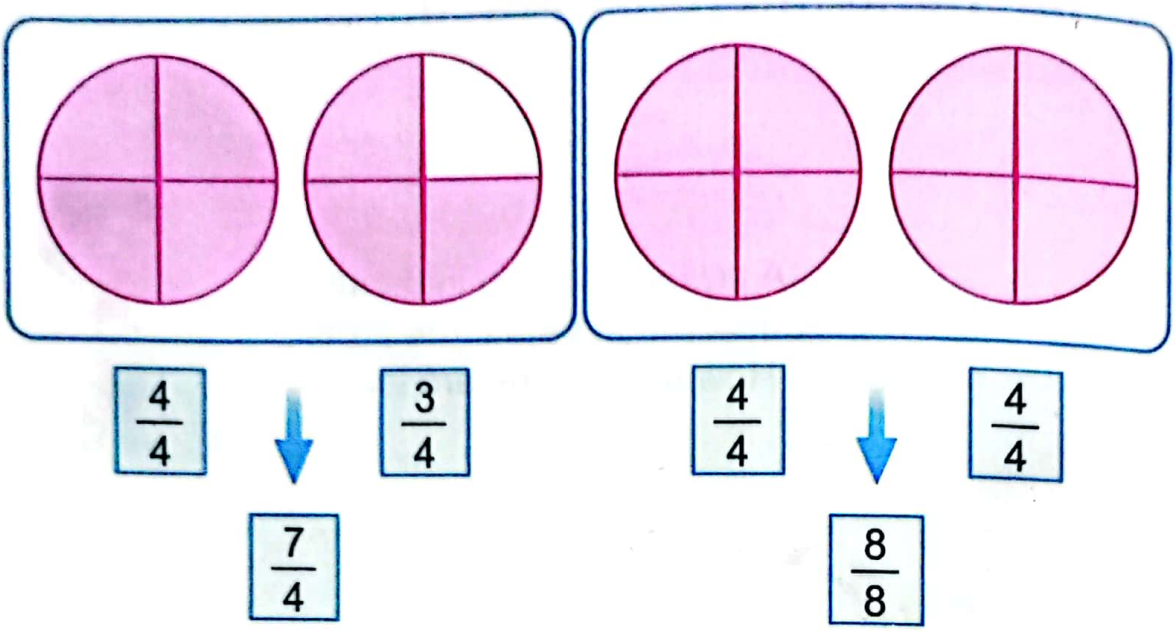


In these fractions, numerator is less than denominator. Therefore, these fractions are called proper fractions.

Check Point

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

Improper Fractions



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

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

Therefore, both of these fractions are improper fractions.

Key Point

If 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 and improper fractions in the following.

$\frac{13}{6}$ $\frac{14}{5}$ $\frac{4}{5}$ $\frac{9}{4}$

$\frac{8}{5}$

Proper fractions

Improper fractions

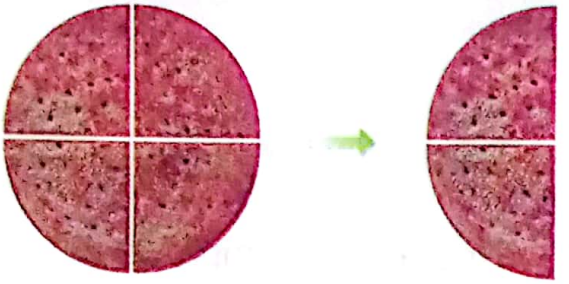
$\frac{7}{12}$

$\frac{7}{19}$ $\frac{8}{15}$ $\frac{7}{9}$ $\frac{7}{4}$

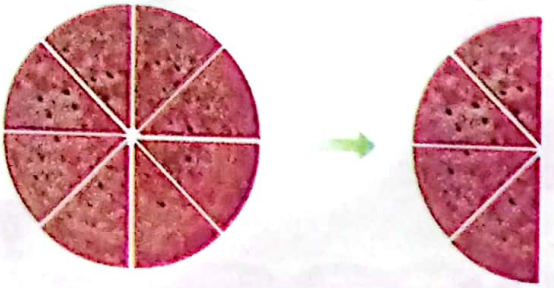
Equivalent Fractions

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

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

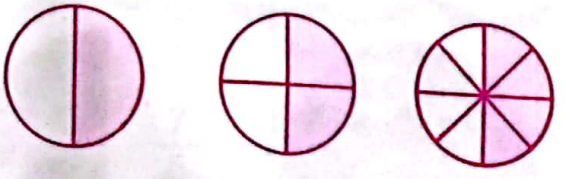


Uzair has a bread. He divided it into eight equal parts and ate $\frac{4}{8}$ of it.



We observed that Umair, Nosheen and Uzair ate same amount of bread.

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

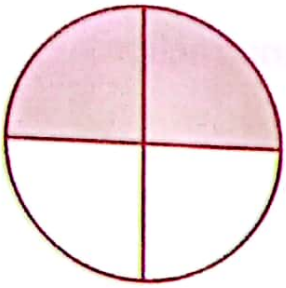


So, we can say that: $\frac{1}{2}$, $\frac{2}{4}$ and $\frac{4}{8}$ are equivalent fractions.

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:

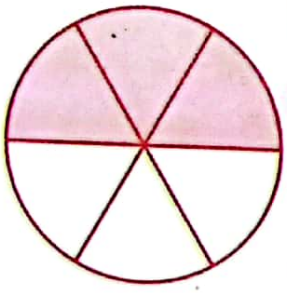
$$\frac{1}{2} = \frac{1 \times 2}{2 \times 2} = \frac{2}{4}$$



Try Yourself

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

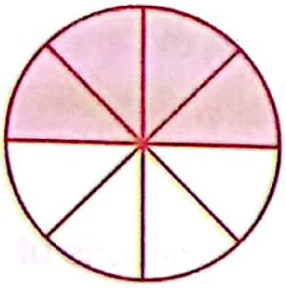
$$\frac{1}{2} = \frac{1 \times 3}{2 \times 3} = \frac{3}{6}$$



Key Fact

To get equivalent fraction, multiply numerator and denominator by a number greater than 1.

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



Thus, three equivalent fractions of $\frac{1}{2}$ are $\frac{2}{4}$, $\frac{3}{6}$ 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 the following.

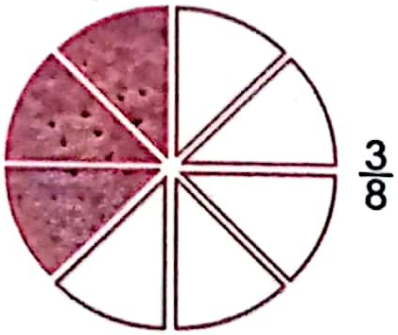
(i) $\frac{5}{6}$ (ii) $\frac{2}{3}$ (iii) $\frac{1}{4}$

(iv) $\frac{5}{8}$ (v) $\frac{3}{5}$ (vi) $\frac{2}{5}$

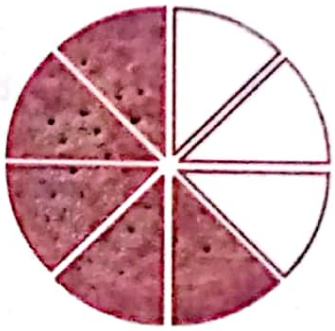
Comparing Fractions

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

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



$\frac{3}{8}$



$\frac{5}{8}$

Who eats less?

When denominators of the fractions are same then we compare their numerators.

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

and 3 is less than 5.

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

Therefore, we can say that Ali ate less.

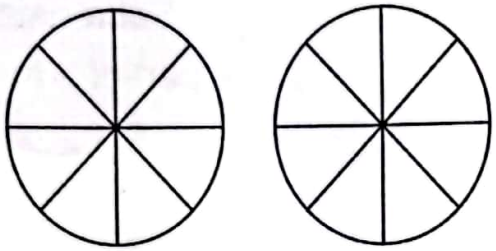
Key Point

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

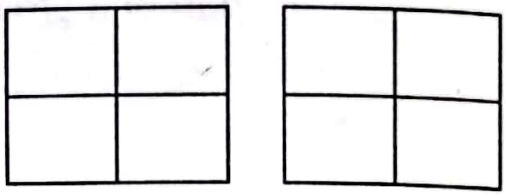
1 Colour the following figures and then use < or > sign.

(i)



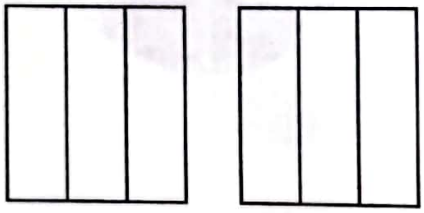
$\frac{3}{8}$ ____ $\frac{5}{8}$

(ii)



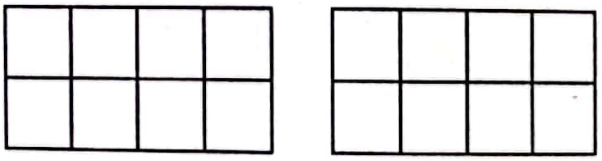
$\frac{3}{4}$ ____ $\frac{2}{4}$

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

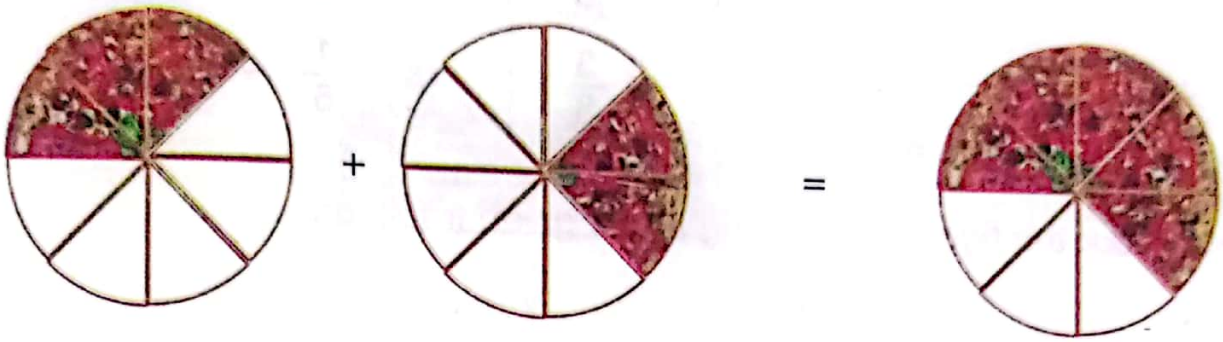
(iv) $\frac{2}{3}$ ____ $\frac{1}{3}$

(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 her pizza. How much pizza did they eat altogether?



Zaryab's ate	+	Nayab's ate	=	Total ate
$\frac{3}{8}$	+	$\frac{2}{8}$	=	$\frac{5}{8}$

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

The total slices of pizza eaten $= \frac{3}{8} + \frac{2}{8}$

$= \frac{5}{8}$

Key Fact

To add fractions with same denominator we add numerators only.

Teaching Point Explain the concept of addition of two fractions with same denominator to students.

Exercise 5

Solve.

(1) $\frac{3}{7} + \frac{2}{7}$

(2) $\frac{3}{5} + \frac{1}{5}$

(3) $\frac{1}{9} + \frac{4}{9}$

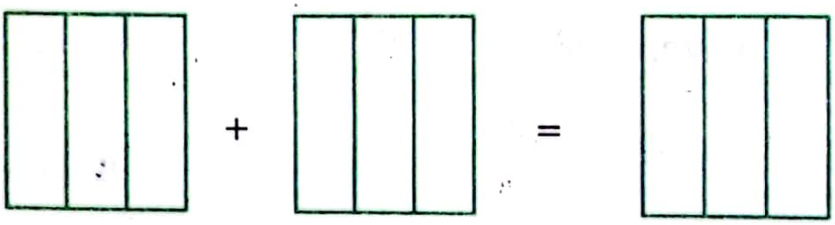
(4) $\frac{5}{12} + \frac{2}{12}$

(5) $\frac{1}{8} + \frac{3}{8}$

(6) $\frac{1}{6} + \frac{3}{6}$

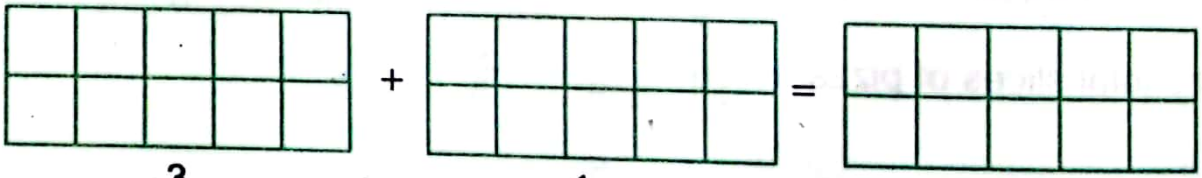
Colour the figures according to the given fractions.

(7)



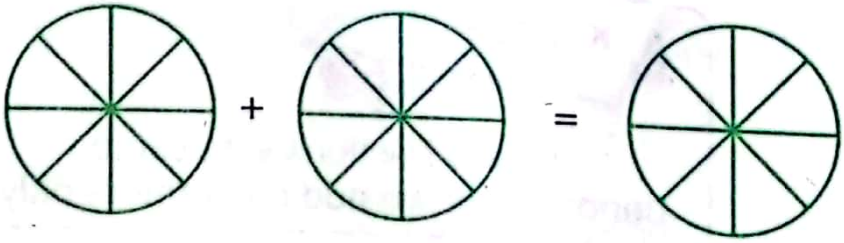
$\frac{1}{3} + \frac{1}{3} = \frac{2}{3}$

(8)



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

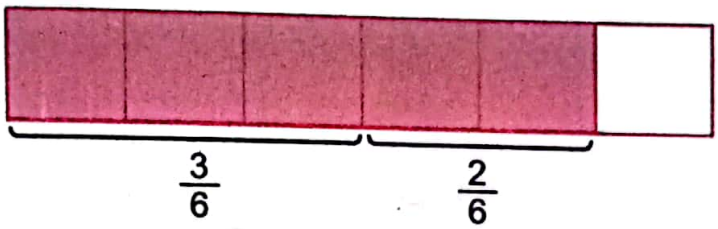
(9)



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

Subtraction of Fractions

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



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

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

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

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

$= \frac{1}{6}$

Key Fact

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

Exercise 6

Solve.

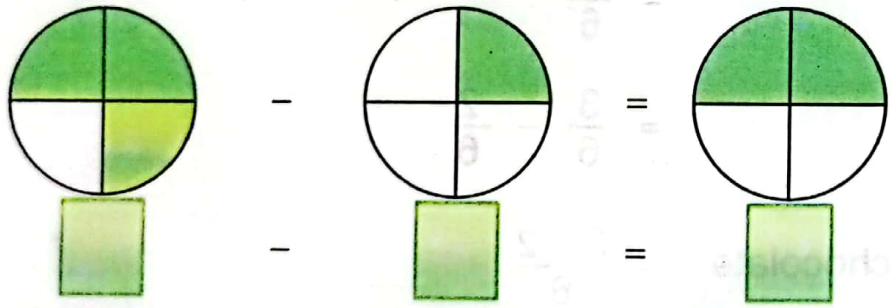
(1) $\frac{3}{7} - \frac{1}{7}$ (2) $\frac{5}{9} - \frac{1}{9}$ (3) $\frac{3}{5} - \frac{2}{5}$

(4) $\frac{5}{8} - \frac{2}{8}$ (5) $\frac{7}{12} - \frac{3}{12}$ (6) $\frac{5}{6} - \frac{3}{6}$

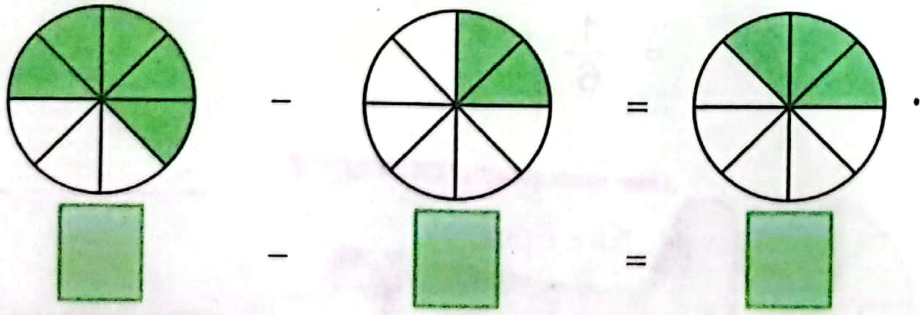
(7) $\frac{5}{8} - \frac{3}{8}$ (8) $\frac{5}{11} - \frac{3}{11}$ (9) $\frac{7}{15} - \frac{3}{15}$

Write fractions and solve.

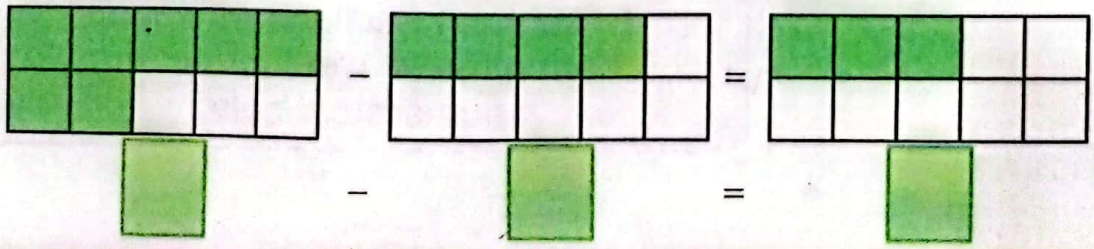
(10)



(11)



(12)



I Have Learnt

- If we divide a thing into equal parts then part/parts taken out of whole is called numerator.
- Total number of parts of a thing is known as denominator.
- In proper fraction, numerator is less than denominator.
- In improper fractions, numerator is greater than or equal to the denominator.
- Those fractions which are equal to each other are called equivalent fractions.
- In two factions with same denominator, fraction having greater numerator than other fraction is a greater fraction.
  If numerator of two fractions 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.

Vocabulary

Proper Fraction
Improper Fraction
Equivalent Fraction
Compairing Fractions
Common Fractions
Addition of Fractions
Subtraction of Fractions

Review Exercise

1 Choose the correct answer.

(i) A fraction in which numerator is less 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) 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) $\frac{1}{30}$

(v) Difference of two fractions $\frac{7}{9}$ and $\frac{3}{9}$ is _____.

