Ganga Publications

MATHEMATICS

6

TERM I

CHAPTER 1 NUMBERS

Try these

[Page - 2]

* The successor of 4576 is **4577** (4576 + 1)
* The predecessor of 8970 is **8969** (8970 – 1)
* 999 + 1 equals **1000**
* 10000 – 1 equals **9999**
* The predecessor of the smallest 5 digit number is **9999**
  (Smallest 5 digit number = 10000)

Try these

[Page - 4]

1. Give 3 examples where the number of things counted by you would be a 5 digit number or more.

(i) Number of customer in BSNL Network

(ii) Sachin Tendulkar has Scrored more than 15,000 runs in ODI.

(iii) 10 lakh candidates write the Public Exam this year.

2. How many hundreds are there in 10 lakh?

10 Lakh = 10,00,000 No of hundreds = 10,000

3. There are ten lakh people in a district. What would be the population of 10 such districts?

The no of people a districts 10 Lakh = 10,00,000

∴ The no of people in 10 such district = 10,00,000 × 10 = 100,00,000 (100 lakh)

4. The Government spends ruppes 2 crores for education in a particular district every month. What would be its expenditure over 10 months?

The government spends 2 crores in a particular district in every month.

∴ The expenditure for 10 months = 2 crores × 10 = 20 crores

5. 10 lakh candidates write the Public Exam this year. If each exam centre is allotted with 1000 candidates. How many exam centres would be needed?

$\frac{10,00,000}{1000} = 1000$ centres

Try these

[Page - 5]

Complete the table.

Number	TC	C	TL	L	T Th	Th	H	T	O	Number Name
1670						1	6	7	0	One Thousand Six Hundred Seventy
47684					4	7	6	8	4	Forty Seven Thousand Six Hundred Eighty Four

120001				1	2	0	0	0	1	One Lakh Twenty Thousand one
7800500			7	8	0	0	5	0	0	Seventy Eight Lakh Five Hundred
53409098		5	3	4	0	9	0	9	8	Five Crore Thirty Four Lakh Nine Thousand Ninety Eight
198765912	1	9	8	7	6	5	9	1	2	Ninteen Crore Eighty Seven Lakh Sixty Five Thousand Nine Hundred Twelve

Example 1.1

How many thousands are there in 1 Lakh?

Place Value	L	T Th	Th	H	T	O	$\frac{10,00,000}{1000}=1000$
1 Lakh	1	0	0	0	0	0	= 100 Thousand

Example 1.2

(i) Read and expand the number 50000

Number : 50,000

Read as : Fifty Thousand

Expanded form : 5 × 10,000

(ii) Read and expand the number 676097

Number : 6,76,097

Read as : Six Lakh Seventy Six Thousand Ninety Seven.

Expanded form : 6 × 1,00,000 + 7 × 10,000 + 6 × 1,000 + 0 × 100 + 9 × 10 + 7 × 1

Try these

Read and expand the following numbers : [Page - 6]

(i) Number : 23,04,567

Read as : Twenty Three Lakh Four Thousand Five Hundred Sixty Seven

Expanded form : 2 × 10,00,000 + 3 × 1,00,000 + 0 × 10,000 + 4 × 1,000 + 5 × 100 + 6 × 10 + 7 × 1

(ii) Number : 45,09,888

Read as : Forty Five Lakh Nine Thousand Eight hundred Eighty Eight

Expanded form: 4 × 10,00,000 + 5 × 1,00,000 + 0 × 10,000 + 9 × 1,000 + 8 × 100 + 8 × 10 + 8 × 1

(iii) Number : 95,53,556

Read as : Ninety Five Lakh Fifty Three Thousand Five Hundred Fifty Six

Expanded form : 9 × 10,00,000 + 5 × 1,00,000 + 5 × 10,000 + 3 × 1,000 + 5 × 100 + 5 × 10 + 6 × 1

Try these [Page - 7]

(1) Find the place value of underlined digits.

	Number	TL	L	T Th	Th	H	T	O	
(i)	3**8**,41,567	3	8	4	1	5	6	7	**8 Lakhs**
(ii)	94,**4**3,810	9	4	4	3	8	1	0	**4 Ten Thousand**

(2) Write down the numerals and place value of 5 in the numbers represented by the following number names.

(i) Forty Seven Lakh Thirty Eight Thousand Five Hundred Sixty One.
47,38,561 – 5 hundreds

(ii) Nine Crore Eighty Two Lakh Fifty Thousand Two Hundred Forty One.
9,82,50,241 – 5 Ten Thousands

(iii) Nineteen Crore Fifty Seven Lakh Sixty Thousand Three Hundred Seventy.
19,57,60,370 – 5 Ten Lakhs

Example 1.3

The distance between the Sun and the Earth is about 92900000 miles. Read and write the number in the Indian and the International System by using commas.

Indian system

Number	C	TL	L	T Th	Th	H	T	O
9,29,00,000	9	2	9	0	0	0	0	0

Nine Crore Twenty Nine Lakh

International system

Number	TM	M	H Th	T Th	Th	H	T	O
92,900,000	9	2	9	0	0	0	0	0

Ninety two million Nine hundred Thousand

Try these [Page - 9]

Identify the incorrect places of comma and rewrite correctly.

Indian System		International System	
Incorrect	Correct	Incorrect	Correct
56,12,34,0,1,5	56,12,34,015	7,5613,4534	756,134,534
9,90,03,2245	99,00,32,245	30,30,304,040	3,030,304,040

Exercise 1.1

1. Fill in the blanks :

(i) The smallest 7 digit number is _____

Ten Lakhs		TL	L	T Th	Th	H	T	O
10,00,000		1	0	0	0	0	0	0

(ii) The largest 8 digit number is _____

Nine Crore Ninety Nine Lakh Ninety Nine Thousand Nine hundred Ninety Nine	C	TL	L	T Th	Th	H	T	O
9,99,99,999	9	9	9	9	9	9	9	9

(iii) The place value of 5 in 7005380 is _____

		TL	T	T Th	Th	H	T	O
5 Thousand		7	0	0	(5)	3	8	0

(iv) The expanded form of the number 76,70,905 is _____

$7 \times 10,00,000 + 6 \times 1,00,000 + 7 \times 10,000 + 0 \times 1,000 + 9 \times 100 + 0 \times 10 + 5 \times 1$

2. Say True or False.

(i) In the Indian System of Numeration the number 67999037 is written as 6,79,99,037.
Ans : True

(ii) Successor of a one digit number is always a one digit number.
Ans : False (Successor 9 is 10 – 2 digit number)

(iii) Predecessor of a 3 - digit number is always a 3 or 4 - digit number.
Ans : False (Predecessor of 100 is 99 – 2 digit number)

(iv) $88888 = 8 \times 10000 + 8 \times 100 + 8 \times 10 + 8 \times 1$
Ans : False ($88888 = 8 \times 10,000 + 8 \times 1,000 + 8 \times 100 + 8 \times 10 + 8 \times 1$)

3. Complete the given order.

Ten Crore, Crore, ten Lakh, **Lakh, Ten Thousand, Thousand, Hundred, Ten, One**

4. How many ten thousands are there in the smallest 6 digit number?

L	T Th	Th	H	T	O	Number
1	0	0	0	0	0	10,000

10 - Ten Thousands

5. Using the digits 5, 2, 0, 7, 3 form the largest 5 digit number and the smallest 5 digit number.

Largest 5 digit number

T Th	Th	H	T	O
7	5	3	2	0

Smallest 5 digit number

T Th	Th	T	H	O
2	0	3	5	7

6. Observe the commas and write down the place value of 7.

(i) 56,74,56,345

T C	C	TL	L	T Th	Th	H	T	O
5	6	(7)	4	5	6	3	4	5

70,00,000 – Seventy Lakh (7 Ten Lakh).