(vi) (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 Use < , > and = signs of the following fractions.

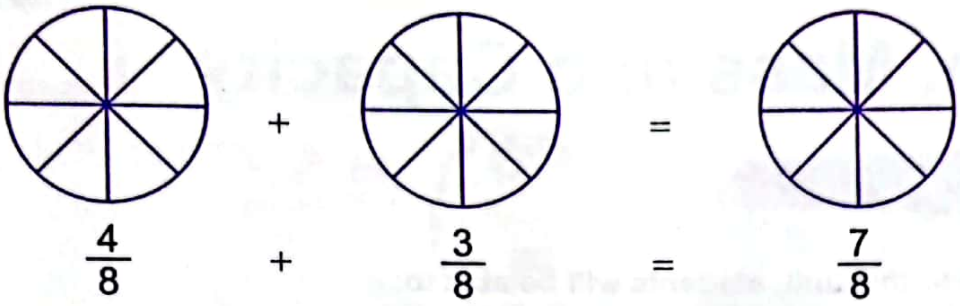
(i) $\frac{8}{9} \square \frac{4}{9}$ (ii) $\frac{5}{7} \square \frac{6}{7}$ (iii) $\frac{4}{5} \square \frac{4}{5}$

5 Write three equivalent fractions of the following fractions.

(i) $\frac{2}{3}$ (ii) $\frac{4}{5}$ (iii) $\frac{3}{7}$ (iv) $\frac{3}{8}$

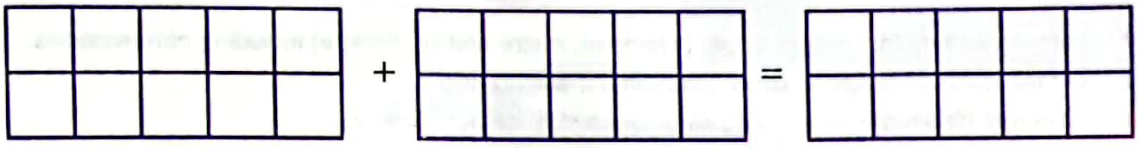
6 Colour the figures according to the given fractions.

(i)



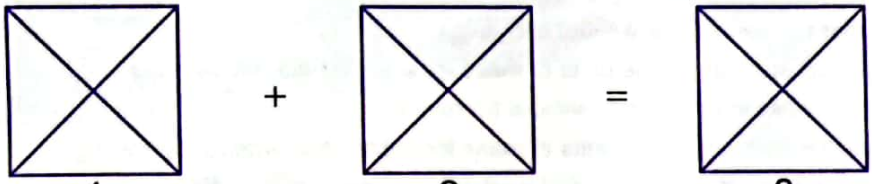
$\frac{4}{8}$ + $\frac{3}{8}$ = $\frac{7}{8}$

(ii)



$\frac{3}{10}$ + $\frac{5}{10}$ = $\frac{8}{10}$

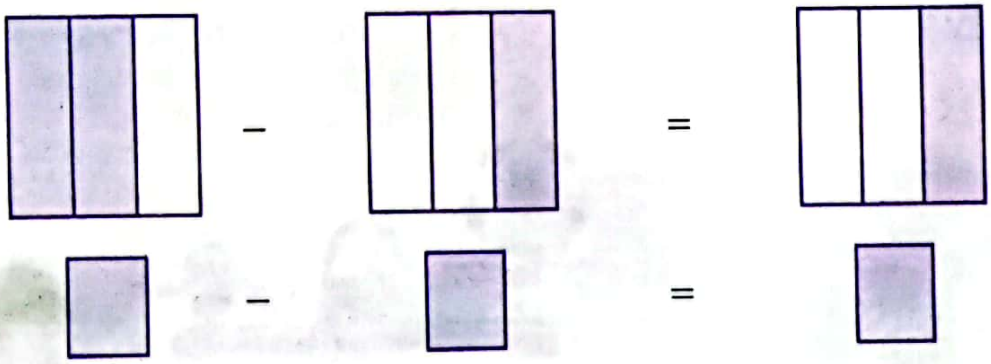
(iii)



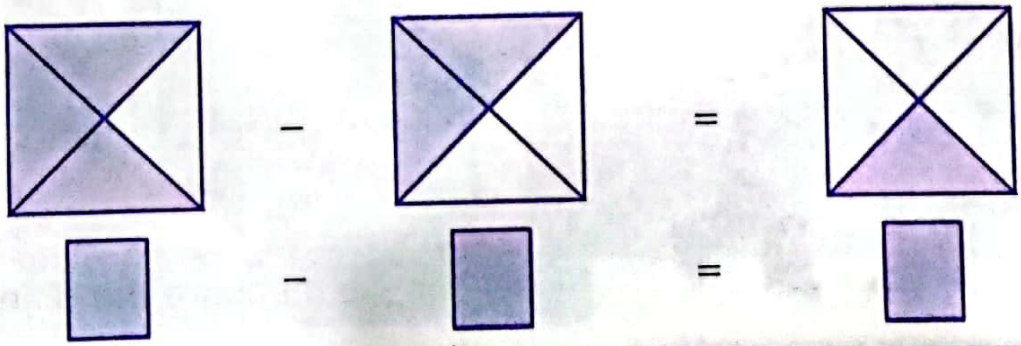
$\frac{1}{4}$ + $\frac{2}{4}$ = $\frac{3}{4}$

7 Show the following figures by fractions.

(i)



(ii)



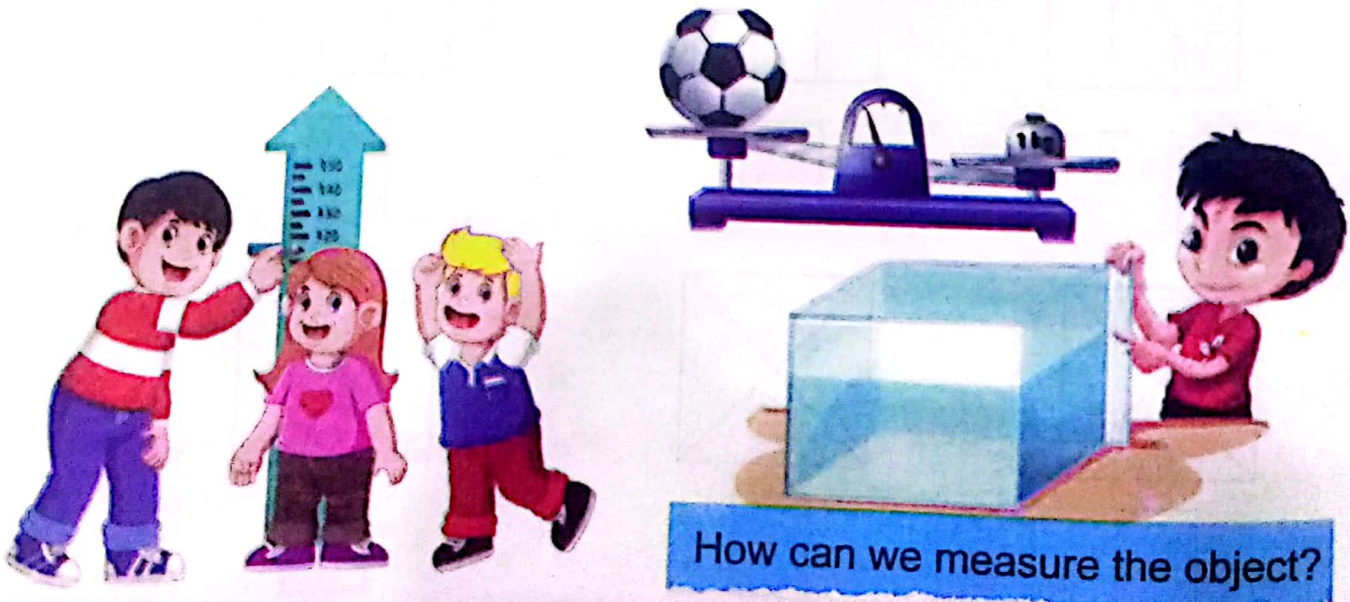
Unit 4

Measurement: Length, Mass and Capacity

(Learning Outcomes)

After studying this unit, students will be able to:

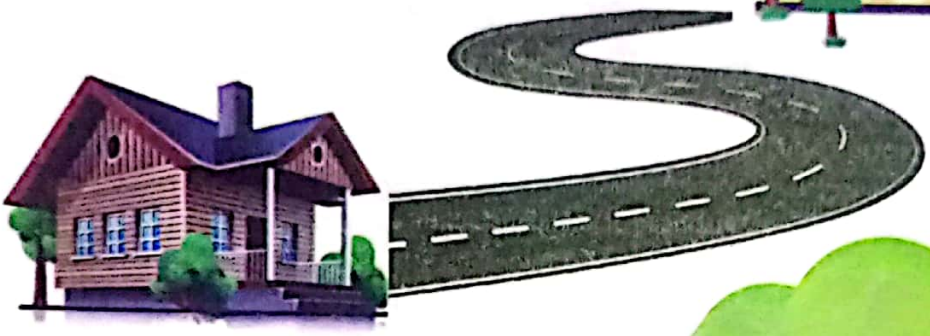
- Use standard metric units of length (kilometre, metre and centimetre) including abbreviations.
- Add measures of length in same units without carrying.
- Solve real life situations involving same units of length for addition.
- Subtract measures of length in same units without borrowing.
- Solve real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



How can we measure the object?

Length

How distance is measured from home to school?

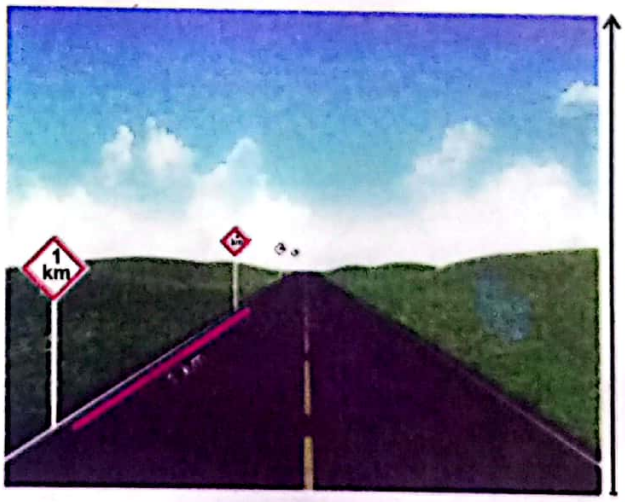


Key Fact

Metre is represented as = m
Centimetre is represented as = cm
1 metre = 100 cm

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

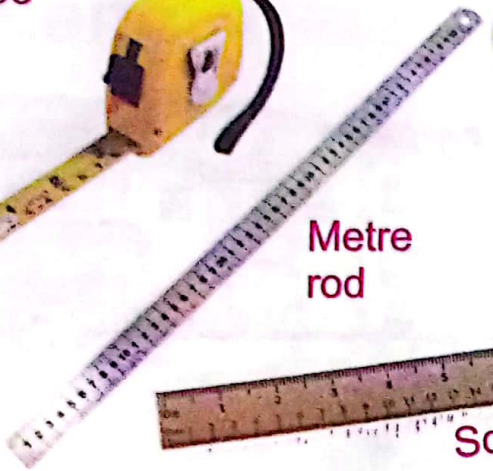
About 1 m



Measurement in km

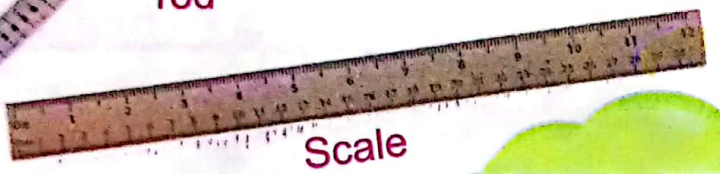
Metallic measuring tape

Following measuring scales are used to measure different objects.



Metre rod

Plastic measuring tape



Scale

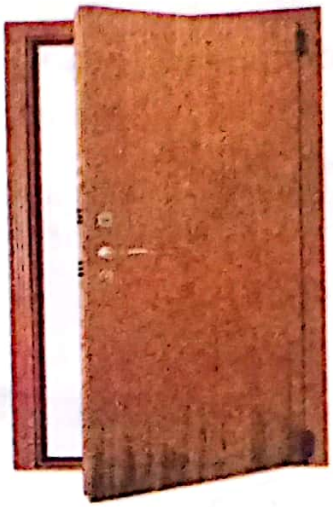
Length of table is measured in metres (m).

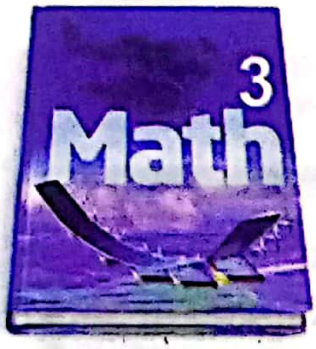
How can we measure the length of a table?

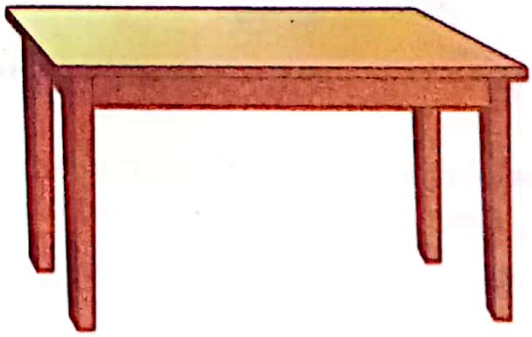
Its length is 1 metre and 20 centimetres.

Length of my bag is 45 cm.

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





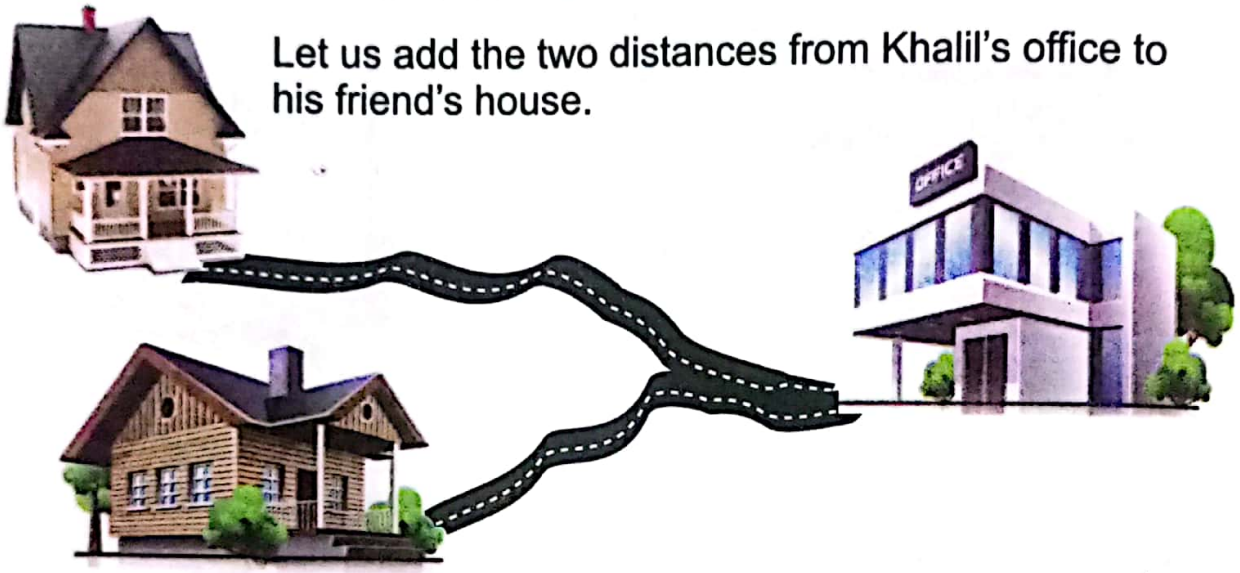


Teaching Point

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

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.



Let us 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.

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

Add kilometres into kilometres.

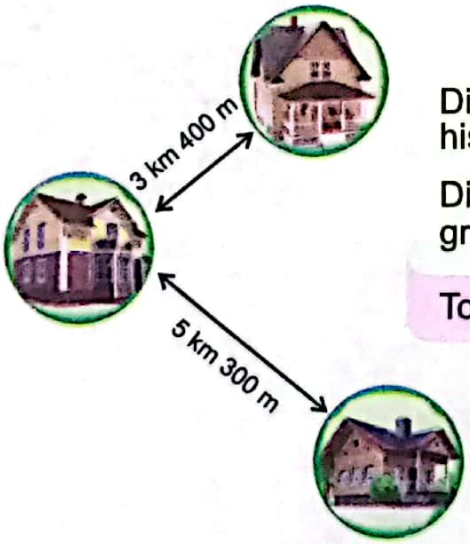
$$\begin{array}{rr} 15\text{ km} & 18\text{ m} \\ +\ 20\text{ km} & 40\text{ m} \\ \hline 35\text{ km} & 58\text{ m} \end{array}$$

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

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

The total length of cloths is 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 which is 5 km 300 m away from his sister's house. Find the distance covered by Furqan.



Distance of Furqan's home 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

Furqan covered 8 km 700 m distance.

Exercise 1

Add the following.

1.

	4 m	65 cm
+	5 m	12 cm

2.

	14 m	50 cm
+	9 m	40 cm

3.

	7 km	6 3 2 m
+	8 km	2 1 4 m

4.

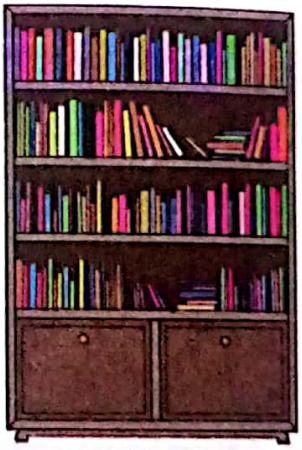
	2 5 km	3 1 2 m
+	2 1 km	6 7 6 m

5.

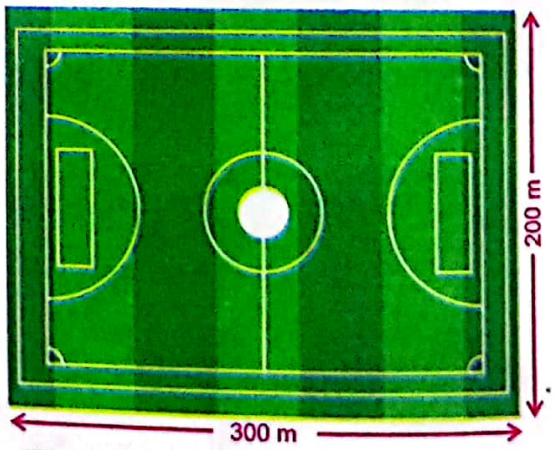
	2 1 km	8 1 5 m
+	1 7 km	1 8 3 m

6.

	4 1 km	7 4 5 m
+	3 8 km	1 3 4 m



7. Ahmed 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.

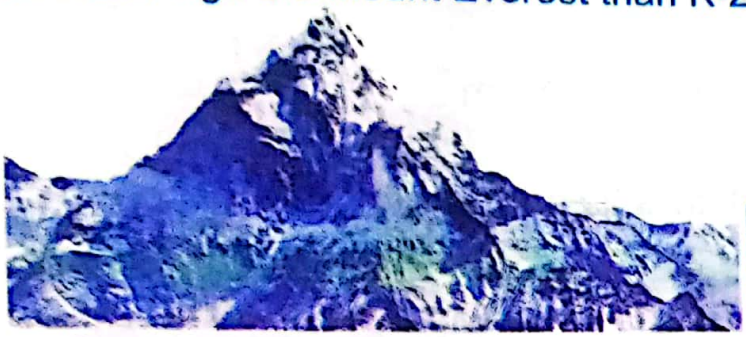


8. Junaid jogs along the ground with length of 300 m and width of 200 m. What is the total distance he covered in one round?

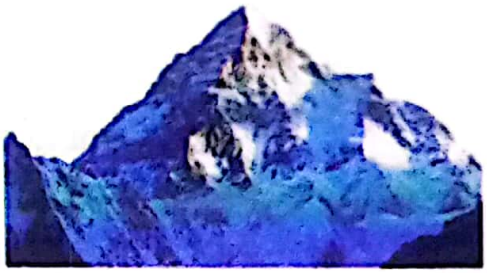
9. In a long jump, Pervaiz jumps 4 m 25 cm in his first attempt and 5 m 15 cm in his second attempt. Find the total distance he covers in two jumps?

Subtraction of Lengths

Mount Everest is the highest peak in the world, with the height of 8848 m. K-2 is the second highest peak with the height of 8611 m. How much high the Mount Everest than K-2 peak?



Mount Everest



K-2

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

Subtract 8611m from 8848m

$$\begin{array}{r} 8848\ \text{m} \\ -\ 8611\ \text{m} \\ \hline 237\ \text{m} \end{array}$$

Try it

Which unit is suitable for the following

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

Subtract 252 m 34 cm from 357 m 85 cm.

$$\begin{array}{r} 375\ \text{m}\ \ 85\ \text{cm} \\ -\ 252\ \text{m}\ \ 34\ \text{cm} \\ \hline 123\ \text{m}\ \ 51\ \text{cm} \end{array}$$

A shopkeeper sold 16 m 34 cm cloth from 38 m 45 cm cloth. How much cloth is left?

	38 m	45 cm
–	16 m	34 cm
	22 m	11 cm

Remaining cloth is 22 m 11 cm.

Asif has to cover a distance of 2 km 300 m to reach school. He covered 1 km 200 m distance with his friend. How much more distance he has to cover to reach school?

Total distance to school	=	2 km	300 m
Distance covered with friend	= –	1 km	200 m
Remaining distance to reach school	=	1 km	100 m

Asif has to cover 1 km 100 m more distance to reach the school.

Exercise 2

1 Solve the following.

(i

25 m	93 cm
− 14 m	23 cm

(ii

51 m	86 cm
− 30 m	75 cm

(iii

76 m	67 cm
− 35 m	41 cm

(iv

15 km	365 m
− 13 km	252 m

(v

35 km	786 m
− 13 km	675 m

(vi

67 km	891 m
− 51 km	760 m

(vii

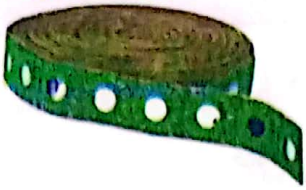
19 km	345 m
− 16 km	231 m

(viii

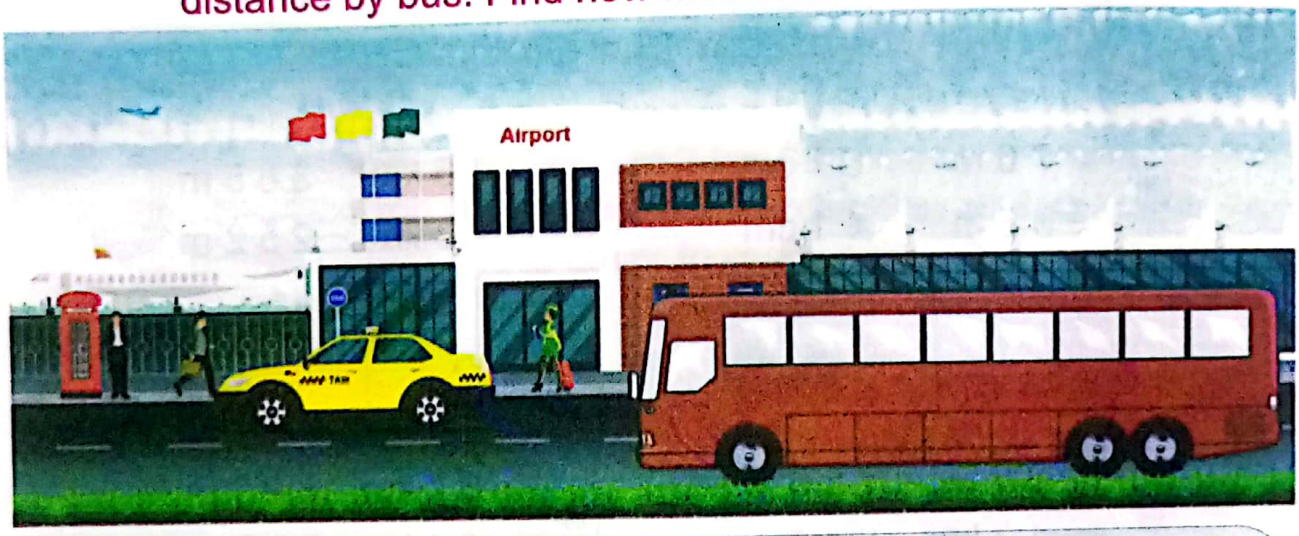
19 km	345 m
− 16 km	231 m

2 Arsalan used 35 m 65 cm water pipe from 78 m 89 cm long pipe. How much pipe is remaining?

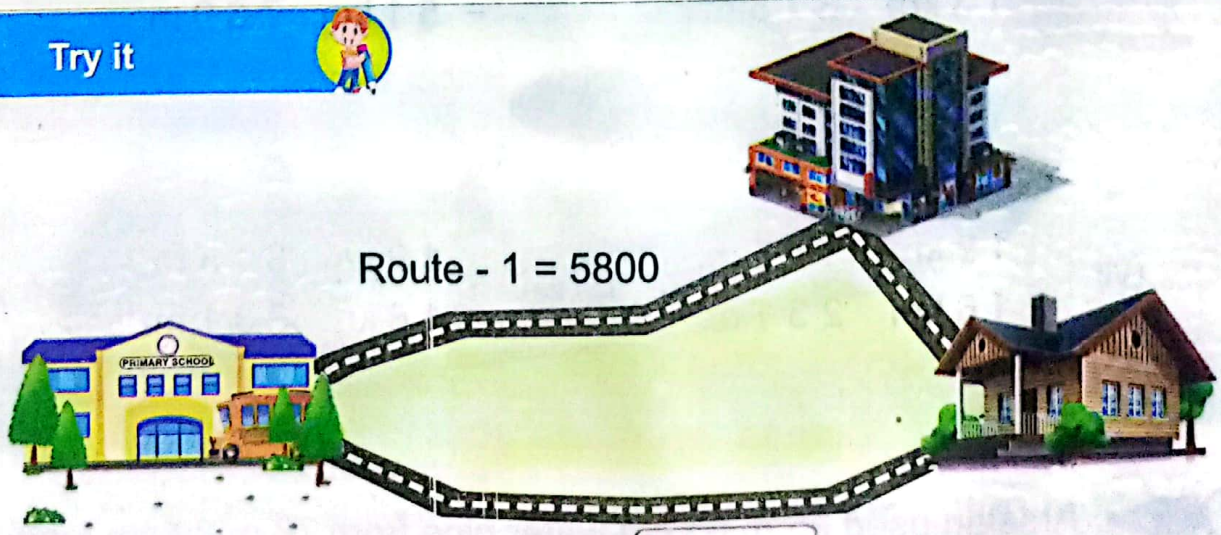
3 Rehana bought 19 m 82 cm lace and used 8 m 61 cm from it on her shirt. Find the length of remaining lace.



4 On returning from London Subhan travelled 950 km 460 m distance on bus and taxi. If he had travelled 900 km 230 m distance by bus. Find how much distance he travel on taxi?



Try it



Route -2 = ____

Suleman travels 5800 meter to reach school via route - 1, while the distance from route - 2 to reach the school is 800 meter less. Find:

- What is distance of route-2?
- What is total distance of route -1 and route-2?

Mass

How can we weight different objects?

Key Fact

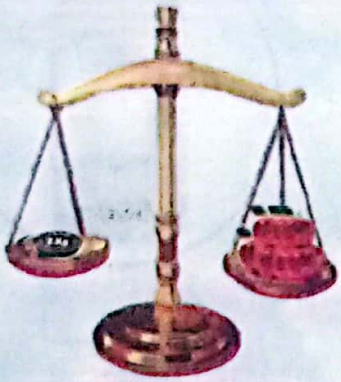
Standard unit of mass is kilogram and gram.

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 box.



Addition of Mass

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

We will add both masses to find sum.

Key Fact

- Add kilograms in kilograms.
- Add gram in grams.
- 1 kg = 1000 g

	49 kg	600 g
+	50 kg	200 g
	99 kg	800 g

Add 17 kg 735 g and 32 kg 264 g.

Key Fact

- Kilogram is represented as kg
- Gram is represented as g

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

Hameeda bought 6 kg 500 g apple and 4 kg 250 g peaches. Find the total masses of both fruits.

Apple	=	6 kg	500 g
Peach	= +	4 kg	250 g
Total mass	=	10 kg	750 kg

Hence, total mass 10 kg 750 g.

Activity

Write the masses 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 | 12kg | 7 kg

Fruit	1	2	3	4
Weight				

Exercise 3

1. Solve the following.

i)

	85 kg	245 g
+	10 kg	134 g

ii)

	28 kg	325 g
+	31 kg	550 g

iii)

681 kg	845 g
+ 116 kg	102 g

iv)

12 kg	340 g
+ 35 kg	257 g

v)

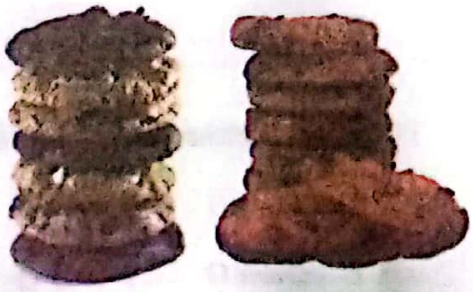
962 kg	220 g
+ 36 kg	750 g

vi)

342 kg	560 g
+ 37 kg	405 g

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

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



4 Sohail bought 15 kg 500 g almond and 12 kg 250 g pistachio. What is 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 is the mass of books that were taken out?

8 Kg	675g
− 7 Kg	550g
1 Kg	125g

We will subtract to find the difference.

Subtract 12 kg 321 g from 17 kg 432 g.

17 kg	432 g	
− 12 kg	321 g	
5 kg	111 g	

Try it

What is most suitable unit for the following masses.

- Mass of bicycle.
- Mass of pencil.

Subtract 22 kg 125 g from 35 kg 235 g.

35 kg	235 g	
− 22 kg	125 g	
12 kg	110 g	

Areeba bought two watermelons with a total mass of 8 kilogram 656 gram. If the small watermelon is 3 kilogram 250 gram then what is the mass of the large watermelon?

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

Mass of large watermelon is 5 kg 406 g.

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

Weight of Jamil after a year	=	8 kg	960 g
Weight of Jamil at birth	=	− 4 kg	850 g
Total weight gained	=	4 kg	110 g

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

Exercise 4

1. Solve the following.

(i)

29 kg	750 g
− 18 kg	250 g

(ii)

9 kg	763 g
− 7 kg	250 g

(iii)

87 kg	986 g
− 66 kg	350 g

(iv)

76 kg	565 g
− 34 kg	324 g

(v)

97 kg	850 g
− 53 kg	340 g

(vi)

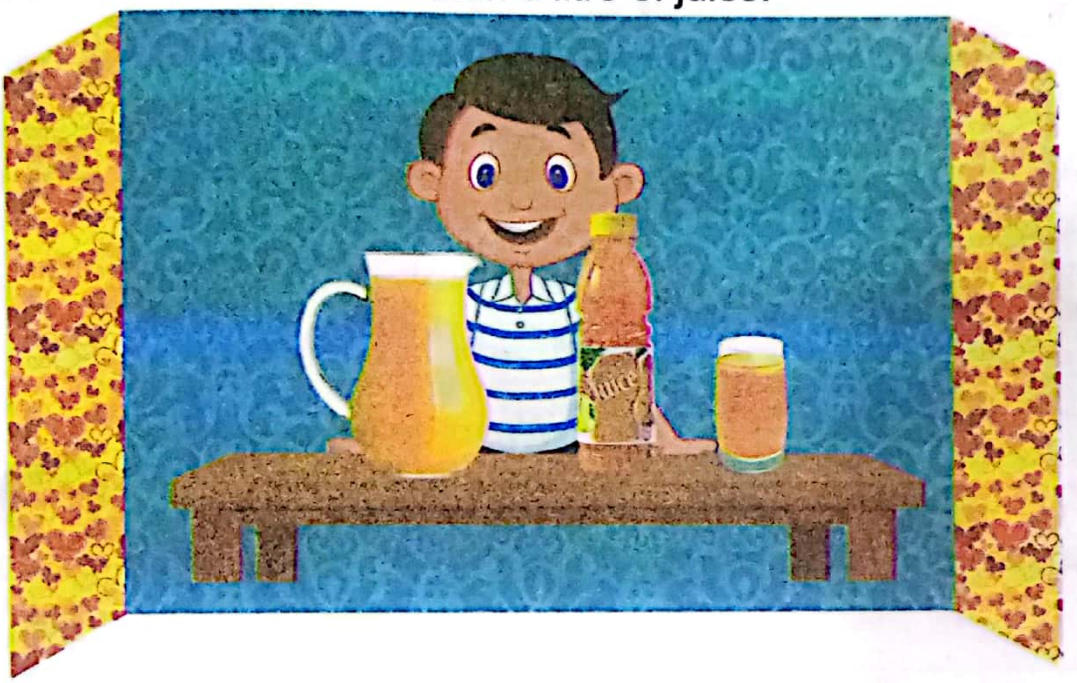
82 kg	677 g
− 75 kg	500 g

2. A shopkeeper sold 16 kg 250 g chocolate from 27 kg 350 g chocolate carton. How much chocolate is left?

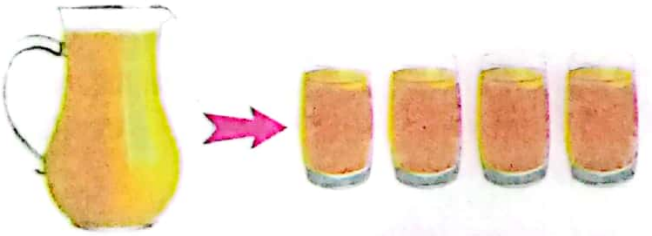
3. 200 kilogram meat was used for cooking from 240 kilogram meat carton. How much meat was left?

Capacity

Which container contains less than a litre of juice.

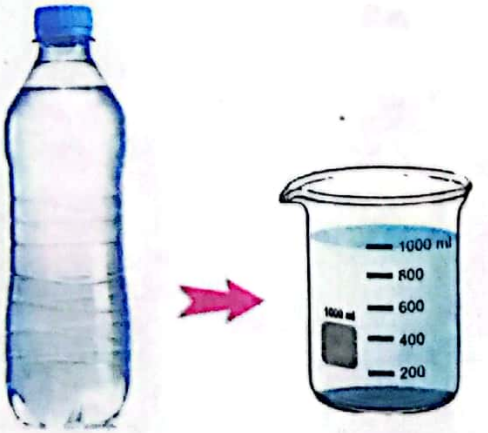


- A glass contains less than a litre of juice.
- The capacity of jug is equal to 4 glasses of juice.

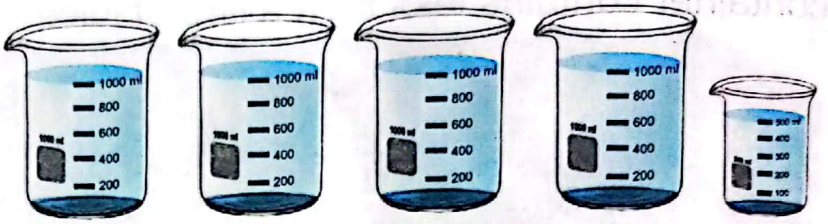


The capacity of water bottle is 1000 millilitre or one litre.

Capacity is the amount of liquid a container can hold. Capacity is measured in litres or millilitres.
1 litre = 1000 ml



What is the capacity of water in the cooler?