(ii) 567,456,345

HM	TM	M	H Th	T Th	Th	H	T	O
5	6	(7)	4	5	6	3	4	5

7,000,000 – 7 Million.

7. Write the following numbers in the International System by using commas.

International System		International System	
Given	Separated	Given	Separated
(i) 347056	347,056	**(iii)** 634576105	634,576,105
(ii) 7345671	7,345,671	**(iv)** 1234567890	1,234,567,890

8. Write the largest six digit number and put commas in the Indian and the International Systems.

Indian System – 9,99,999 (Nine Lakh Ninety Nine Thousand Nine Hundred Ninety Nine)

International System – 999,999 (Nine Hundred Ninety Nine Thousand, Nine Hundred Ninety Nine)

9. Write the number names of the following numerals in the Indian System.

(i) 75,32,105

TL	L	T Th	Th	H	T	O
7	5	3	2	1	0	5

Seventy Five Lakh Thirty Two Thousand one Hundred Five

(ii) 9,75,63,453

C	TL	L	T Th	Th	H	T	O
9	7	5	6	3	4	5	3

Nine Crore Seventy Five Lakh Sixty Three Thousand Four Hundred Fifty Three.

10. Write the number names in words using the International System.

(i) 345,678

H Th	T Th	Th	H	T	O
3	4	5	6	7	8

Three Hundred Forty Five Thousand Six Hundred Seventy Eight.

(ii) 8,343,710

M	H Th	T Th	Th	H	T	O
8	3	4	3	7	1	0

Eight Million Three Hundred Forty Three Thousand Seven Hundred Ten

(iii) 103,456,789

HM	TM	M	H Th	T Th	Th	H	T	O
1	0	3	4	5	6	7	8	9

One Hundred Three million Four Hundred Fifty Six Thousand Seven Hundred Eighty Nine.

11. Write the number name in numerals.

(i) Two crore thirty lakh fifty one thousand nine hundred eighty.

C	TL	L	T Th	Th	H	T	O	Number
2	3	0	5	1	9	8	0	2,30,51,980

(ii) Sixty Six million three hundred forty five thousand twenty seven.

TM	M	H Th	T Th	Th	H	T	O	Number
6	6	3	4	5	0	2	7	66,345,027

(iii) Seven hundred eighty nine million, two hundred thirteen thousand four hundred fifty six.

HM	TM	M	H Th	T Th	Th	H	T	O	Number
7	8	9	2	1	3	4	5	6	789,213,456

12. Tamil Nadu has about twenty six thousand three hundred forty five square kilometre of Forest land. Write the number mentioned in the statement in the Indian System.

T Th	Th	H	T	O	Number
2	6	3	4	5	**26,345**

26,345 sq.km

13. The number of employees in the Indian Railways is about 10 lakh. Write this in the International System of numeration.

Indian System

TL	L	T Th	Th	H	T	O	Number
1	0	0	0	0	0	0	10,00,000

Ten Lakh (10 lakh = 1 Million)

International System

M	H Th	T Th	Th	H	T	O	
1	0	0	0	0	0	0	1,000,000

One Million

OBJECTIVE TYPE QUESTIONS

14. 1 billion is equal to

a) 100 crore b) 100 million c) 100 lakh d) 10000 lakh

Ans : a) 100 crore [1 billion = 1,000,000,000]

B	HM	TM	M	H Th	T Th	Th	H	T	O
1	0	0	0	0	0	0	0	0	0
HC	TC	C	TL	L	T Th	Th	H	T	O

15. The successor of 10 million is

a) 1000001 b) 10000001 c) 9999999 d) 100001

Ans : b) 10,000,001 (10,000,000 + 1)

16. The difference between the successor and the predecessor of 99999 is

a) 90000 b) 1 c) 2 d) 99001 **Ans :** c) 2

Reason : The successor 99,999 is = 1,00,000

The predecessor of 99,999 is = 99,998

difference = 2

17. The expanded form of the number 6,70,905 is

a) $6 \times 10000 + 7 \times 1000 + 9 \times 100 + 5 \times 1$

b) $6 \times 10000 + 7 \times 1000 + 0 \times 100 + 9 \times 100 + 0 \times 10 + 5 \times 1$

c) $6 \times 1000000 + 7 \times 10000 + 0 \times 1000 + 9 \times 100 + 0 \times 10 + 5 \times 1$

d) $6 \times 100000 + 7 \times 10000 + 0 \times 1000 + 9 \times 100 + 0 \times 10 + 5 \times 1$

Ans : d) $6 \times 100000 + 7 \times 10000 + 0 \times 1000 + 9 \times 100 + 0 \times 10 + 5 \times 1$

Try these (Page - 13)

1. Write the numbers in the ascending order : 688, 9, 23005, 50, 7500

9, 50, 688, 7500, 23005

2. Find the least and the greatest among the numbers: 478, 98, 6348, 3, 6007, 50935.

Least number : 3 ; greatest number : 50935.

Example 1.4

Compare 59283746 and 59283748 using place value chart.

Number	C	TL	L	T Th	Th	H	T	O
5,92,83,746	5 = 5	9 = 9	2 = 2	8 = 8	3 = 3	7 = 7	4 = 4	6 < 8

5,92,83,746 < 5,92,83,748

Try these (Page - 14)

Compare the two numbers and put <, > and = using place value chart.

15,475	>	3,214
73,204	<	9,73,561

89,75,430	=	89,75,430
18,99,799	=	18,99,799

Try these **(Page - 16)**

The area in sq. km. of 4 Indian states are given below.

States	Area (sq. km)
Tamil Nadu	1,30,058
Kerala	38,863
Karnataka	1,91,791
Andhra Pradesh	1,62,968

List the areas of the 4 Indian States in the ascending and the descending order.

Ascending Order : 38,863 < 1,30,058 < 1,62,968 < 1,91,791
Kerala < Tamil Nadu < Andra Pradesh < Karnataka

Descending Order: 1,91,791 > 1,62,968 > 1,30,058 > 38,863
Karnataka > Andra Pradesh > Tamil Nadu > Kerala

Try these **[Page - 17]**

Placing the digit 4 in thousands place and get six different 4 digit numbers. Also make different 4 digit numbers by fixing 8 and 5 in the thousands place.

Th	H	T	O
4	9	8	5
4	9	5	8
4	8	9	5
4	8	5	9
4	5	9	8
4	5	8	9

Th	H	T	O
8	9	4	5
8	9	5	4
8	4	9	5
8	4	5	9
8	5	9	4
8	5	4	9

Th	H	T	O
5	9	8	4
5	9	4	8
5	8	9	4
5	8	4	9
5	4	9	8
5	4	8	9

Try these **[Page - 17]**

* **Make different 4-digit numbers by exchanging the digits and check every time whether the number made is small or big.**
  4 – digit number = 8632
  Different arrangement : 2368 < 2863 < 3682 < 6328 < **8632**
  4 – digit number = 4326
  Different arrangements : 2346 < 3426 < 3462 < **4326** < 4623 < 4632

* **Pedometer used in walking practice contains 5 digit number. What could be the largest measure?**
  Largest measure of pedometer is 99,999

Exercise 1.2

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

(i) 48,792 __<__ 48,972

T Th	Th	H	T	O
4 = 4	8 = 8	7 < 9		

(ii) 12,48,654 > 12,46,854

TL	L	T Th	Th	H	T	O
1 = 1	2 = 2	4 = 4	8 > 6			

(iii) 6,58,794 = 6,58,794

L	T Th	Th	H	T	O
6 = 6	5 = 5	8 = 8	7 = 7	9=9	4=4

2. Say True or False.

(i) The difference between the smallest number of seven digits and the largest number of six digits is 10.

Answer : False

Reason : 7 digit smallest number = 10,00,000 (-)
6 digit largest number = 9,99,999
difference = 1

(ii) The largest 4 - digit number formed by the digits 8, 6, 0, 9 using each digit only once is 9086.

Answer : False

Reason :

Th	H	T	O
9	8	6	0

(iii) The total number of 4 digit numbers is 9000.

Answer : True

Reason : The largest 4 digit number = 9,999 (-)
The largest 3 digit number = 999
difference = 9,000

3. Of the numbers 1386787215, 137698890, 86720560, which one is the largest? Which one is the smallest?

B	HM	TM	M	H Th	T Th	Th	H	T	O
1	3	8	6	7	8	7	2	1	5
	1	3	7	6	9	8	8	9	0
		8	6	7	2	0	5	6	0

Largest number – 1,386,787,215; Smallest number – 86,720,560

4. Arrange the following numbers in the descending order.
128435, 10835, 21354, 6348, 25840

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

descending order :

1,28,435 > 25,840 > 21,354 > 10,835 > 6,348

5. Write any eight digit number with 6 in ten lakh place and 9 in ten thousand place.

C	TL	L	T Th	Th	H	T	O
9	**6**	8	**9**	6	4	3	2

We can make many numbers

9,68,96,432 / 3,62,95,710 / 3,64,92,275 etc.

6. Rajan writes a 3 - digit number, using the digits 4, 7 and 9. What are the possible numbers he can write?

4	7	9	479
4	9	7	497
9	4	7	947
9	7	4	974
7	9	4	794
7	4	9	749

7. The password to access my ATM card includes the digits 9, 4, 6 and 8. It is the smallest 4 digit even number. Find the password of my ATM Card.

digits ascending 4 < 6 < 8 < 9

ATM card password 4698 (last digit even number)

8. Postal Index Number consists of six digits. The first three digits are 6, 3 and 1. Make the largest and the smallest Postal Index Number by using the digits 0, 3 and 6, each only once.

Digits	1	2	3	4	5	6	Number
Largest	6	3	1	6	0	3	631603
Smallest	6	3	1	0	3	6	631036

(0 is not possible last digit of the PIN number)

9. The heights (in metres) of the mountains in Tamil Nadu are as follows.

Sl.No	Mountains	Height (in metres)
1	Doddabetta	2637
2	Mahendragiri	1647
3	Anaimudi	2695
4	Velliangiri	1778

(i) Which is the highest mountain listed above?

Ans : Anaimudi

(ii) Order the mountains from the highest to the lowest.

Ans : Anaimudi > Doddabetta > Velliangiri > Mahendragiri
2695 m > 2637 m > 1778 m > 1647 m

(iii) What is the difference between the heights of the mountains Anaimudi and Mahendragiri?

Ans : Height of the mountain Anaimudi = 2695 m (-)
Height of the mountain Mahendragiri = 1647 m
Difference between Anaimudi and Mahendragiri = 1048 m

OBJECTIVE TYPE QUESTIONS

10. Which list of numbers is in order from the smallest to the largest?

a) 1468, 1486, 1484 b) 2345, 2435, 2235
c) 134205, 134208, 154203 d) 383553, 383548, 383642

Ans : c) 134205, 134208, 154203

Reason :

L	T Th	Th	H	T	O
1	3	4	2	0	5
1	3	4	2	0	8
1	5	4	2	0	3

11. The Arabian Sea has an area of 1491000 square miles. This area lies between which two numbers?

a) 1489000 and 1492540 b) 1489000 and 1490540
c) 1490000 and 1490100 d) 1480000 and 1490000

Ans : a) 1489000 and 1492540

Reason :

TL	L	T Th	Th	H	T	O
1	4	8	9	0	0	0
1	4	9	1	0	0	0
1	4	9	2	5	4	0

12. The chart below shows the number of newspapers sold as per Indian Readership Survey in 2018. Which could be the missing number in the table?

Name of the Newspaper	Ranking	Sold (in Lakh)
A	1	70
B	2	50
C	3	?
D	4	10

a) 8 b) 52 c) 77 d) 26

Ans : d) 26 (In between 50 and 10, 26 is available)

Example 1.5

In an exhibition, the number of tickets sold on the first, second, third and fourth days are 1,10,000, 75,060, 25,700 and 30,606 respectively. Find the total number of tickets sold on all the 4 days.

Solution :	L	T Th	T	H	T	O	
Number of tickets sold on the first day	1	1	0	0	0	0	
Number of tickets sold on the second day		7	5	0	6	0	
Number of tickets sold on the third day		2	5	7	0	0	
Number of tickets sold on the fourth day		3	0	6	0	6	(+)
Adding all the above, the total number of tickets sold on all the 4 days	2	4	1	3	6	6	

Example 1.6

In a year, a whole - sale paper firm sold 6,25,600 notebooks out of 7,50,000 notebooks. Find the number of notebooks left unsold.

Solution :		L	T Th	T	H	T	O	
Number of notebooks in the store	=	7	5	0	0	0	0	
Number of notebooks sold	=	6	2	5	6	0	0	(-)
Number of notebooks unsold	=	1	2	4	4	0	0	

Example 1.7

In a mobile store, the number of mobiles sold during a month is 1250. Assuming that the same number of mobiles are sold every month, find the number of mobiles sold in 2 years.

Solution :

Number of mobiles sold in 1 month =1250

1 year = 12 months

2 years = 2×12

= 24 months

Number of mobiles sold in 24 months

= 1250×24 = 30,000 mobiles

	1	2	5	0
		×	2	4
	5	0	0	0
2	5	0	0	
3	0	0	0	0

Example 1.8

If 10,00,000 was distributed in a Government scheme to 500 women in the Self Help Groups, then find the amount given to each woman.

Solution :

Amount to be given to 500 women = 10,00,000

Amount given to each woman = 10,00,000 ÷ 500 = ₹ 2000

$$= \frac{10,00,0\not{0}\not{0}}{5\not{0}\not{0}}$$

$$= \frac{10,000}{5}$$

$$5 \overline{)10000} = 2000$$

10

000

Each woman in the Self Help Group was given ₹ 2000.

Example 1.9

Simplify : 24 + 2 × 8 ÷ 2 + 1 Operation

Expansion of BIDMAS	
B	Bracket ( )
I	Indices
D	Division ÷ or /
M	Multiplication ×
A	Addition +
S	Subtraction –

Solution : 24 + 2 × 8 ÷ 2 – 1 (÷) First
= 24 + 2 × 4 – 1 (×) Second
= 24 + 8 – 1 (+) Third
= 32 – 1 (–) Fourth
= 31

Example 1.10

Simplify : $20 + [8 \times 2 + \{\overline{6 \times 3} - 10 \div 5\}]$

Solution :

$20 + [8 \times 2 + \{\overline{6 \times 3} - 10 \div 5\}]$ (given question)
$= 20 + [8 \times 2 + \{18 - 10 \div 5\}]$ (bar completed first)
$= 20 + [8 \times 2 + \{18 - 2\}]$ (÷ completed second)
$= 20 + [8 \times 2 + 16]$ ({ } completed third)
$= 20 + [16 + 16]$ (× completed fourth)
$= 20 + 32$ ([ ] operation completed fifth)
$= 52$ (+ completed last)

Exercise 1.3

[Page - 22]

1. Fill in the blanks :

(i) If Arulmozhi saves ₹ 12 per day, then she saves ₹ _____ in 30 days. **Ans: 12×30=₹360**

(ii) If a person 'A' earns ₹ 1800 in 12 days, then he earns ₹ _____ in a day. **Ans:** $\frac{1800}{12} = ₹150$