☐ *l* ☐ *ml*

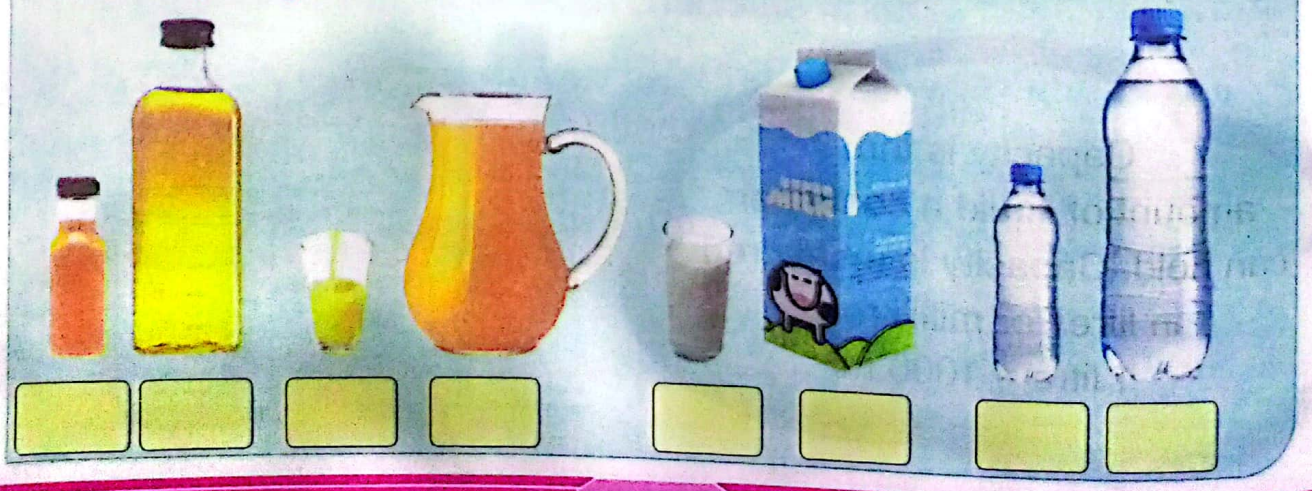
Key Fact

1 litre (*l*) = 1000 millilitre (ml)
The standard unit of capacity is litre.

When do we use litre and millilitre?

We use litre for measuring of capacity of large container and millilitre for small container.

(✓) on containers with more capacity and (✗) on containers with less capacity.



Addition of Capacity

A fish tank contains 3 litres 450 millilitres of water. 4 litres 500 millilitres of water is added. What is the total quantity of water?

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

Add 3 litres 450 millilitres to 4 litres 500 millilitres.

	3 *l*	450 m*l*
+	4 *l*	500 m*l*
	7 *l*	950 m*l*

Key Fact

- Add millilitres in millilitre.
- Add litres in litre.
- 1 *l* = 1000 m*l*

Add 12 litre 765 millilitre to 11 litre 231 millilitres.

	12 *l*	765 m*l*
+	11 *l*	231 m*l*
	23 *l*	996 m*l*

Rizwan's mother runs a home based catering service. She had 20 litres 300 millilitres of oil. For a special dish she need 10 litres 500 millilitres more oil. How much oil did she need altother?

	20 *l*	300 m*l*
+	10 *l*	500 m*l*
	30 *l*	800 m*l*

Total oil needed for the special dish is 30 litres and 800 millilites.

Asif works in a doctor's clinic. He bought 2 litres 100 mililitres hand sanitizer on Monday and 3 litres 300 millilitres on Wednesday. How much did Asif buy altogether?

Monday	=	2 *l*	100 m*l*
Wednesday	=	+ 3 *l*	300 m*l*
Total	=	5 *l*	400 m*l*

Hence, Asif bought total 5 *l* 400 m*l* of hand sanitizer.

Exercise 3

1. Solve.

i)

	8 *l*	350 m*l*
+	9 *l*	245 m*l*

ii)

	15 *l*	675 m*l*
+	32 *l*	312 m*l*

iii)

	35 *l*	459 m*l*
+	63 *l*	510 m*l*

iv)

	42 *l*	651 m*l*
+	21 *l*	248 m*l*

v)

	54 *l*	800 m*l*
+	25 *l*	125 m*l*

vi)

	73 *l*	342 m*l*
+	23 *l*	610 m*l*

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

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

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

Subtraction or 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.

	6 *l*	800 m*l*
−	1 *l*	500 m*l*
	5 *l*	300 m*l*

Key Fact

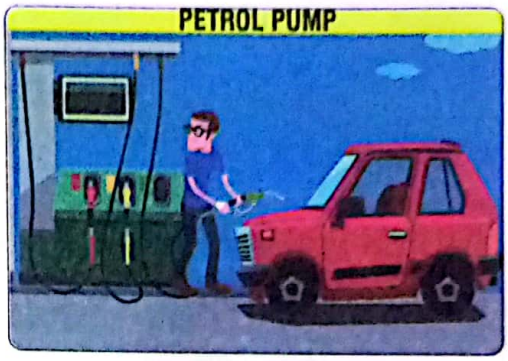
- Subtract litres from litres.
- Subtract millilitres from millilitres.

Subtract 6 litre 425 millilitre from 8 litre 627 millilitre.

	8 *l*	627 m*l*
−	6 *l*	425 m*l*
	2 *l*	202 m*l*

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

Petrol bought =	45 *l*	500 m*l*
Petrol used = −	30 *l*	000 m*l*
Petrol left =	15 *l*	500 m*l*



15 *l* 500 m*l* of petrol is left.

A container had 5 litre 750 millilitres of juice. Ahmed drank 550 m*l* and his elder brother drank 2 *l* of juice. How much juice is left?

Juice in the container =	5 *l*	750 m*l*
Total juice drank = −	2 *l*	550 m*l*
Juice left =	3 *l*	200 m*l*

3 litre 200 millilitre juice is left in the container.

Exercise 4

1 Solve the following.

i)

	8 *l*	742 m*l*
−	7 *l*	421 m*l*

ii)

	18 *l*	655 m*l*
−	12 *l*	321 m*l*

iii)

	25 *l*	450 m*l*
−	21 *l*	300 m*l*

iv)

	45 *l*	758 m*l*
−	21 *l*	000 m*l*

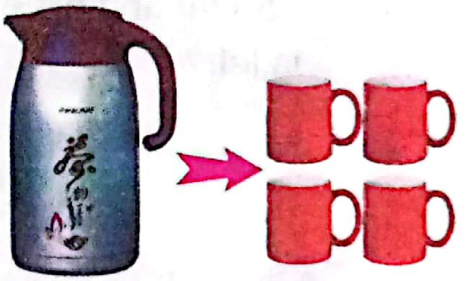
v)

	58 *l*	834 ml
−	35 *l*	621 ml

vi)

	75 *l*	915 ml
−	61 *l*	800 ml

2. A thermos contains 2000 ml of tea, 1500 ml tea was served to the guests. How much tea is left in the thermos?



3. Salman took 2 litres 450 mililitre of water in a bottle to school. One litre of water was in the bottle till break. How much water he drank?

4. Ahmar buys 15 *l* 500 m*l* of milk to make milkshake. In the evening he had 3 litres of milk left. Tell how much milk he used?

I Have Learnt

- To add measures of length in same units without carrying.
- To subtract measures of length in same units without carrying.
- To add measures of mass in same units without carrying.
- To subtract measures of mass in same units without borrowing.
- To add measures of capacity in same units without carrying.
- To subtract measures of capacity in same units without borrowing.

Vocabulary

Length
Mass
Capacity
Addition
Subtraction

Review Exercise

1 Choose the correct options.

i) What is the appropriate unit to determine the length of a needle?

(a) kilometer (b) meter

(c) centimeter (d) millilitre

ii) How many litres of water are saved after extracting 2000 ml of water from 3500 ml of water.

(a) 500 m*l* (b) 1000 m*l*

(c) 1500 m*l* (d) 2000 m*l*

iii) What is standard unit of mass?

(a) meter (b) litre

(c) kilometer (d) kilogram

iv) What are abbreviation of unit of litre?

(a) m*l* (b) g (c) *l* (d) kg

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

(a) 200 m*l* (b) 1000 m*l* (c) 800 m*l* (d) 1600m*l*

2 Solve the following.

i)

	5 m	35 cm
+	3 m	42 cm

ii)

	7 km	219 cm
+	3 km	340 cm

iii)

	8 m	42 cm
−	3 m	32 cm

iv)

	9 km	695 m
−	5 km	362 m

3 Solve the following.

i)

	4 kg	490 g
+	3 kg	507 g

ii)

	7 kg	600 g
+	6 kg	250 g

iii)

	9 kg	500 g
−	7 kg	300 g

iv)

	15 kg	750 g
−	11 kg	250 g

4 Solve the following.

i)

	8 l	780 ml
+	5 l	217 ml

ii)

	7 l	500 ml
+	4 l	250 ml

iii)

	9 l	300 ml
−	4 l	200 ml

iv)

	6 l	500 ml
−	5 l	200 ml

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

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

7 A water bottle has a capacity of 9 litres. It contains 3 litres of water. How many more litres of water are needed to fill it?

Unit 5

Measurement: Time

Learning Outcomes:

After studying this unit, students 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 calender.
- Add measures of time in hours.
- Solve real life situations involving measures of time for addition of hours.
- Subtract measures of time in hours.
- Solve real life situation involving subtraction of measures of time in hours.

Look at the clock, What is the time?

Analog and digital clocks

Umair: Look Aziz! My father has brought this watch.

Aziz Wow! It is a beautiful watch. Can you tell the time usage?

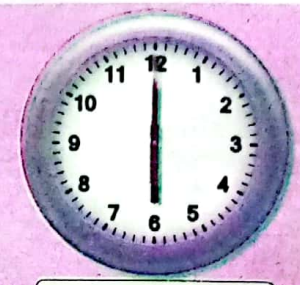
Umair: Yes Aziz, why not: It has a minute hand and an hour hand. It is an analog watch.

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.

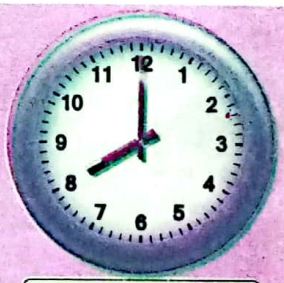
Look at the clocks and write the time.

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

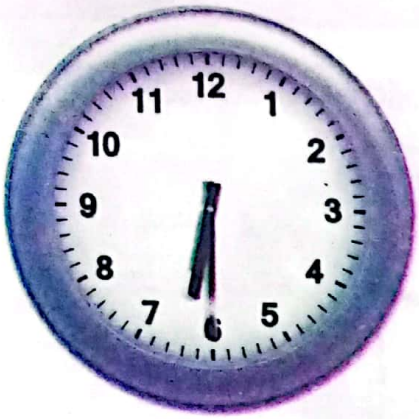
We take dinner.

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 boxes.



Key Fact

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

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

Key Fact

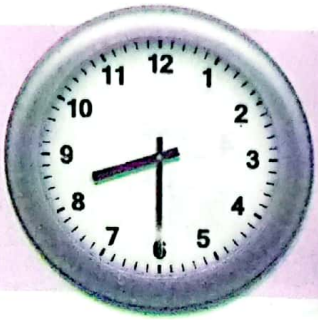
There are only digits in the digital clock. Left side digits show the hours while right side digits show the minutes.

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

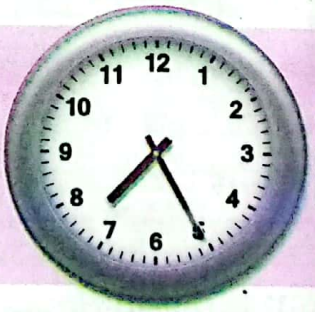
1 Write the time in a.m and p.m in the following boxes.

i) Khalid goes to the office in the morning.

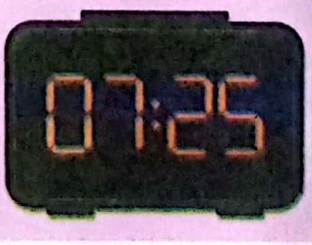


ii) Children play foot ball in the evening.

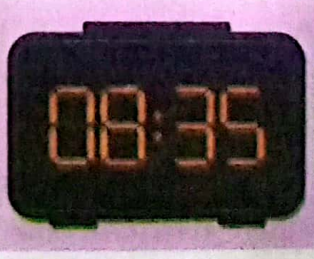
iii) Ayesha rides on bus for going to school.



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



v) We take dinner.



2 Read the time from the following analog clock and write in the box.

(i) 

(ii) 

(iii) 

(iv) 

(v) 

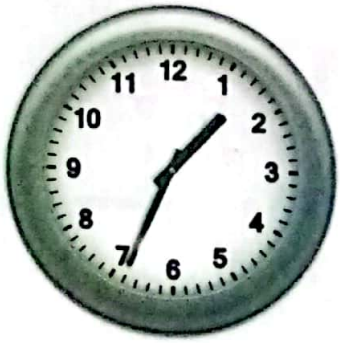
(vi) 

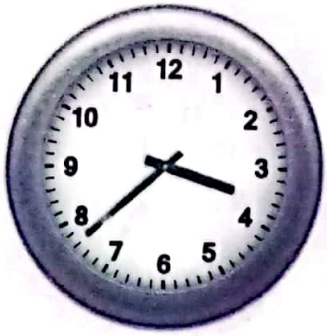
(vii) 

(viii) 

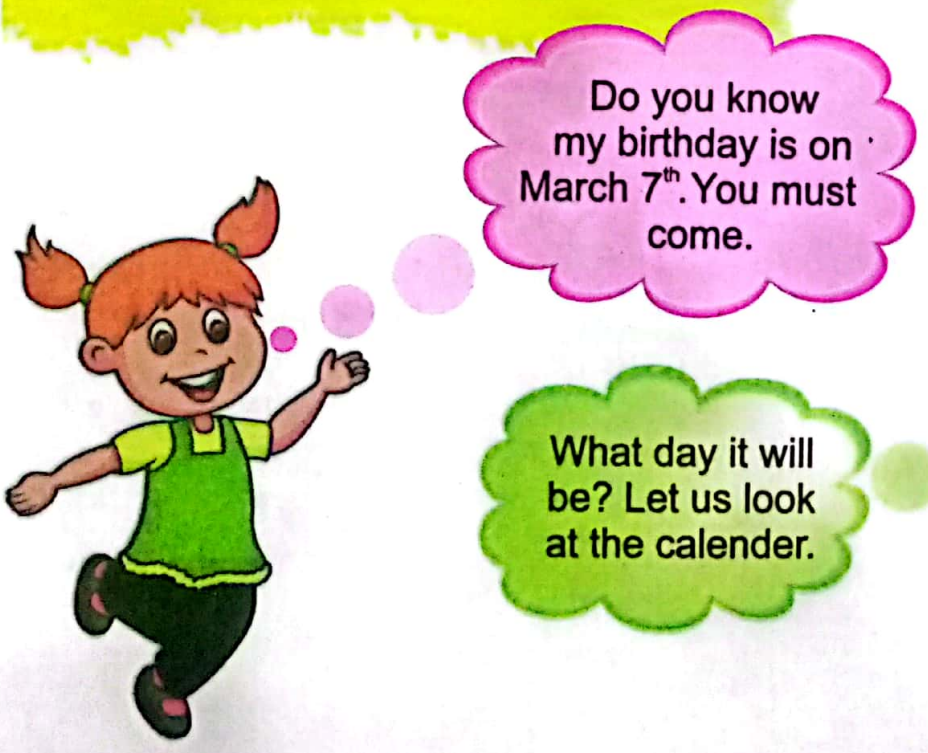
(ix) 

3 Match the time in the following analog clock and digital clock.





Read and write days and dates from the calender.



Calender

January

Sun	Mon	Tue	Wed	Thu	Fri	Sat
31					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

February

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	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						

March

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	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			

April

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				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	

May

Sun	Mon	Tue	Wed	Thu	Fri	Sat
30	31					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

June

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		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			

July

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				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

August

Sun	Mon	Tue	Wed	Thu	Fri	Sat
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				

September

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			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		

October

Sun	Mon	Tue	Wed	Thu	Fri	Sat
31					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

November

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	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				

December

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			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	

In calender, March 7th is Sunday.

Try Yourself

What date will be on first Friday of July?

Key Fact

1 day = 24 hours
1 week = 7 days
1 year = 12 months

Teaching Point

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

Exercise 2

Calender

January

Sun	Mon	Tue	Wed	Thu	Fri	Sat
31					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

February

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	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						

March

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	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			

April

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				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	

May

Sun	Mon	Tue	Wed	Thu	Fri	Sat
30	31					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

June

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		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			

July

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				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

August

Sun	Mon	Tue	Wed	Thu	Fri	Sat
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				

September

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			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		

October

Sun	Mon	Tue	Wed	Thu	Fri	Sat
31					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

November

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	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				

December

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			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	

Look at the calender and answer the following questions.

i) What is the day on January 31?

ii) Umair's birthday is on second Wednesday of April. What is the date?

iii) Ahsan's examination are starting from December, 3. What is the day?

iv) What is the date on last Friday of February?

v) What is the day on March,23?

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.	=	1 2 h
Time taken by train from Sukhur to Multan	= +	9 h
Total time take	=	2 1 h

Thus train will reach in 21 hours from Quetta to Multan

i) Add 5 hours to 4 hours

	5 h
+	4 h
	9 h

ii) Add 12 hours to 8 hours

	1 2 h
+	8 h
	2 0 h

Key Fact

Hours are denoted by h

Teaching Point

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

Exercise 3

1. Solve

i) 5 h + 3 h

ii) 6 h + 4 h

iii) 10 h + 5 h

iv) 10 h + 8 h

v) 7 h + 8 h

vi) 15 h + 5 h

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

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

Subtract measures of time in hours

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

Time taken by Bilal	=	12 h
Time taken by Ahmed	= −	8 h
More time taken by Bilal than Ahmed	=	4 h

Bilal spend 4 hours more than Ahmed

Subtract the following

i) Subtract 5 hours from 9 hours

9 h	
− 5 h	
4 h	

ii) Subtract 8 hours from 15 hours

15 h	
− 8 h	
7 h	

Key point

Always subtract the lesser time from the greater time.

Teaching Point

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

Exercise 4

1. Solve

i) 8 h − 5 h

ii) 18 h − 7 h

iii) 15 h − 6 h

iv) 18 h − 11 h

v) 16 h − 10 h

vi) 21 h − 8 h

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 did Nasir spend to build a wall?

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

I Have Learnt

☆ There are 12 digits on the dial of 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

1. Match the time of analog clock with digital clock in the following figures.

2. Ahmed studies Mathematics for 3 hours, English for 2 hours and Islamiat for 1 hour. How much time did Ahmed spend altogether?

3. Answer the following questions.

i) What is the date on first Monday of May.

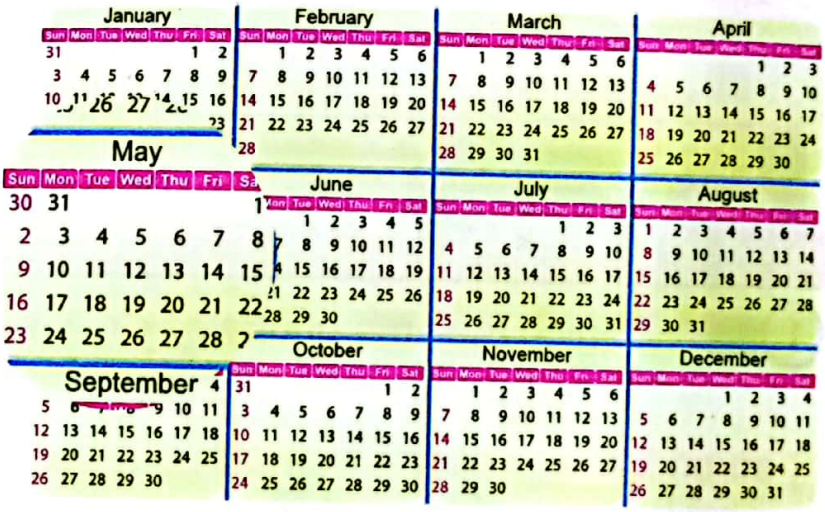
ii) What is the day on May, 15?

iii) What is the date on second Friday of May?

iv) What is the date on the third Saturday of May?

v) What is the day on May, 31?

Calendar



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

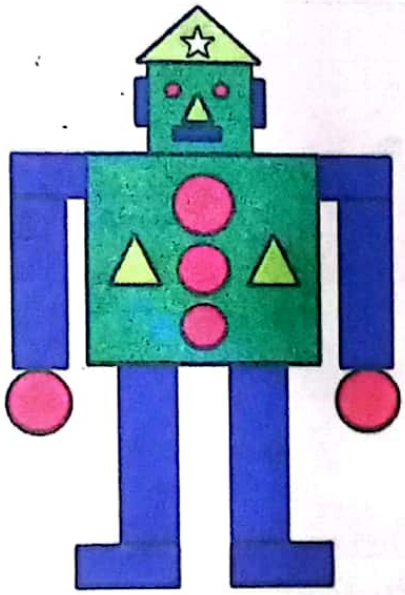
Unit 6

Geometry

Learning Outcomes:

After studying this unit, students will be able to:

- Draw and measure line segments to the nearest centimeter and millimeter.
- 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 center, radius and diameter of a circle.
- Identify reflective symmetry in two-dimensiond (2-D) shapes.
- Identify and draw lines of symmetry
- Describe 3-D object (cubes, cuboids, and pyramids) with respect to the number of edges and faces.
- Differentiate 3-D object (cubes, cuboids, and pyramids) with respect to number of edges and faces.



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

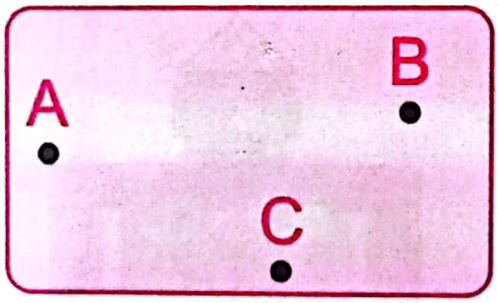
Point, line, ray and line segment

Point

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

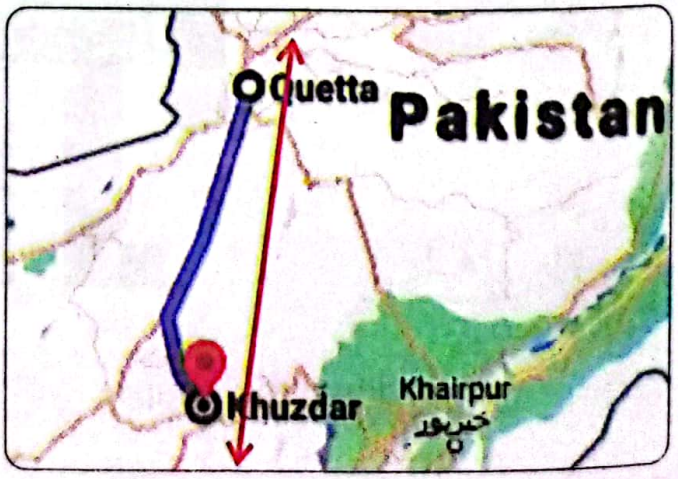
These points identify the correct location of the places

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

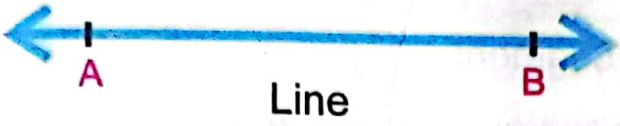


Line

On Google Maps, 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 $\overleftrightarrow{AB}$.



Line

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 in one direction.

Ray

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 $\overline{AB}$.

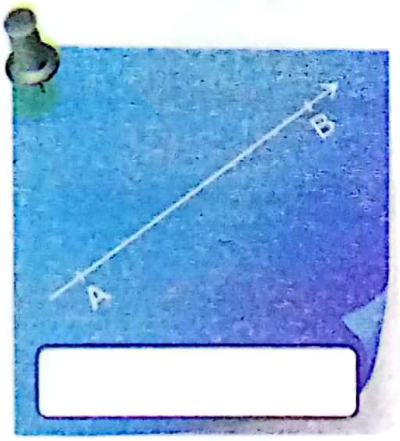
Key point

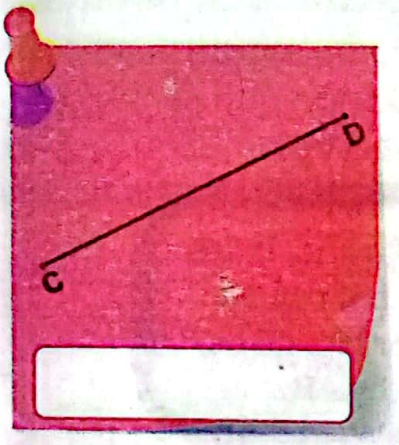
- Line segment cannot be extended to any direction It has fixed length.

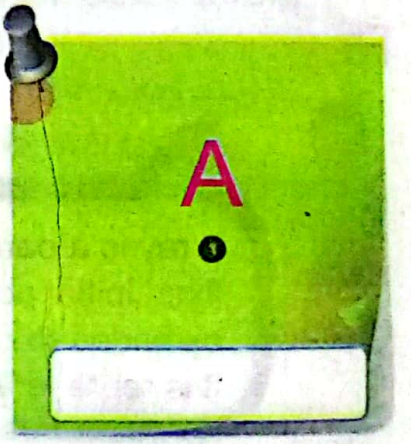
Line segment

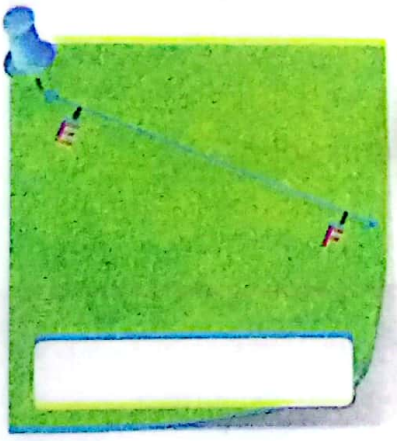
The length of the line segment AB is 4cm and is written as: m $\overline{AB}$ = 4cm

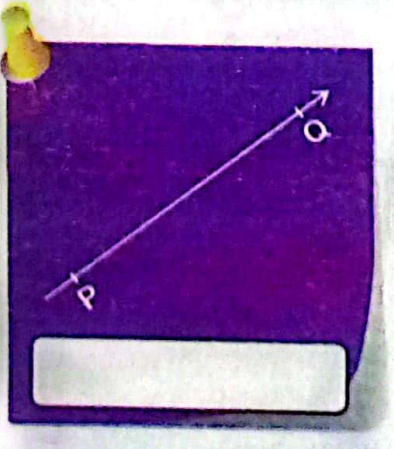
Label the following as a point, a line, a line segment of a ray.

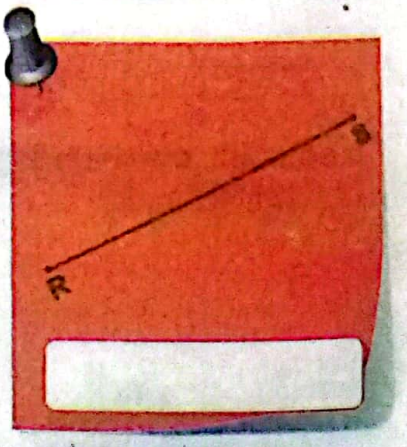










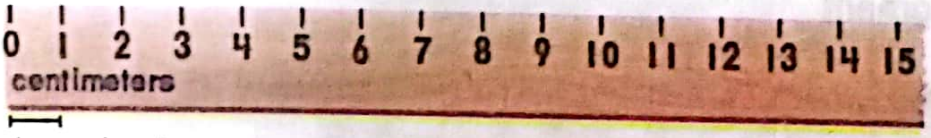


Teaching Point Give flashcards of different shapes and ask the students to identify point, line, line segment and ray.

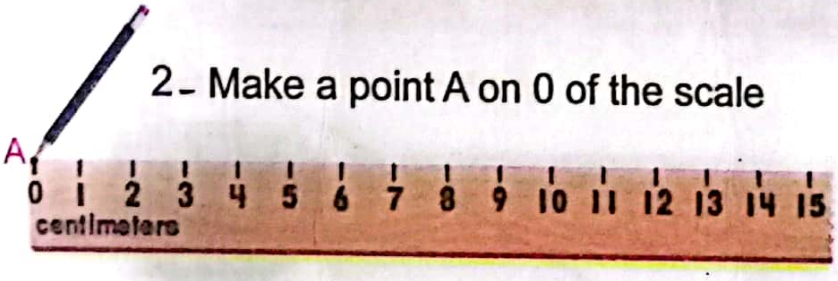
Draw and measure line segment (centimeter and millimeter)

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

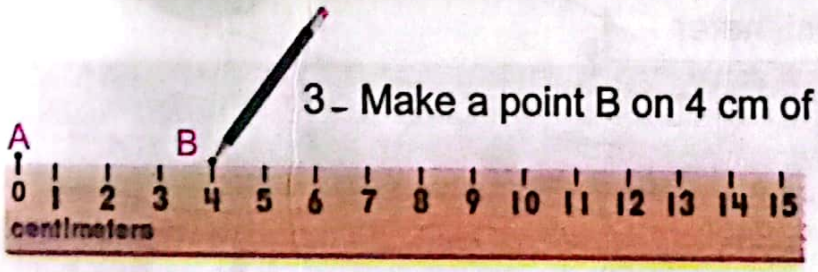
1- Place the scale on the paper



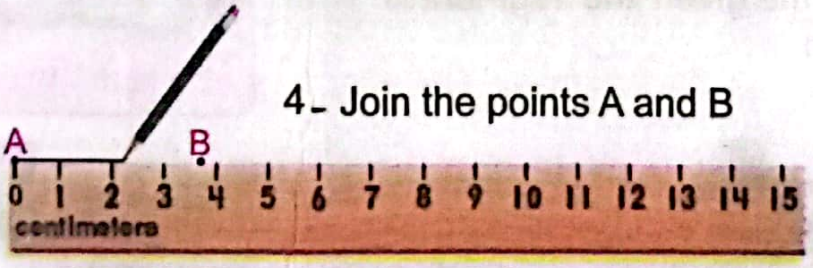
1 centimeter



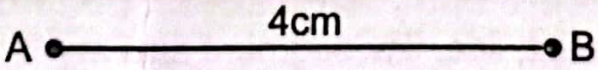
2- Make a point A on 0 of the scale



3- Make a point B on 4 cm of the scale



4- Join the points A and B



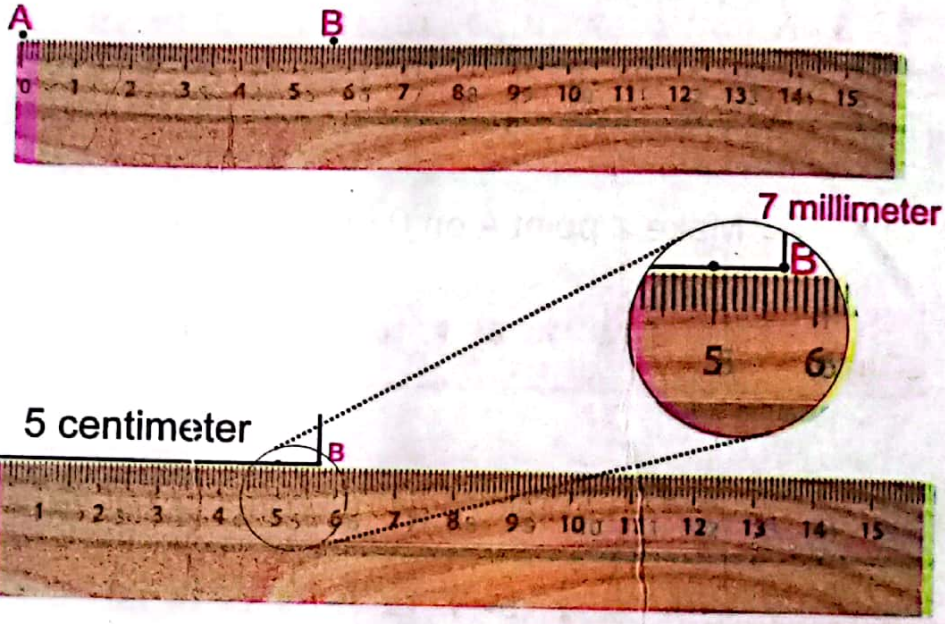
Thus, required line segment A B = 4 cm

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

Measure the given line segment AB in centimeter and millimeter

A ——— B

1. Place the ruler on the line segment AB that zero of the scale match the point A
2. Read the value on the scale that matches point B
3. The value of the scale that matches with point B is the length of the line segment



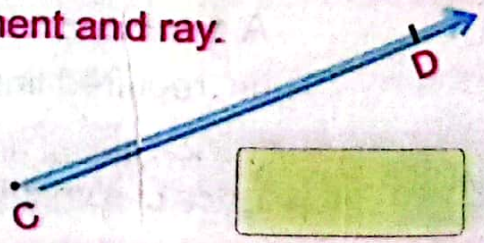
The length of the given line segment is 5cm and 7mm

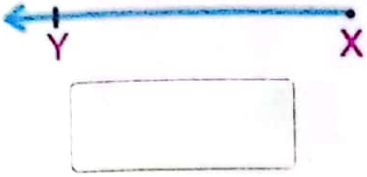
Key Fact

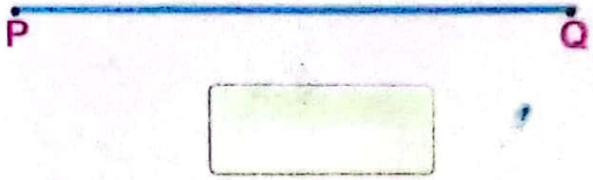
1 cm = 10 mm

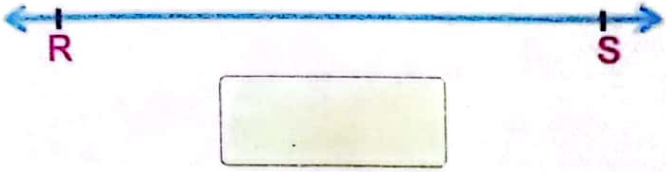
Exercise 1

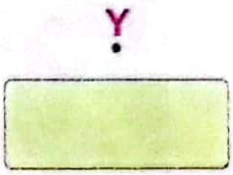
1. Identify point, line, line segment and ray.



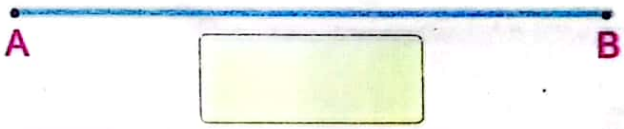


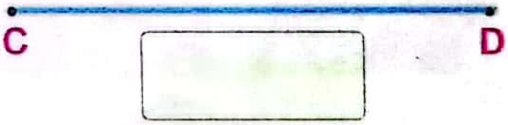


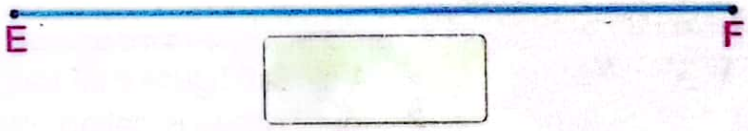




2 Measure the length of the given line segments in centimeters and millimeters.



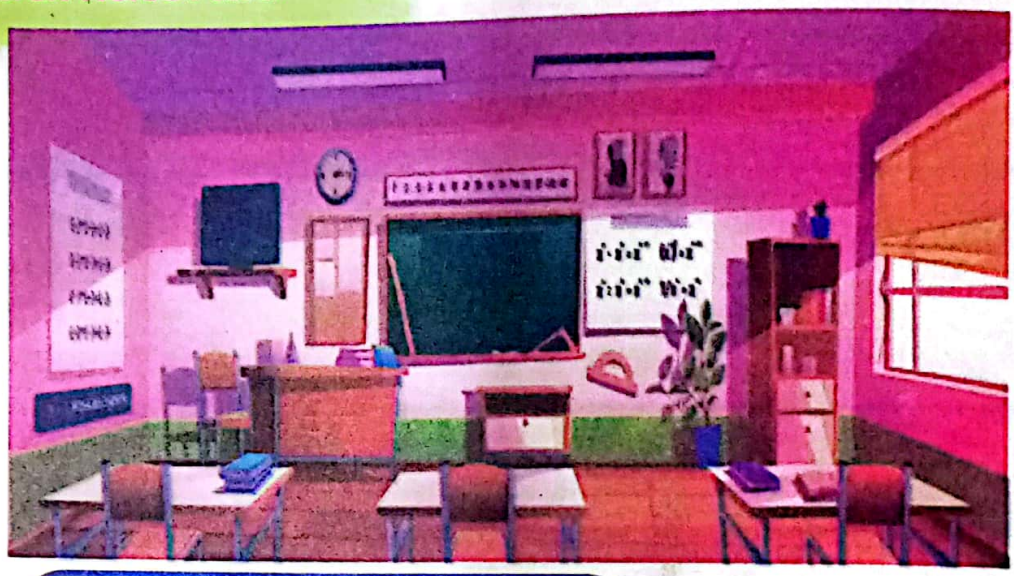




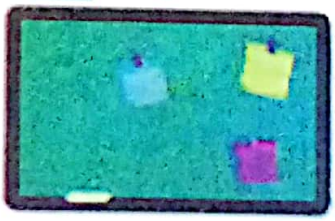
3 Draw the line segments of the given length

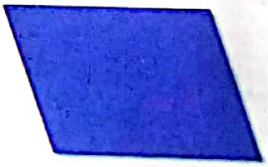
(i) 3cm 9mm (ii) 4cm 5mm (iii) 5m 6mm

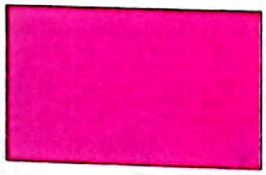
Quadrilaterals



What four sided objects can you see in your classroom.