(iii) 45 ÷ (7 + 8) – 2 = _____. **Ans:** 1

By BIDMAS
7 + 8 = 15
45 ÷ 15 = 3
3 – 2 = 1

2. Say True or False.

(i) 3 + 9 × 8 = 96

Ans : False 3 + 9 × 8 = 3 + 72 = 75 (75 ≠ 96)

(ii) 7 × 20 – 4 = 136

Ans : True 7 × 20 – 4 = 140 – 4 = 136 (136 = 136)

(iii) 40 + (56 – 6) ÷ 2 = 45
= 40 + 50 ÷ 2
= 40 + 25 = 65 (65 ≠ 45)

Ans : False

3. The number of people who visited the Public Library for the past 5 months were 1200, 2000, 2450, 3060 and 3200. How many people visited the library in the last 5 months. [Page - 23]

Solution :

		T Th	T	H	T	O	
Number of people visited 1st month	=		1	2	0	0	
Number of people visited 2nd month	=		2	0	0	0	(+)
Number of people visited 3rd month	=		2	4	5	0	
Number of people visited 4th month	=		3	0	6	0	
Number of people visited 5th month	=		3	2	0	0	
		1	1	9	1	0	

Total number of people visited the library in the last 5 months = 11,910

4. Cheran had a bank savings of ₹ 7,50,250. He withdrew ₹ 5,34,500 for educational purpose. Find the balance amount in his account.

Solution :

	L	T Th	T	H	T	O	
Cheran bank Savings	7	5	0	2	5	0	(–)
Withdrawal	5	3	4	5	0	0	
Balance	2	1	5	7	5	0	

The balance amount in his account is ₹ 2,15,750

5. In a cycle factory, 1560 bicycles were manufactured every day. Find the number of bicycles manufactured in 25 days.

Solution :

Cycle manufactured every day = 1560
Cycle manufactured in 25 days = 1560 × 25 = 39,000 cycles

T Th	T	H	T	O
	1	5	6	0
	×		2	5
	7	8	0	0
3	1	2	0	+
3	9	0	0	0

Easy Method multiplication :

$1560 \times 25 \left[\frac{100}{4} = 25\right]$

$1560 \times \frac{100}{4} = \frac{156000}{4} = 39{,}000$

39,000 bicycles are manufactured

6. ₹ 62500 was equally distributed as a New year bonus for 25 employees of a company. How much did each receive?

Solution :

Total New Year bonus = ₹ 62,500
equally distributed = 25 employees
Each employee receive = ₹ 2,500

$$\begin{array}{r|l} & 2500 \\ \hline 25 & 62{,}500 \\ & 50 \\ \hline & 125 \\ & 125 \\ \hline & 0 \end{array}$$

7. Simplify the following numerical expressions:

(i) $(10 + 17) \div 3$

Solution : $27 \div 3 = 9$

(ii) $12 - [3 - \{6 - (5 - 1)\}]$

Solution :

$= 12 - [3 - \{6 - 4\}]$
$= 12 - [3 - 2]$
$= 12 - 1 =$ **11**

(iii) $100 + 8 \div 2 + \{(3 \times 2) - 6 \div 2\}$

Solution :

$= 100 + 8 \div 2 + \{6 - 6 \div 2\}$
$= 100 + 8 \div 2 + \{6 - 3\}$
$= 100 + 4 + 3$
$= 100 + 7$
$= 10$

OBJECTIVE TYPE QUESTIONS

8. The value of $3 + 5 - 7 \times 1$ is _____ **[Page - 23]**

a) 5 b) 7 c) 8 d) 1 **Ans : d) 1**

Reason : $3 + 5 - 7 \times 1 = 3 + 5 - 7 \Rightarrow 8 - 7 = 1$

9. The value of $24 \div \{8 - (3 \times 2)\}$ is

a) 0 b) 12 c) 3 d) 4 **Ans : b) 12**

Reason : $= 24 \div \{8 - 6\} \Rightarrow 24 \div 2 = 12$

10. Use BIDMAS and put the correct operator in the box.

$2 \square 6 - 12 \div (4 + 2) = 10$

a) + b) − c) × d) ÷ **Ans : c) ×**

Reason : $= 2 \square 6 - 12 \div 6 = 10 \Rightarrow 2 \square 6 - 2 = 10$

$= 2 \boxed{\times} 6 - 2 = 10 \Rightarrow 12 - 2 = 10$

Check :

(a) +

$2 \boxed{+} 6 - 12 \div (4 + 2) = 10$
$2 + 6 - 12 \div 6 = 10$
$2 + 6 - 2 = 10$
$8 - 2 = 10$
$6 \neq 10$

(b) −

$2 \boxed{-} 6 - 12 \div (4 + 2) = 10$
$2 - 6 - 12 \div 6 = 10$
$2 - 6 - 2 = 10$
$2 - 8 = 10$
$-6 \neq 10$

Example 1.11

Round off the number 8,436 to hundreds.

8,4̲36 (underline the digit 100 place)

= 8, 4 (3) 6 (Look at the digit to its right 3 < 5)
= 8, 400 (Leave 4 unchanged put remain right digits are zero)

Example 1.12

Round off the number 78,794 to thousands.

78794
= 7 8 (7) 94 (7 > 5) (add 1 to 8)
= 79,000 (put remaining right digits are zero)

Try these **[Page - 25]**

*** Round off the following numbers to the nearest ten.**

i) 57 – **60** ii) 189 – **190**
iii) 3,956 – **3,960** iv) 57,312 – **57,310**

*** Round off the following numbers to the nearest ten, hundred and thousand.**

Number	Nearest Ten	Nearest Hundred	Nearest Thousand
9,34,678	9,34,680	9,34,700	9,35,000
73,43,489	73,43,490	73,43,500	73,43,000
17,98,45,673	17,98,45,670	17,98,45,700	17,98,46,000

*** The tallest mountain in the world Mount Everest, located in Nepal is 8,848m high. Its height can be rounded to the nearest thousand as _____.**

Solution :

Everest Height = 8,848 m

Everest Height (nearest thousand) = 9,000 m

Example 1.13

The amount deposited by a Gold merchant in his bank account in the month of January is ₹ 17,53,740 and in the month of February is ₹ 15,34,300. Estimate the sum and difference of the amount deposited to the nearest thousand.

Rounding off to the nearest thousand is as follows.

Solution :

	Actual Amount	Estimated Amount
Amount deposited in January	₹ 17,53,740	₹ 17,54,000
Amount deposited in February	₹ 15,34,400	₹ 15,34,000
Total amount deposited	₹ 32,88,140	₹ 32,88,000
Difference between the amounts deposited	₹ 2,19,340	₹ 2,20,000

Think

Is 2, 19, 340, is rounded off to its nearest thousand as 2,20,000 why?

Answer :

Whenever nearest thousand is calculated for the difference between two numbers then higher range thousand is taken as nearest one.

Example 1.14

If the cost of a copy of a Thirukkural book is ₹ 188, then find the estimated cost of 31 copies of such books. (Note : Find the rounded values of 188 and 31 and then find the result)

Solution :

Cost of a copy of a Thirukkural book = ₹ 188
rounded value of cost = ₹ 200
Number of copies = 31
rounded number of copies = 30
Total estimated cost = 200 × 30
= ₹ 6,000

Example 1.15

Find the estimated value of 5598 ÷ 689.

Solution :

Actual Value

```
      8
689 | 5598
      5512
      ----
        86
```

Estimated Value

```
      8
700 | 5600
      5600
      ----
         0
```

The estimated value of 5598 ÷ 689 is 8.