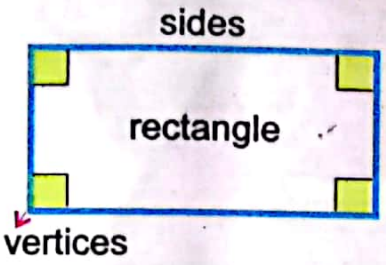




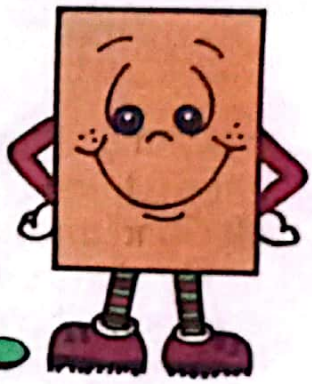
I can see that shapes of door, window, board, table and book are same. They all have four sides and four corners.

A closed figure with four sides and four corned is called quadrilateral. The four corners are called vertices of the quadrilateral

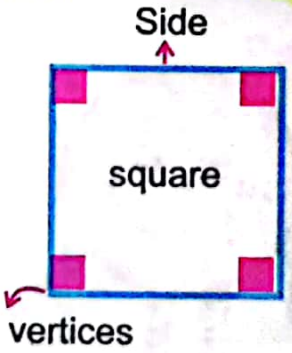
Rectangle



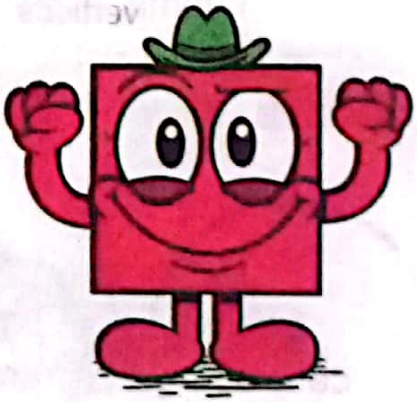
I am a rectangle.
I have four straight sides and four vertices. The length of my opposite sides are equal.

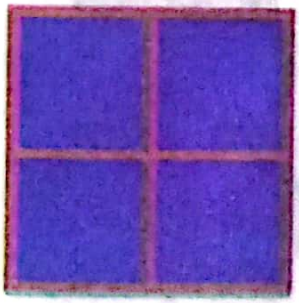


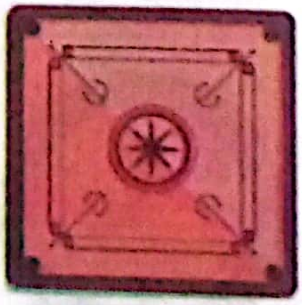
Square



I am a square.
I have four straight sides and four vertices. All my sides are equal.

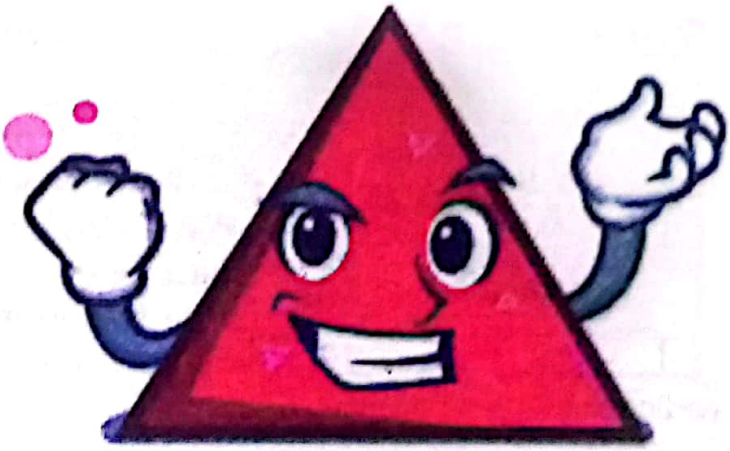


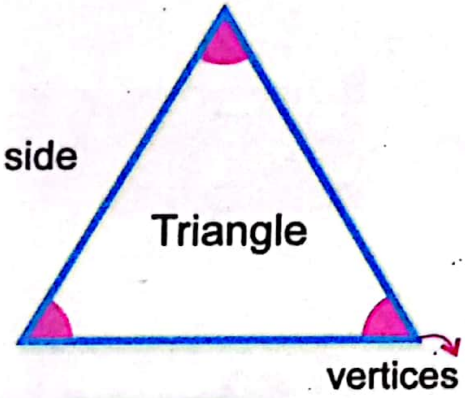




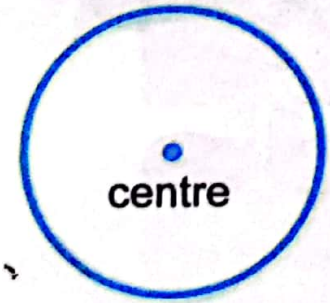
Triangle

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

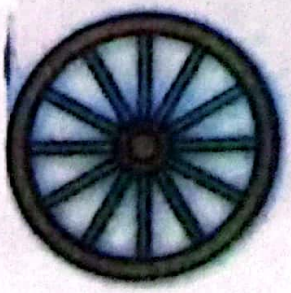




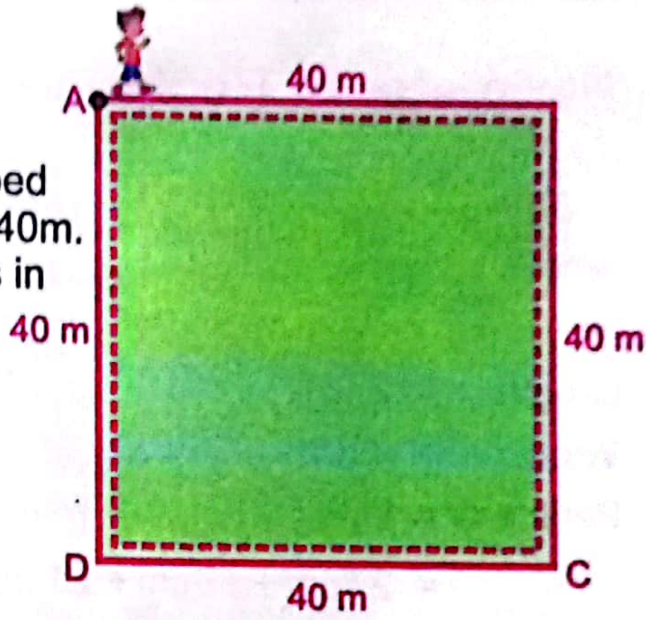
Circle



I am a circle. The distance of all my points from the centre is equal.



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

	side	+	side	+	side	+	side
Total distance =	40 m	+	40 m	+	40 m	+	40 m
=	160 m						

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

Perimeter of a square = sum of all sides.

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

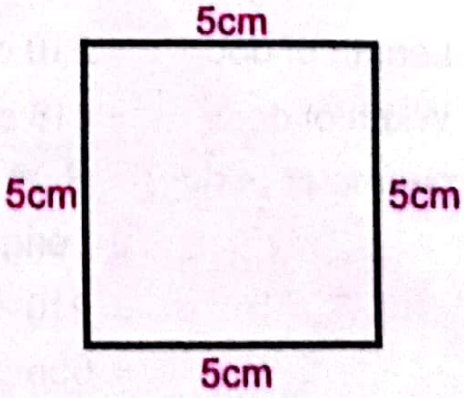
Length of a side = 5 cm

Perimeter of square = 4 × length of a side

= 4 × 5 cm

= 20 cm

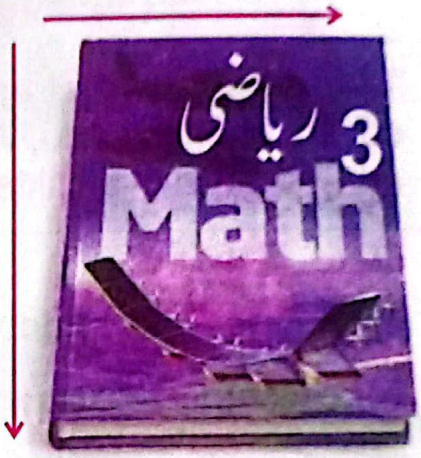
The perimeter of a square = 20 cm



Perimeter of Rectangle

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

Length = 27cm
Width = 21cm
Perimeter = length + length + width + width
= 27 cm + 27 cm + 21cm + 21cm
= 54 cm + 42 cm
= 96 cm



Key fact

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

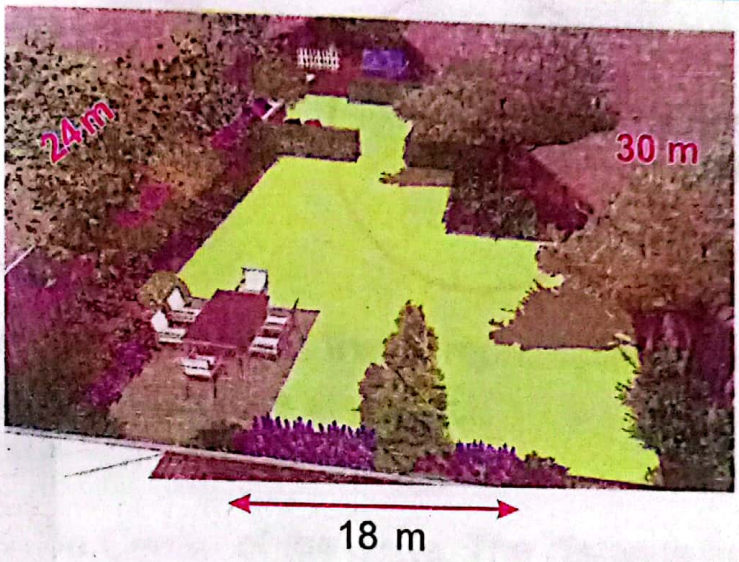
Perimeter of a rectangle = Sum of all sides

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

Length of door = 210 cm
Width of door = 118 cm
perimeter of door = Sum of all sides
= Length + Length + Width + Witdth
= 210 + 210 + 118 + 118
= 656 cm

Perimeter of Triangle

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



Perimeter of triangle = Sum of all three sides

= 18 m + 24 m + 30 m

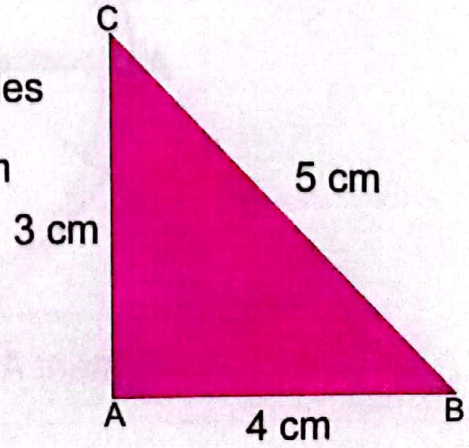
= 72m

Find the perimeter of a triangle whose length of sides are $\overline{AB}$=4 cm, $\overline{BC}$=5 cm and $\overline{AC}$=3 cm

Perimeter of triangle = Sum of all three sides

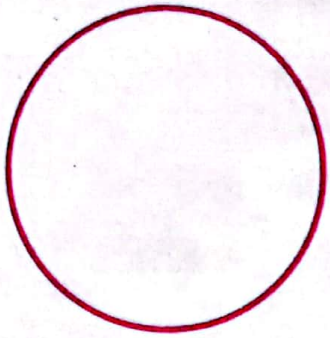
= 4 cm + 5 cm + 3 cm

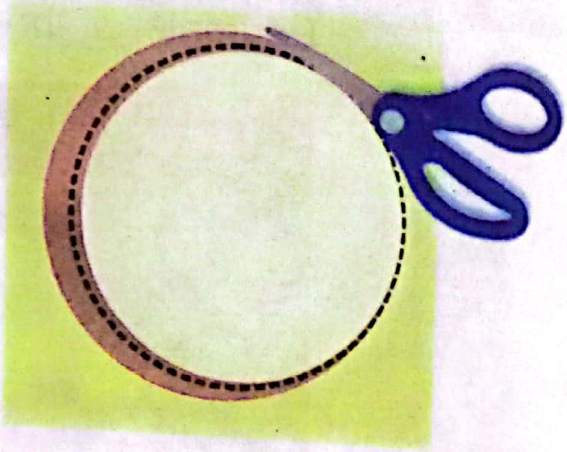
= 12 cm



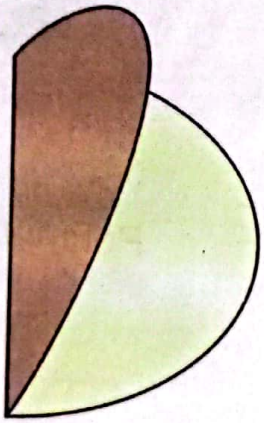
Identify center, radius and diameter of a circle

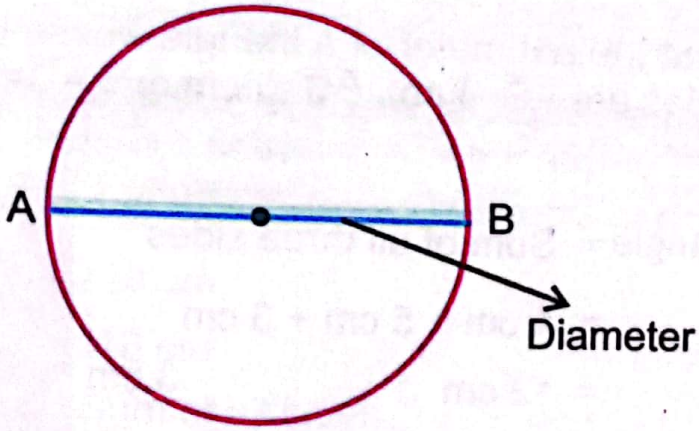
(i) Cut this page in circular shape.





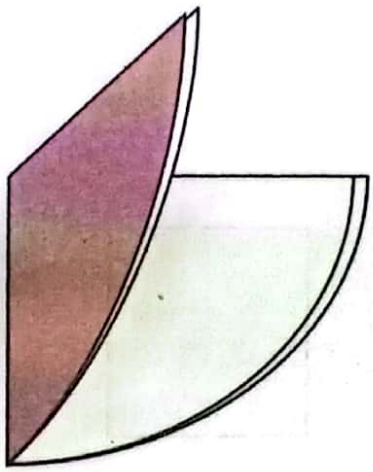
(ii) Fold it into half and unfold it. You will get a crease that is represented by line segment $\overline{AB}$.





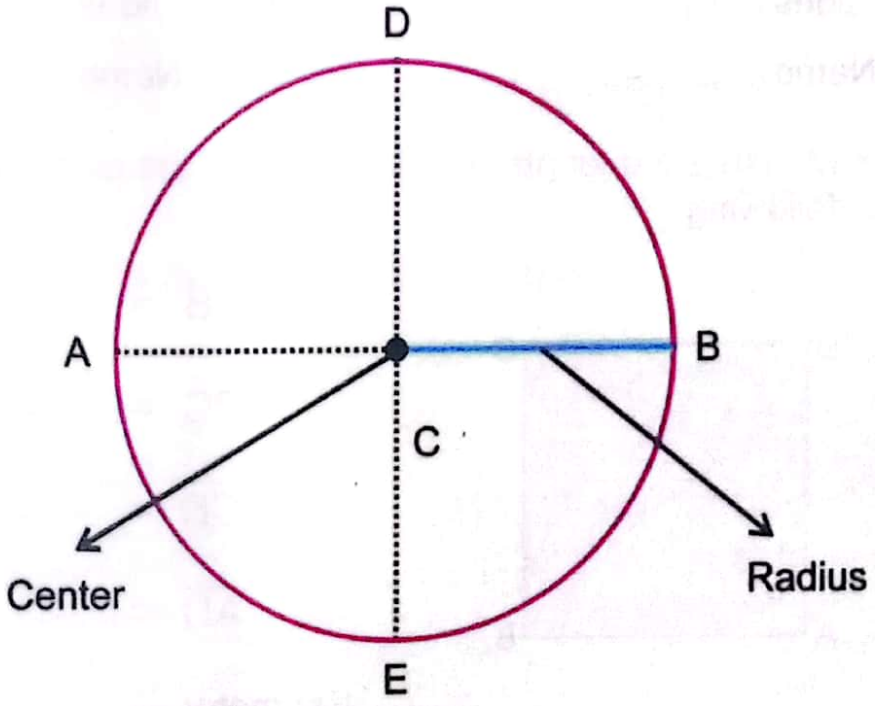
The line segment $\overline{AB}$ is called the diameter of the circle.

(iii) Now Fold the paper into quarter and unfold it



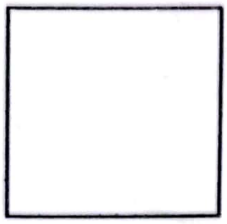
(iv) You will get another crease that is represented by line segment DE. The line segment DE cuts at point C.

The point C is the Center of the circle. The distance from center C to point A or B or D or E is called the Radius.



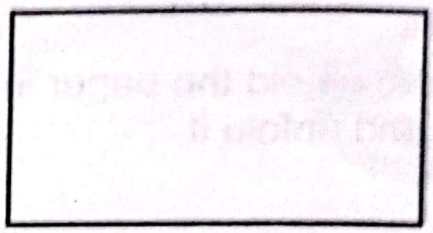
Exercise 2

1. Write the name of following figures and their number of sides.

i) 

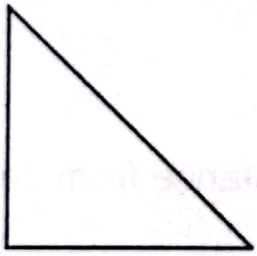
No of sides.....