Try these **[Page - 27]**

*** Estimate the sum and the difference : 8457 and 4573.**

Actual Sum

```
   8457
(+) 4573
   13030
```

Estimated Sum

```
   8000
(+) 5000
   13000
```

Actual difference

```
   8457
(–) 4573
   3884
```

Estimated difference

```
   8000
(–) 5000
   3000
```

*** Estimate the product : 39 × 53**

Actual Value

```
    39
(×) 53
   117
  195
  ----
  2067
```

Estimated Value

```
    40
(×) 50
    00
   200
   ----
   2000
```

*** Estimate the quotient : 5546 ÷ 524**

Actual Value

```
      10
524 | 5546
     | 524
     | 306
```

Estimated Value

```
      11
500 | 5500
     | 500
     |  500
     |  500
     |    0
```

Exercise 1.4

1. Fill in the blanks :

(i) The nearest 100 of 843 is _____. **Ans : 800**

(ii) The nearest 1000 of 756 is _____. **Ans : 1000**

(iii)The nearest 10000 of 85654 is _____. **Ans : 90,000**

2. Say True or False.

(i) 8567 is rounded off as 8600 to the nearest 10.

Ans : False 8567 is rounded off the nearest 10 – 8570

(ii) 139 is rounded off as 100 to the nearest 100.

Ans : True Nearest 100 of 139 is 100

(iii) 1,70,51,972 is rounded off as 1,70,00,000 to the nearest lakh.

Ans : False 1,7 [0],51,972 – is rounded off the nearest lakh 1,71,00,000

3. Round off the following to the given nearest place.

(i) 4,065; hundred

Ans : 4,065 nearest hundred 4,100

(ii) 44,555; thousand

Ans : 44,555 nearest thousand 45,000

(iii) 86,943; ten thousand

Ans : 86,943 nearest Ten Thousand 90,000

(iv) 50,81,739; lakh

Ans : 50,81,739 nearest lakh – 51,00,000

(v) 33,75,98,482; Ten crore

Ans : 33,75,98,482 nearest Ten crore – 30,00,00,000

4. Estimate the sum of 157826 and 32469 rounded off to the nearest ten thousand.

Solution :

Actual Value		Estimated Value	
157826		1,60,000	
32469	(+)	30,000	(+)
190295		1,90,000	

5. Estimate by rounding off each number to the nearest hundred.

(i) 8074 + 4178 **(ii) 1768977 + 130589**

Solution :

Actual Value	Estimated Value	Actual Value	Estimated Value
8074 (+)	8100 (+)	1768977 (+)	1769000 (+)
4178	4200	130589	130600
12252	12300	1899566	1899600

6. The population of a city was 43,43,645 in the year 2001 and 46,81,087 in the year 2011. Estimate the increase in population by rounding off to the nearest thousand.

Solution :

The population of city in the year 2011 – 46,81,087

The population of a city in the year 2001 – 43,43,645

Actual Value	Estimated Value
46,81,087 (–)	46,81,000 (–)
43.43,645	43,44,000
3,37,442	3,37,000

Estimated increasing population = 3,37,000 (nearest Thousand)

OBJECTIVE TYPE QUESTIONS

[Page - 28]

7. The number which on rounding off to the nearest thousand gives 11000 is

a)10345 b) 10855 c) 11799 d) 10056 **Ans : b) 10855**

Reason : 10855 nearest Thousand is 11,000

8. The estimation to the nearest hundred of 76812 is

a)77000 b) 76000 c) 76800 d) 76900 **Ans : c) 76800**

Reason : 76812 nearest hundred is 76,800

9. The number 9785764 is rounded off to the nearest lakh as

a)9800000 b) 9786000 c) 9795600 d) 9795000 **Ans : a) 9800000**

Reason : 9785764 nearest lakh is 98,00,000

10. The estimated difference of 167826 and 2765 rounded off to the nearest thousand is

a)180000 b) 165000 c) 140000 d) 155000 **Ans : b) 165000**

Reason : 167826 nearest Thousand = 1,68,000 (–)

2,765 nearest thousand = 3,000

1,65,000

Try these **[Page - 29]**

◇ **Find the value of 6 + 3 + 8 and 3 + 6 + 8**

i) Are they the same?

6 + 3 + 8 = 3 + 6 + 8
(6 + 3) + 8 = (3 + 6) + 8
9 + 8 = 9 + 8
17 = 17 **Ans : Yes**

ii) Is there any other way of rearranging these three numbers?
(8 + 3 + 6, 3 + 8 + 6, 6 + 8 + 3, 8 + 6 + 3) **Ans : Yes**

◇ **Find the value of 5 × 2 × 6 and 2 × 5 × 6**

i) Are they the same?
(5 × 2) × 6 = (2 × 5) × 6
10 × 6 = 10 × 6 ⇒ 60 = 60 **Ans : Yes**

ii) Is there any other way of rearranging these three numbers?
(5 × 6 × 2, 6 × 5 × 2, 6 × 2 × 5, 2 × 6 × 5) **Ans : Yes**

◇ **Is 7 – 5, the same as 5 – 7? Why?**

Ans : 2 ≠ – 2 not equal
No, they are different in signs positive and negative.

◇ **What is the value of (15 – 8) – 6? Is it the same as 15 – (8 – 6)? Why?**

Ans : (15 – 8) – 6 = 7 – 6 = 1 ; 15 – (8 – 6) = 15 – 2 = 13
1 ≠ 13 Both the values are not same.

◇ **What is 15 ÷ 5? Is it the same as 5 ÷ 15? Why?**

Ans : 15 ÷ 5 = 3, 5 ÷ 15 = 1 ÷ 3 not equal
$3 \neq \frac{1}{3}$ one is whole number and another one is fraction.

◇ **What is the value of (100 ÷ 10) ÷ 5? Is it the same as 100 ÷ (10 ÷ 5)? Why?**

Ans : (100 ÷ 10) ÷ 5 = 10 ÷ 5 = 2
100 ÷ (10 ÷ 5) = 100 ÷ 2 = 50
2 ≠ 50 Both the values are different priority for Bracket first.
So they make different answers.

Try these **[Page - 30]**

◇ **Use at least three different pairs of numbers to verify that subtraction is not commutative.**

(i) 8 – 2 = 6 ; 2 – 8 = – 6
8 – 2 ≠ 2 – 8
(ii) 10 – 6 = 4 ; 6 – 10 = – 4
10 – 6 ≠ 6 – 10
(iii) 9 – 2 = 7 ; 2 – 9 = – 7
9 – 2 ≠ 2 – 9 ∴ **Subtraction is not commutative**

◇ **Is 10 ÷ 5, the same as 5 ÷ 10? Justify it by taking two more combinations of numbers.**

$10 \div 5 = \frac{10}{5} = 2$; $5 \div 10 = \frac{5}{10} = \frac{1}{2} = 0.5$;

$2 \neq 0.5$

By comparing numerator and denominator if numerator is high it gives result whole number. If denominator is high it gives fraction.

Other two combinations

$15 \div 3 = \frac{15}{3} = 5$; $20 \div 2 = \frac{20}{2} = 10$;

$3 \div 15 = \frac{3}{15} = \frac{1}{5}$ $2 \div 20 = \frac{2}{20} = \frac{1}{10}$

$5 \neq \frac{1}{5} = 0.2$ $10 \neq \frac{1}{10} = 0.1$

Try these **[Page - 32]**

◇ **Complete the following tables.**

9	+	0	=	9
7	+	0	=	**7**
0	+	17	=	17
0	+	**37**	=	37
0	+	**100**	=	**100**

11	×	1	=	11
1	×	55	=	55
1	×	12	=	**12**
1	×	**100**	=	100
1	×	**27**	=	**27**

Try these **[Page No - 33]**

Complete the table.

6	+	8	=	14, a natural number
4	+	5	=	9, a natural number
4	×	5	=	20, a natural number
6	×	8	=	48, a natural number
9	**+**	**3**	**=**	**12, a natural number**
10	**+**	**5**	**=**	**15, a natural number**
2	**×**	**11**	**=**	**22, a natural number**
7	**×**	**8**	**=**	**56, a natural number**
6	+	8	=	14, a whole number
4	+	5	=	9, a whole number
15	×	0	=	0, a whole number
11	×	2	=	22, a whole number
6	**+**	**11**	**=**	**17, a whole number**
7	**+**	**9**	**=**	**16, a whole number**
6	**×**	**0**	**=**	**0, a whole number**
5	**×**	**7**	**=**	**35, a whole number**

Exercise 1.5

[Page - 34]

1. Fill in the blanks :

(i) The difference between the smallest natural number and the smallest whole numbers is _____.

Ans : 1 (smallest natural number = 1
smallest whole number = 0, 1 – 0 = 1)

(ii) 17 × _____ = 34 × 17

Ans : 34 (17 × 34 = 34 × 17) (commutativity property)

(iii) When _____ is added to a number, it remains the same.

Ans : Zero (∴ 7 + 0 = 7)

(iv) Division by _____ is not defined.

Ans : Zero (eg) (5 ÷ 0 is not defined)

(v) Multiplication by _____ leaves a number unchanged.

Ans : One (eg) (4 × 1 = 4)

2. Say True or False.

(i) 0 is the identity for multiplication of whole numbers.

Ans : False (1 is the identity for multiplication of whole numbers)

(ii) Sum of two whole numbers is always less than their product.

Ans : False (2 + 1 = 3, 2 × 1 = 2, 3 > 2)

(iii) Both addition and multiplication are associative for whole numbers.

Ans : True [2 + 3 = 3 + 2, 2 × 3 = 3 × 2, (0 + 3) + 3 = 0 + (3 + 2), (1 × 3) × 2 = 1 × (3 × 2)]

(iv) Both addition and multiplication are commutative for whole numbers.

Ans : True

(v) Multiplication is distributive over addition for whole numbers.

Ans : True [2 × (3 + 4)] = (2 × 3) + (2 × 4Z)
2 × 7 = 6 + 8 ⇒ 14 = 14]

3. Name the property being illustrated in each of the cases given below.

(i) 75 + 34 = 34 + 75

Ans : Commutativity for Addition

(ii) (12 × 4) × 8 = 12 × (4 × 8)

Ans : Associative for multiplication

(iii) 50 + 0 = 50

Ans : Zero is additive identity

(iv) 50 × 1 = 50

Ans : one is multiplicative identity

(v) 50 × 42 = 50 × 40 + 50 × 2

Ans : Distributivity of multiplication over addition

4. Use the properties of whole numbers and simplify.

(i) $50 \times 102 = 50 \times (100 + 2)$ (Distributive Property for addition)
$= 50 \times 100 + 50 \times 2$
$= 5000 + 100$
Ans : = 5100

(ii) $500 \times 689 - 500 \times 89$ (Distributive Property for subtraction)
$= 500\ (689 - 89)$
$= 500 \times (600)$
Ans : = 3,00,000

(iii) $4 \times 132 \times 25$ (Commutativity of multiplication)
$= (4 \times 25) \times 132$
$= 100 \times 132$
Ans : = 13,200

(iv) $196 + 34 + 104$ (Commutativity of Addition)
$= (196 + 104) + 34$
$= 300 + 34$
Ans : = 334

OBJECTIVE TYPE QUESTIONS

5. (53 + 49) × 0 is **[Page No - 35]**

a) 102 b) 0 c) 1 d) 53 + 49 × 0 **Ans : b) 0**

Reason : (Any number × 0 = 0]

6. $\frac{59}{1}$ **is**

a) 1 b) 0 c) $\frac{59}{1}$ d) 59 **Ans : d) 59**

Reason : (59 ÷ 1 = 59)

7. The product of a non-zero odd whole number and its successor is always

a) an even number b) an odd number
c) zero d) none of these **Ans : a) an even number**

Reason : [2 × 3 = 6, 3 × 4 = 12, 4 × 5 = 20...]

8. The whole number that does not have a predecessor is

a) 10 b) 0 c) 1 d) none of these **Ans : b) 0**

9. Which of the following expressions is not zero?

a) 0 × 0 b) 0 + 0 c) 2 / 0 d) 0 / 2

Answer : c) 2/0 (It is not defined)

Reason : [0 × 0 = 0, 0 + 0 = 0, $\frac{0}{2}$ = 0]

10. Which of the following is not true?

a) (4237 + 5498) + 3439 = 4237 + (5498 + 3439)
b) (4237 × 5498) × 3439 = 4237 × (5498 × 3439)

c) 4237 + 5498 × 3439 = (4237 + 5498) × 3439
d) 4237 × (5498 + 3439) = (4237 × 5498) + (4237 × 3439)
Answer : c) 4237 × 5498 × 3439 = (4237 + 5498) × 3439
Reason : (It is not commutative, Associative, distributive)

Exercise 1.6 **[Page - 35]**

MISCELLANEOUS PRACTICE PROBLEMS

1. Try to open my locked suitcase which has the biggest 5 digit odd number as the password comprising the digits 7, 5, 4, 3 and 8. Find the password.
Answer : 5 digits are 7, 5, 4, 3, 8
Password : biggest 5 digit number = 87543
(It is an odd number, last digit is 3)

2. As per the census of 2001, the population of four states are given below. Arrange the states in ascending and descending order of their population.
* Tamil Nadu 72147030
* Rajasthan 68548437
* Madhya Pradesh 72626809
* West Bengal 91276115

Ans : Ascending order : 6,85,48,437 < 7,21,47,030 < 7,26,26,809 < 9,12,76,115
: Rajasthan < Tamil Nadu < Madhya Pradesh < West Bengal
Descending order: 9,12,76,115 > 7,26,26,809 > 7,21,47,030 > 6,85,48,437
: West Bengal > Madhya Pradesh > Tamil Nadu > Rajasthan

3. Study the following table and answer the questions. **[Page - 36]**

Year	No. of Tigers
1990	3500
2008	1400
2011	1706
2014	2226

(i) How many tigers were there in 2011?
Ans : 1706 tigers in 2011

(ii) How many tigers were less in 2008 than in 1990?

Tigers in 1990	=	3,500
Tigers in 2008	=	1,400
difference (–)	=	2,100

(iii) Did the number of tigers increase or decrease between 2011 and 2014? If yes, by how much?

Tigers in 2014	=	2,226 (–)
Tigers in 2011	=	1,706
	=	520

520 tigers increased from 2011 to 2014

4. Mullaikodi has 25 bags of apples. In each bag there are 9 apples. She shares them equally amongst her 6 friends. How many apples do each get? Are there any apples left over?

Solution :

Number of bags	=	25
Each bay containing	=	9 apples
Total apples	=	25 × 9
	=	255
225 apples shares 6 friends	=	225 ÷ 6
Each of them gets	=	37 apples
apples left	=	3

5. A poultry has produced 15472 eggs and fits 30 eggs in a tray. How many trays do they need?

Solution :

Total eggs	=	15,472
Each tray	=	30eggs .
Tray needed	=	15472 ÷ 30
	=	515 Trays

```
       515
   30 |15472
       150
       ----
        472
        30
       ----
         172
         150
       ----
          22
```

And in one more they fill remaining 22 eggs.

So totally 516 trays needed.

CHALLENGING PROBLEMS

[Page - 36]

6. Read the table and answer the following questions.

Name of the Star	Diameter (in miles)
Sun	864730
Sirius	1556500
Canopus	25941900
Alpha Centauri	1037700
Arcturus	19888800
Vega	2594200

(i) Write the Canopus star's diameter in words, in the Indian and the International System.