Name.....

ii) 

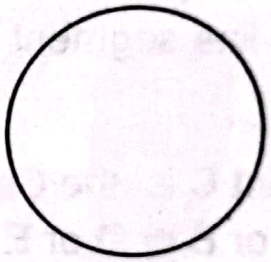
No of sides.....

Name.....

iii) 

No of sides.....

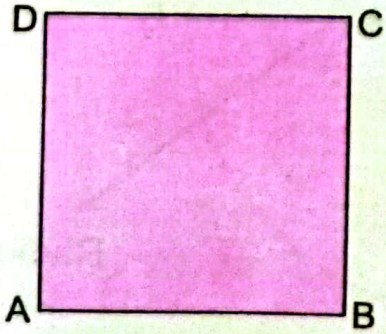
Name.....

iv) 

No of sides.....

Name.....

2. Measure the length of sides and find the perimeter of the following:

i) 

$\overline{AB}$ = ...

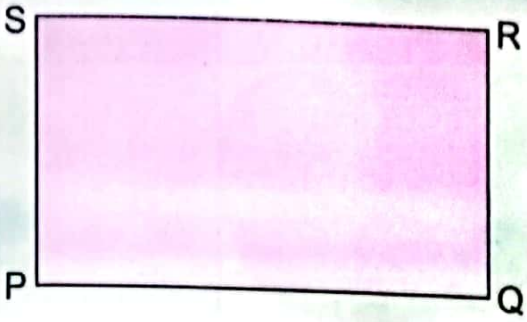
$\overline{BC}$ = ...

$\overline{CD}$ = ...

$\overline{AD}$ = ...

Perimeter = ...

ii)



$\overline{PQ}$ = ...

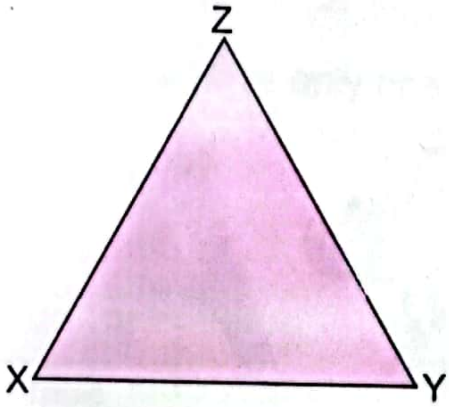
$\overline{QR}$ = ...

$\overline{RS}$ = ...

$\overline{PS}$ = ...

Perimeter = ...

iii)



$\overline{XY}$ = ...

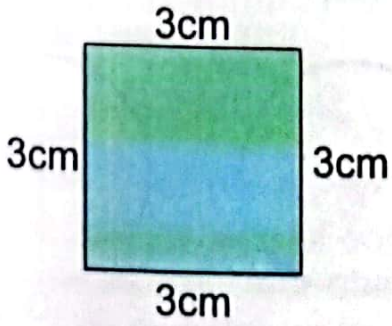
$\overline{YZ}$ = ...

$\overline{XZ}$ = ...

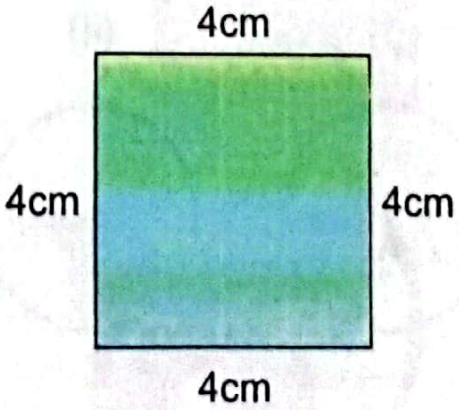
Perimeter = ...

3 Find the perimeter of the following.

i)

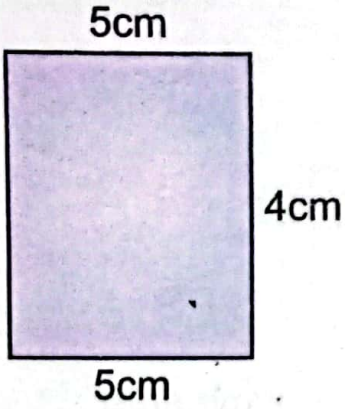


ii)

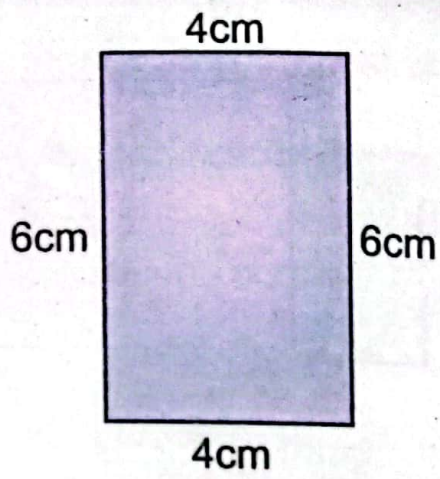


4 Find the perimeter of the following.

i)

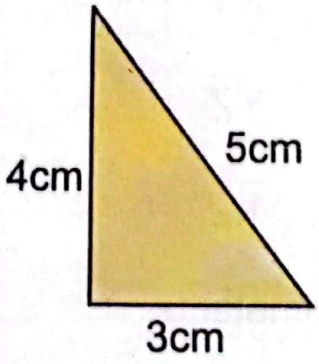


ii)

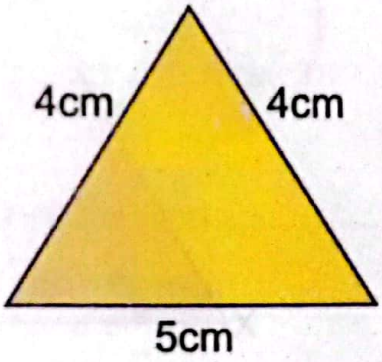


5 Find the perimeter of the following.

i)

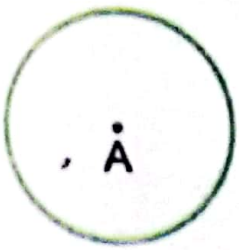


ii)

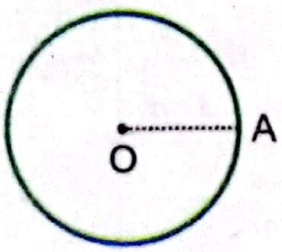


7 Identify the center, radius and diameter in the following circles.

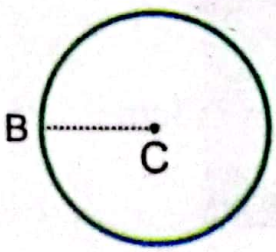
(i)



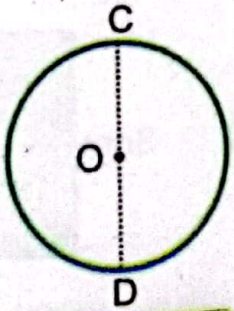
(ii)



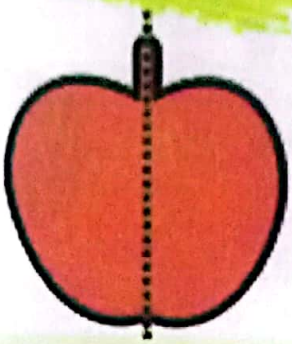
(iii)

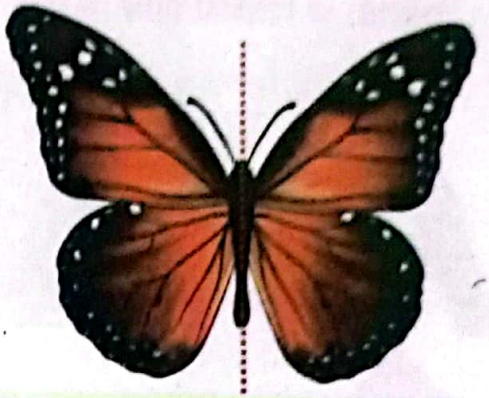


(iv)



Reflective Symmetry

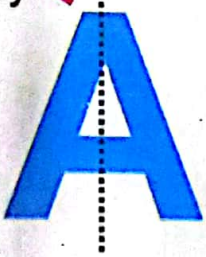


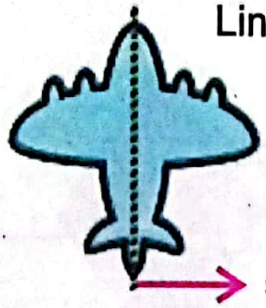


Many things around us are symmetrical. Things in nature - animals, plants and buildings - have symmetrical shapes. Look at the objects given below. There are symmetrical shapes because one part of the figure to the left of the line when folded, exactly covers the right part of the figure. This line is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

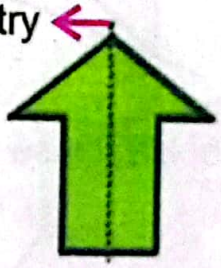
The following objects have only one line of symmetry.

Line of symmetry



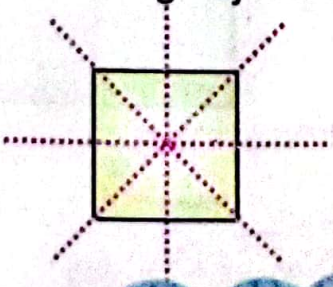


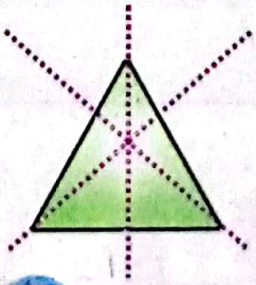
Line of symmetry

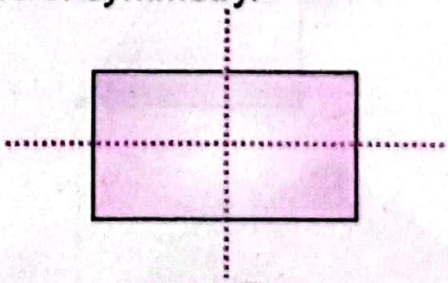


Line of symmetry

The following objects have more than one line of symmetry.

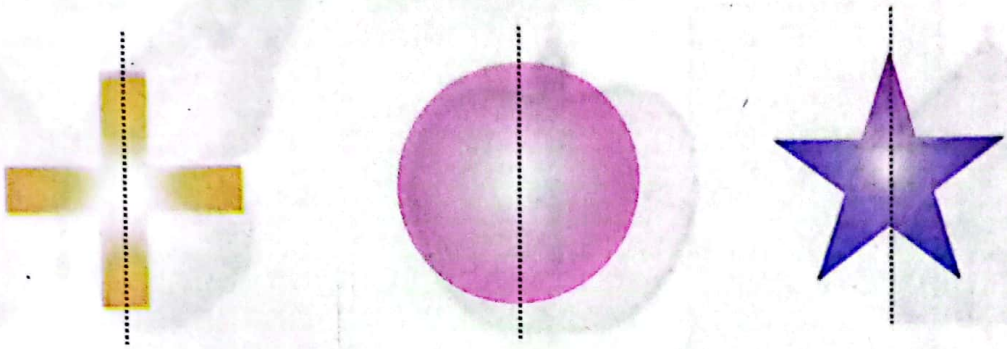




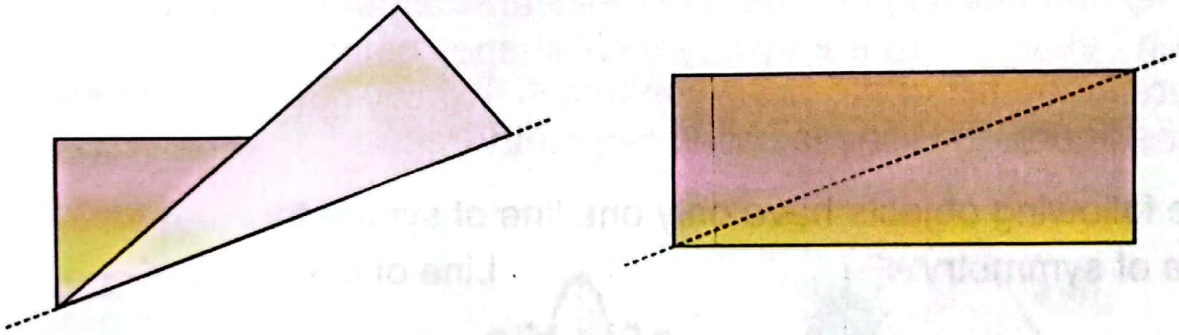


Put the mirror on the half side of object we can see complete object. It is an example of line of symmetry.

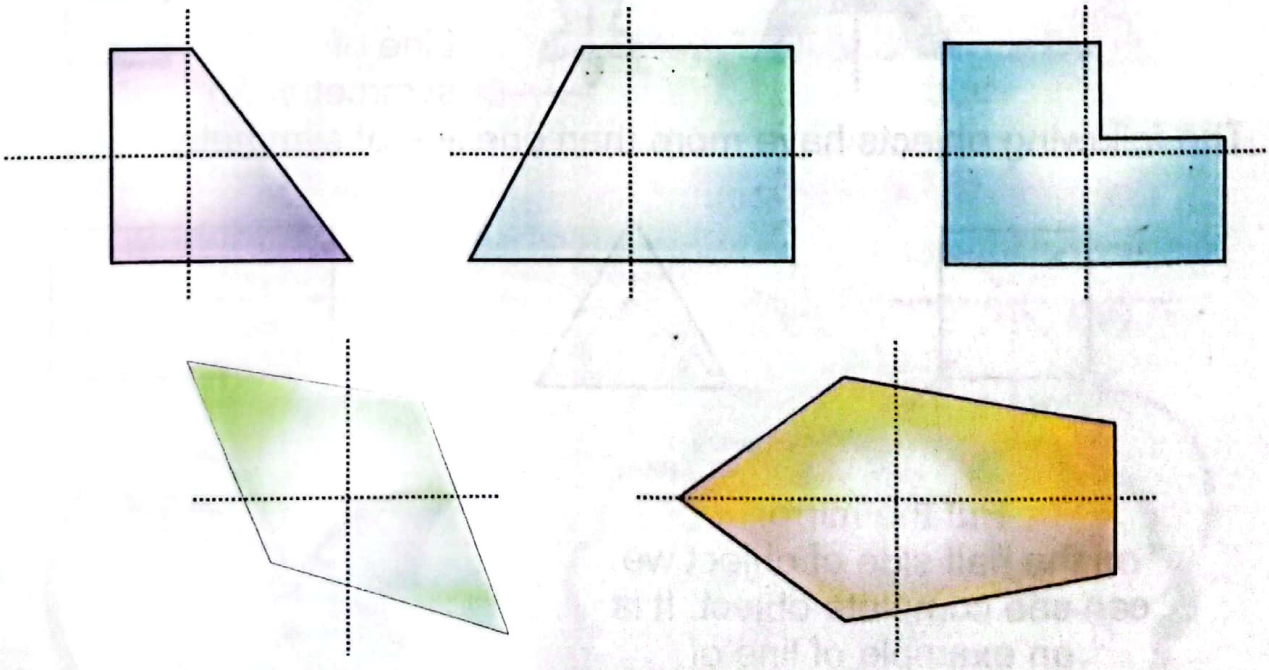
A line which divides a shape into two or more than two equal parts, is called line of symmetry.



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



Look at these objects/shapes.

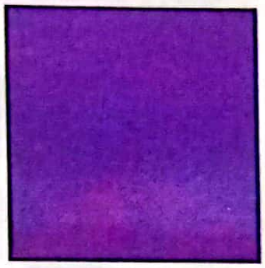


They have no line of symmetry. The shapes which have no line of symmetry are called non-symmetical shapes.

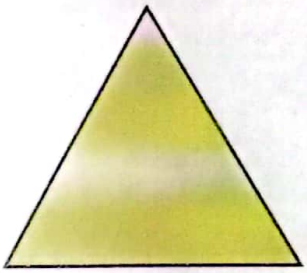
Exercise 3

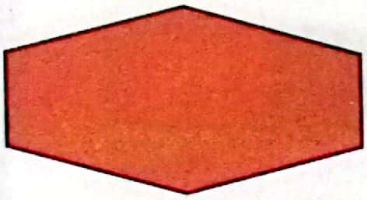
1. Draw the line of symmetry in following figures.

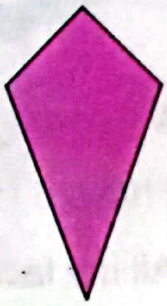
i) 

ii) 

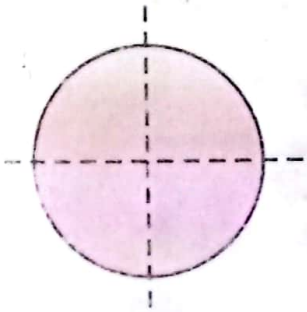
iii) 

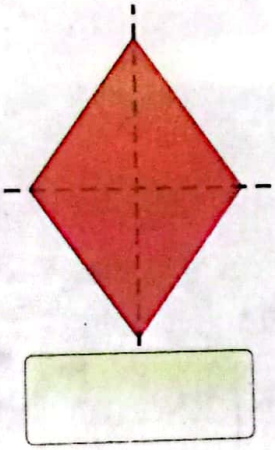
iv) 

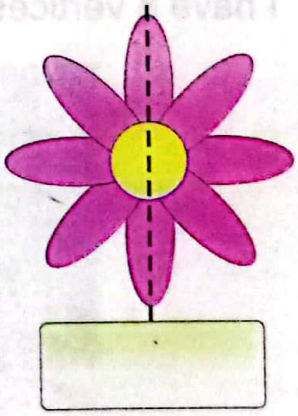
v) 

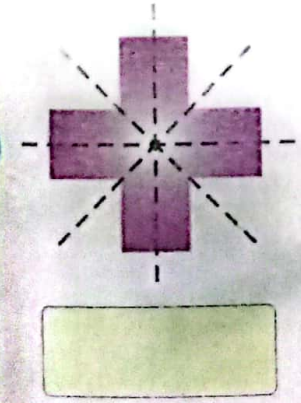
vi) 

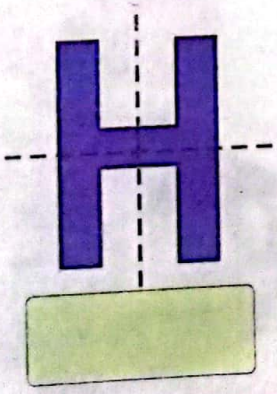
2. Count the numbers of line of symmetry in the following figures.