Ans : Indian System

2,59,41,900 Two Crore Fifty Nine lakh Forty one thousand Nine hundred

International System :

25,941,900 Twenty Five million Nine hundred Forty one thousand Nine hundred

(ii) Write the sum of the place values of 5 in Sirius star's diameter in the Indian System.

Sirius star's diameter - 15,56,500

Place values of 5 are 5 – hundred, 5 – Ten thousand, 5 – Lakhs

5,00,000 + 50,000 + 500 = 5,50,500

The sum of place value of 5 = 5,50,500 (Five Lakh fifty thousand five hundred)

(iii) Eight hundred sixty four million seven hundred thirty. Write this in standard form of Indian System.

Ans : Indian System 8,64,730 Eight lakh sixty four thousand seven hundred thirty.

(iv) Write the diameter in words of Arcturus star in the International System.

Ans : 19,888,800 Nineteen million Eight hundred eighty eight thousand Eight hundred.

(v) Write the difference of the diameters of Canopus and Arcturus stars in the Indian and the International Systems.

Ans :

Diameter of Canopus	=	25941900
Diameter of Arcturus	=	19888800
Difference (–)	=	6053100

Indian System : 60,53,100 Sixty Lakhs fifty three thousand one hundred

International System : 6,053,100 Six million fifty three thousand one hundred.

7. Anbu asks Anjali to guess a five digit odd number. He gives the following hints.

* The digit in the 1000s place is less than 5
* The digit in the 100s place is greater than 6
* The digit in the 10s place is 8

What is Anjali's answer? Does she give more than one answer?

Solution :

T Th	T	H	T	O
8	4	7	8	1
7	3	8	8	3
6	2	9	8	5
2	1	7	8	7
3	0	8	8	9

Tens and ones are remain same. Many answers are possible

8. A Music concert is taking place in a stadium. A total of 7,689 chairs are to be put in rows of 90.

Solution :

Total number of chairs = 7,689

Total Number of rows = 90

Number of rows occupied = 7689 ÷ 90

```
      850
   ------
90 | 7689
     720
   ------
     489
     450
   ------
      39
```

(i) How many rows will there be?
85 rows are required to fill 7650 chairs

(ii) Will there be any chairs left over?
39 chairs are remaining

9. Round off the seven digit number 29,75,842 to the nearest lakhs and ten lakhs. Are they the same?

Solution :

29,75,842 round off nearest lakh = 30,00,000

29,75,842 round off ten lakh = 30,00,000

Yes, they are same.

10. Find the 5 or 6 or 7 digit numbers from a newspaper or a magazine to get a rounded number to the nearest ten thousand.

For Example :

(i) 240,928 – Uttar Pradesh – Area

Geographical area of Uttar Pradesh is 2,40,928 – 2,40,000 (Nearest Ten thousand)

(ii) 6,996,124 – Oddisa – Urban population

Urban population in Oddissa 6,996,124 – 6,997,000 (Nearest Ten Thousand)

ACTIVITIES

Activity-1

(Page - 17)

Divide a chart paper into eight equal parts. Write different 1 - digit numbers on it. List out the possible 8 digit numbers and also find the largest and the smallest numbers among them.

Largest : 98765432

Smallest : 23456789

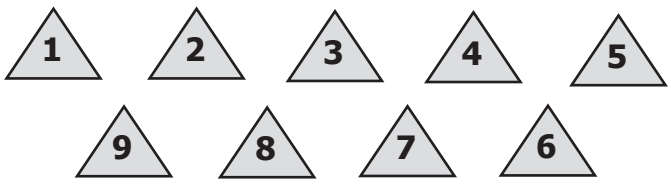
Possible 8 - digit numbers

98765432, 97865432, 97685432, 97658432, 97654832, 97654382, 97654328, 92786543, 93786542, 23456789, 87396542

Activity-2

[Page - 9]

Take a white chart and cut into 9 equal pieces. Write different numbers on each piece. Arrange the pieces, as many times, horizontally which form different numbers. Write any five different numbers and express them in the Indian and the International System.



Five different numbers :

(i) 948632671

Indian System :

94,86,32,571 – Ninety four Crore Eighty Six Lakh thirty two thousand Five hundred Seventy one.

International System :

948,632,571 – Nine hundred forty eight million Six hundred thirty two thousand Five hundred Seventy one.

(ii) 135792468

Indian System :

13,57,92,468 – Thirteen Crore Fifty seven Lakh Ninety Two thousand Four Hundred Sixty Eight.

International System :

135,792,468 – One hundred thirty five million Seven Hundred Ninety Two thousand four hundred sixty eight.

(iii) 789456321

Indian System :

78,94,56,321 – Seventy Eight Crore Ninety four Lakh fifty six thousand Three hundred twenty one.

International System :

789,456,321 – Seven hundred Eighty Nine Million four hundred fifty six thousand three hundred twenty one.

(iv) 987654312

Indian System :

98,76,54,312 – Ninety Eight Crore Seventy Six lakh fifty four thousand three hundred twelve.

International System :

987,654,312 – Nine hundred Eighty Seven Million Six hundred fifty four thousand three hundred twelve.

(v) 246875319

Indian System :

24,68,75,319 – Twenty four Crore Sixty Eight lakh Seventy five thousand three hundred Nineteen.

International System :

246,875,319 – Two hundred forty six Million Eight hundred seventy five thousand Three hundred Nineteen.

ADDITIONAL QUESTIONS

1. **Fill in the blanks.**

(i) 1 lakh = _____ tens. **Ans :** 10,000

(ii) 10 lakh = _____ million. **Ans :** 1

(iii) Smallest eight digit number = _____ **Ans :** 1,00,00,000

(iv) _____ introduced the concept of zero. **Ans :** Aryabhata

(v) Tenth place of 0001 is _____ **Ans :** 0

2. Write the greatest three digit number using 6, 3, 8, 4, 0. **Ans :** 864

3. Write the smallest three digit number using 6, 3, 8, 4, 0. **Ans :** 346

4. Which real number has not predecessor? **Ans :** 1
5. How many 1cm x 1cm squares in the rectangle graph of inside 6 cm x 8 cm?
   Ans : 6 x 8 = 48
6. A school canteen selling the meal for Rs. 20 and milk for Rs. 5. Find the total amount for one student in five days.
   Ans : Expenditure in one day = 20 + 5 = 25
   Expenditure in Five days = 5 x 25 = 125
7. Multiply: 783 x 102
   Ans : 783 x (100+3) = 783 x 100 + 783 x 3
   = 78300 + 2349 .000000000000= 80649
8. Write the factors of the number 36.
   Ans : 1, 2, 3, 4, 6, 9, 18 and 36
9. Find the answer : 636 x 125
   Ans : $636 \times \frac{1000}{8} = \frac{63600}{8} = 7956$
10. Multiply and find answer.
    Ans : (6 x 2) x 35 = 6 x (2 x 35)
    = 6 x 70 = 420

FORMATIVE ASSESSMENT
NUMBERS

Time : 10 min Marks : 10

I Fill in the blanks. **5 x 1 = 5**

1. The Largest 6 digit numbers is _____.
2. The total number of 4 digit number is _____.
3. If a person A earns ₹ 600 in 30 days, then he earns ₹ _____ in a day.
4. The nearest 100 of 59,641 is _____.
5. When _____ is added to a number, it remains the same.