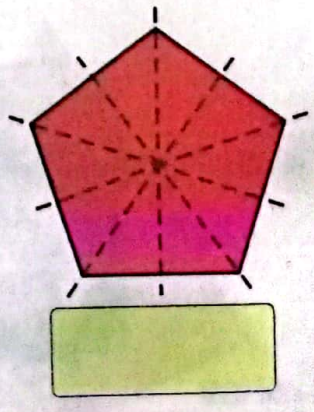
i) 

ii) 

iii) 

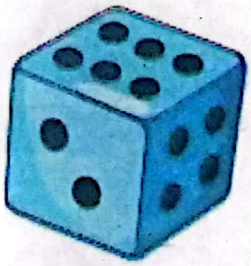
iv) 

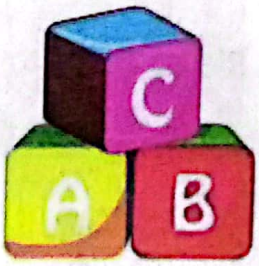
v) 

vi) 

Three Dimensional Objects

Cube





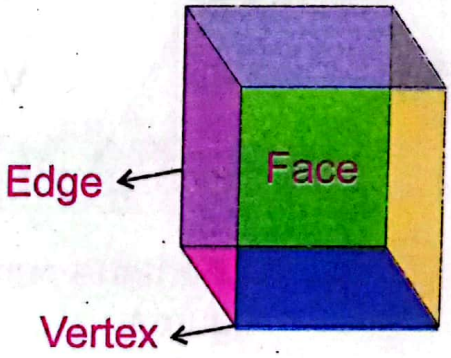
My name is cube.

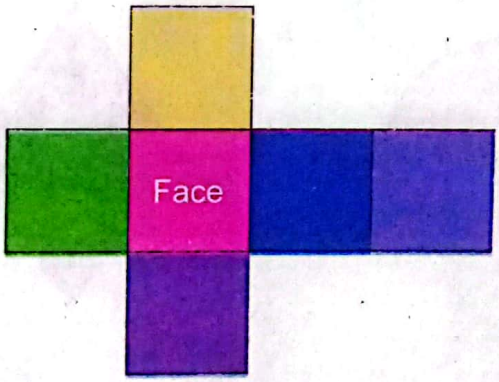
I have 6 faces.

All my faces are square.

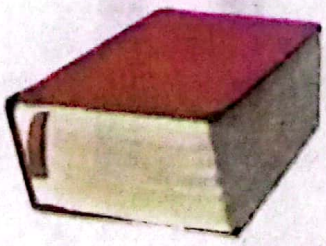
I have 12 Edges with same length.

I have 8 vertices.





Cuboid



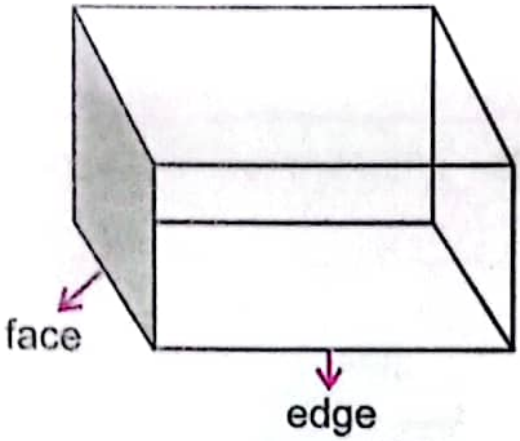
My name is cuboid.

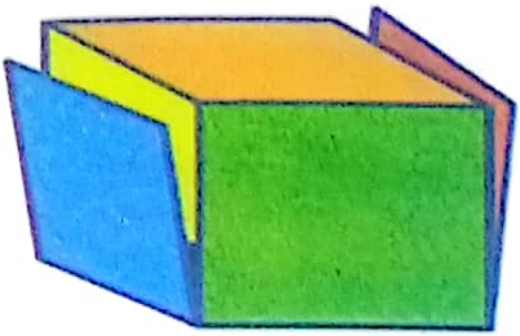
I have 6 faces.

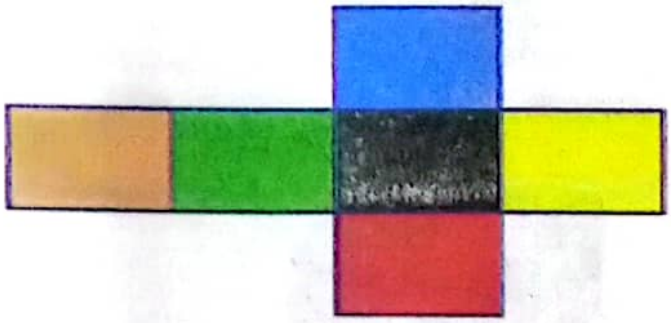
All my faces are rectangles

I have 12 edges.

I have 8 vertices.







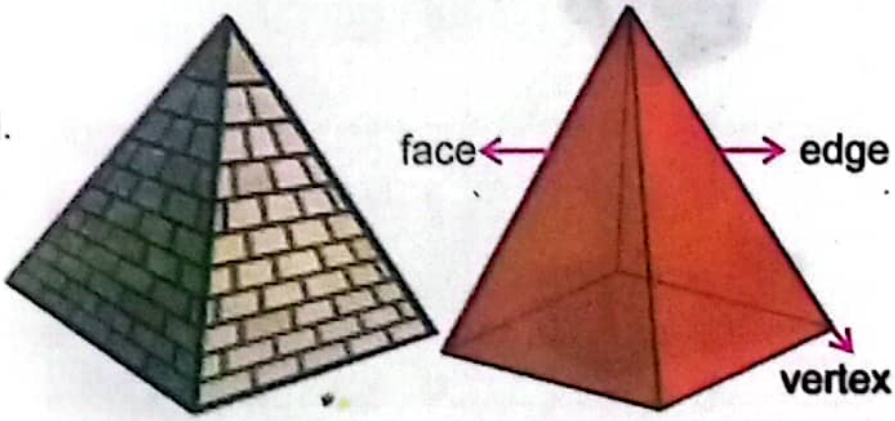
Pyramid

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.

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

I Have Learnt

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

Vocabulary

Line
Ray
Line Segment
Perimeter
Diameter
Reflective Symmetry
Cube
Cuboid

Review Exercise

1 Chose 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) 3 (b) 2 (c) 5 (d) 4

iv) A 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 can = _____

3 Draw the line segments according to given measurement

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

4 Ahmed walks a square shaped ground with length 249 metres. How much distance 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 Objects:

After studying this unit, students will be able to:

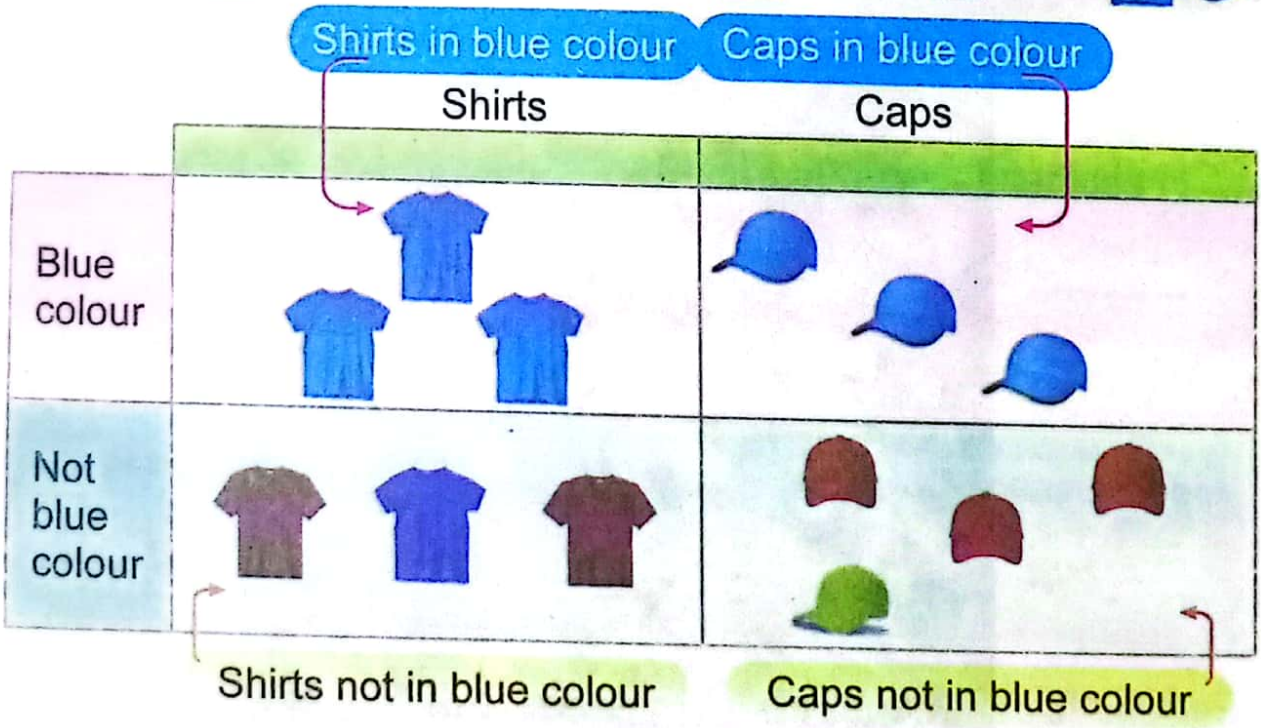
- Representation of data by
  - Carroll diagram
  - Tally chart
- Read and interpret a Carroll diagram and Tally chart
- Read and interpret Picture Graph

How can show the number of birds by a diagram?

Carroll Diagram

I want to sort out different things with help of Carroll diagram. What should 1 do for this?

You can sort according to the colour and shapes



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 caps are in blue colour
- three shirts are not 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. less than 15 and greater than 15. Similarly, the numbers divisible by 4 and not divisible by 4

Numbers less than 15 and divisible by 4

Numbers greater than 15 and divisible by 4

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

Numbers less 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 less than 15 and divisible by multiplication table of 4 are 8, 12.
- Numbers greater than 15 and divisible by multiplication table of 4 are 16, 28
- Numbers less than 15 and not divisible by multiplication table of 4 are 3, 10
- Numbers greater than 15 and not divisible by multiplication table 4 are 18, 21, 25 33

Tally Chart

In a Maths test, the marks obtained by 34 students in a primary class are

8	8	6	4	9	6	9	8	7	8
8	4	6	8	9	6	7	7	8	8
6	9	8	8	7	4	9	9	9	6
7	4	4	4						

let's prepare a Tally Chart using given data.

Marks Obtained	Tally Marks	Number of Students
8	𝍸 //	
6	𝍸	
7	𝍸 //	
9	𝍸 ////	
4	////	

(Key Point)

Marks (/) in Tally column are equal to the numbers 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? 10

ii) What are the odd numbers which are divisible by 5?

iii) What is the smallest even numbers which is not divisible by 5?

iv) What is the greatest odd numbers which is not divisible by 5?

Using Tally Chart, answer the questions given below.

Animals	Tally marks
Monkey	𝍸 //
Lion	𝍸 /
Bear	////
Zebra	𝍸 /
Elephant	//

i) Which animal is least in numbers? Elephant

ii) Which animal is greatest in number?

iii) Which of the two animals are equal in number?

iv) What is the total number of monkey and lion?

v) What is the total number of animals?

Exercise 1

1 Show the following fruits and vegetables by Carroll diagram

2 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		

3 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
Using above numbers, prepare a Tally Chart

5. In a school, following number of students celebrate their birthday in different months.
Answer the question 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?

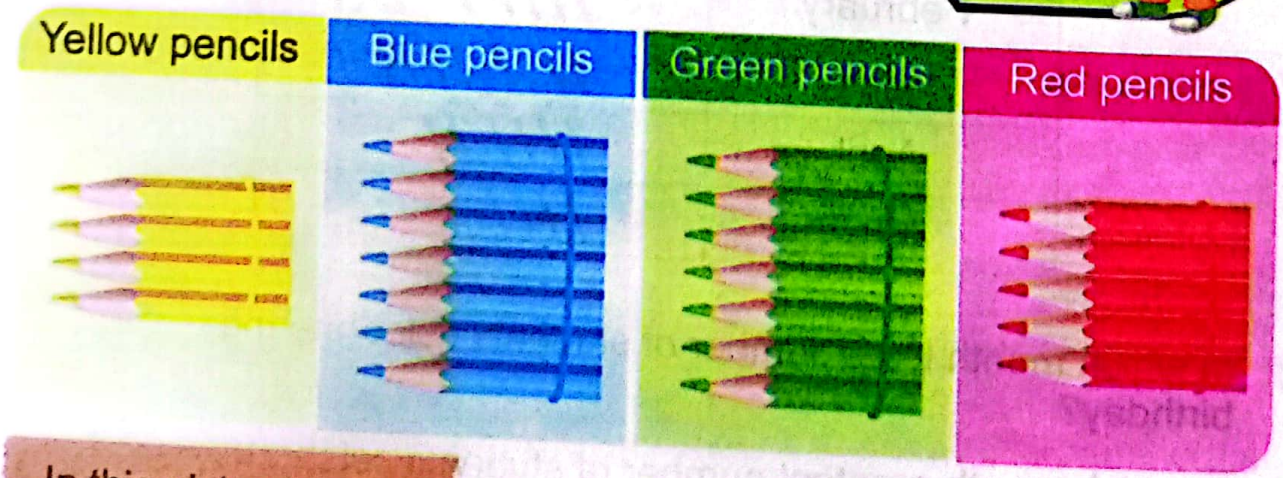
iii) In January and April, how many students celebrate their birthday?

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 using picture graph

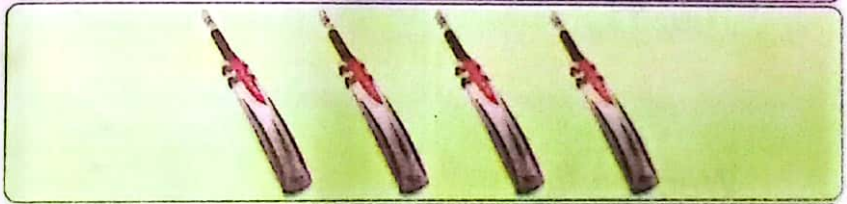
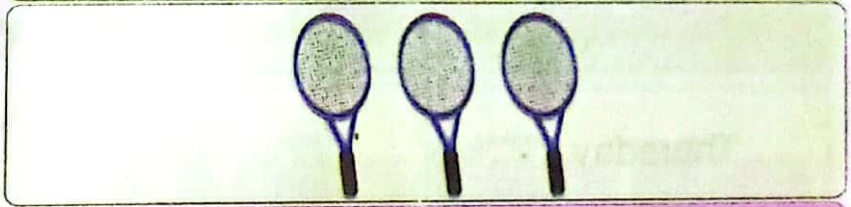


In this picture graph:

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

Given in the following picture graph, favourite sports of students are shown.

1 picture = 2 students

Hockey	
Football	
Cricket	
Tenis	
Table Tenis	

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 sport?

iv) Which is the least favourite soprt?

v) What is the number of students playing tenis?

Exercise 2

1. Following picture graph, the number of students were absent during a week.

1 picture = 1 student

Monday	
Tuesday	
Wednesday	
Thursday	
Friday	

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 what day most number of the students were absent?

iv) On what 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

Year	Number of cars
2008	
2009	
2010	
2011	
2012	

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?

iv) In which year, least number of cars were manufactured?

v) In which two years, equal number of cars were manufactured?

I Have Learnt

- 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 Exeercise

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. The following Tally chart shows the favourite subject of students in a school. Answer the following question.

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

i) Which subject is the least favourite?

ii) Which subject is the most favourite?

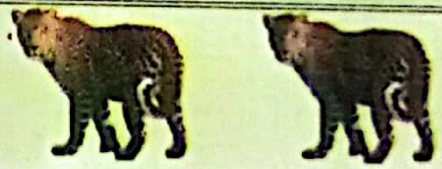
iii) How much students like Science?

iv) How much students like Urdu?

v) How many students like Mathematics?

3 A answer the question, below using the picture graph.

1 picture = 2 animals

Deer	
Elephant	
Monkey	
Cheetah	

i) Which animal is 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?

Approved by the Provincial Education Department the Secondary Education Department, Government of Balochistan letter No. SO (Acad:) 2-1/2021/2289-93, Dated October 4th, 2021

According to the National Curriculum SNC, 2020. N.O.C No 248-51/CB , dated 17/12/2021 Office of the Director Bureau of Curriculum & Extension Centre Balochistan, Quetta. This textbook has been published by Balochistan Textbook Board for free/sale distribution in all government / private Schools and madaris in Balochistan. No part of this book can be copied in any from especially guides, help books etc.

- رشوت لینے اور دینے والا دونوں جہنمی ہیں۔
- بدعنوانی ملکی ترقی کی راہ میں سب سے بڑی رکاوٹ ہے۔
- بدعنوانی سے خود بھی بچیں اور دوسروں کو بھی روکیں۔
- بدعنوانی اور رشوت ستانی ضمیر کی موت ہے۔
- بدعنوانی اخلاقی دیوالیہ پن کو جنم دیتی ہے۔

قومی احتساب بیورو بلوچستان

قومی ترانہ

پاک سَرزمین شادباد کِشورِ حَسین شادباد
تُو نِشانِ عَزمِ عالی شان اَرضِ پاکِستان
مرکزِ یقین شادباد

پاک سَرزمین کا نِظام قُوّتِ اُخُوّتِ عوام
قوم، مُلک، سَلطنت پائِندہ تابِندہ باد
شادباد منزلِ مُراد

پَرچَمِ سِتارہ و ہِلال رَہبرِ تَرقّی و کمال
ترجمانِ ماضی، شانِ حال جانِ اِستقبال
سایۂ خدائے ذُوالجلال

Code No: M III=490/SNC.2020.(2022)

Year	Edition	Copies	Price
2025	1st	172000	Free