II. Choose the best answer. **5 x 1 = 5**

6. Which of the following expression is not zero?
   a) 0 x 0 b) 0 + 0 c) 2 / 0 d) 0 / 2
7. 1 billion is equal to
   a) 100 crore b) 100 million c) 2 / 0 d) 0 / 2
8. The value of 24 ÷ { 8 – (3 × 2)} is
   a) 0 b) 12 c) 3 d) 4
9. The number 9785764 is rounded off to the nearest lakhs as
   a) 9800000 b) 9786000 c) 9795600 d) 9795000
10. The whole number that does not have a predecessor is
    a) 10 b) 0 c) 1 d) none of these

CHAPTER 2 INTRODUCTION TO ALGEBRA

Try these

[Page - 41]

*** Observe the following patterns and complete them.**

(i) 5, 8, 11, 14, **17, 20, 23**

5 + 3 = 8 14 + 3 = 17

8 + 3 = 11 17 + 3 = 20

11 + 3 = 14 20 + 3 = 23

(ii) If 15873 × 7 = 111111 and 15873 × 14 = 222222 then what is

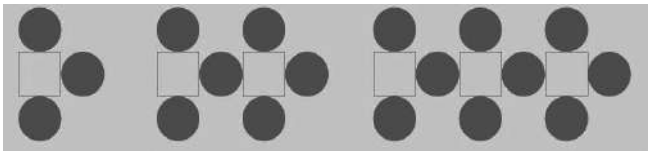
15873 × 7 = 111111 (1 × 7 × 15873)

15873 × 14 = 222222 (2 × 7 × 15873)

15873 × 21 = 333333 (3 × 7 × 15873)

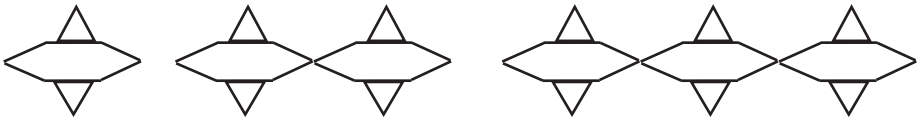
15873 × 28 = 444444 (4 × 7 × 15873)

*** Draw the next two patterns and complete the table:**



Pattern	1st	2nd	3rd	4th	5th
Squares	1	2	3	**4**	**5**
Circles	3	6	9	**12**	**15**

*** Create your own pattern of shapes and prepare a table.**



Pattern	1st	2nd	3rd	4th	5th	6th
Hexagon	1	2	3	4	5	6
Triangle	2	4	6	8	10	12

Exercise 2.1

[Page - 43]

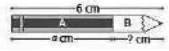
1. Fill in the blanks :

(i) The letters a, b, c, ... x, y, z are used to represent **variables**

(ii) A quantity that takes **Different** values is called a variable.

(iii) If there are 5 students in a bench, then the number of students in 'n' benches is '5 × n'. Here **n** is a variable.

2. Say True or False.

(i)  The length of part B in the pencil shown is 'a – 6'.

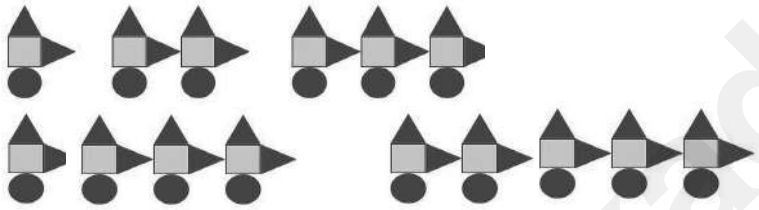
Ans : False [The length of part B in the pencil si 6 – a]

(ii) If the cost of an  is 'x' and the cost of a  is ₹ 5, then the total cost of fruits is ₹ 'x + 5'. **Ans : True**

(iii) If there are 11 players in a team, then there will be '11 + q' players in 'q' teams.

Ans : False (11 players in a team than there will be 11 × q players in 'q' teams)

3. Draw the next two patterns and complete the table. **[Page - 44]**



Shapes	1st Pattern	2nd Pattern	3rd Pattern	4th Pattern	5th Pattern
Squares	1	2	3	**4**	**5**
Circles	1	2	3	**4**	**5**
Triangles	2	4	6	**8**	**10**

4. Use a variable to write the rule, which gives the number of ice candy sticks required to make the following patterns.

(a) a pattern of letter C as 

 Let 'n' be the number of C The pattern of  is 3n (3 × n)

1st Pattern	2nd Pattern	3rd Pattern	nth Pattern	
3 × 1	3 × 2	3 × 3	3 × n	= 3n

(b) a pattern of letter M as 

 Let 'n' be the number of M The pattern of  is 4n (4 × n)

1st Pattern	2nd Pattern	3rd Pattern	nth Pattern	
4 × 1	4 × 2	4 × 3	4 × n	= 4n

5. The teacher forms groups of five students in a class. How many students will be there in 'p' groups?

No of students in a class = 5

No of groups = P

Total no of students in P groups = 5 × P

6. Arivazhagan is 30 years younger to his father. Write Arivazhagan's age in terms of his father's age.

Let 'n' be Arivazhagan's father age
Given Arivazhagan is 30 years younger to his father
Arivazhagan's Age = 'n – 30'

7. If 'u' is an even number, how would you represent.

Let 'u' is an even number

(i) the next even number?

Ans : The next even number is u + 2. for e.g u = 6; 6 + 2 = 8

(ii) the previous even number?

Ans : The previous even number is u - 2. for e.g u = 6; 6 – 2 = 4

OBJECTIVE TYPE QUESTIONS

8. Variable means that is

a) can take only a few values b) has a fixed value
c) can take different values d) can take only 8 values

Ans : c) can take different values

9. '6y' means

a) 6 + y b) 6 – y c) 6 × y d) $\frac{6}{y}$ **Ans : c) 6 × y**

10. Radha is 'x' years of age now. 4 years ago, her age was

a) x – 4 b) 4 – x c) 4 + x d) 4x **Ans : a) x – 4**

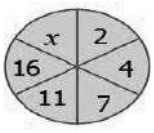
(Now Radha age = x years)

11. The number of days in 'w' weeks is

a) 30 + w b) 30w c) 7 + w d) 7w **Ans : d) 7w**

(Number of days in a week = 7; Number of days in w week = 7 × w)

12. The value of 'x' in the circle is



a) 6 b) 8 c) 21 d) 22 **Ans : d) 22**

[Pattern 2 + 2 = 4 11 + 5 = 16
4 + 3 = 7 16 + 6 = 22
7 + 4 = 11

Try these **[Page - 46]**

Sl.No	Algebraic Statement	Verbal Statement
1.	a + 5	**5 more then a**
2.	6z – 1	**Six times z is reduced by 1**
3.	12y (or) 12 × y	**Product of 12 and y**
4.	$\frac{x}{6}$	**X divided by 6**

Try these [Page - 47]

Sl.No	Verbal Statement	Algebraic Statement
1.	Seven times of 'n' minus 5	**7n – 5**
2.	The sum of 'x' and 4	**x + 4**
3.	3 times 'y' is divided by 8	**3y ÷ 8 or 3y/8**
4.	11 is multiplied by 'm'	**11m (or) 11 × m**

Try these [Page - 47]

Find the unknown.

* 37 + 43 = 43 + 37
* (22 + 10) + 15 = 22 + (10 + 15)
* If 7 × 46 = 322 then 46 × 7 = 322

Example : 2.1

Suppose that there are some eggs in a tray. If 6 eggs are taken out from it and still 10 eggs are remaining, how many eggs are there in the tray?

Let us take the unknown number of eggs in a tray = x.

x – 6 = 10

x = 10 + 6 x = 16

Try this [Page - 48]

Find the suitable value of 'm', to get a sum of 9?

M	M + 4	Result	Is it 9? Yes/No
1	**1 + 4**	5	**No**
2	2 + 4	**6**	**No**
3	**3 + 4**	7	**No**
4	4 + 4	**8**	**No**
5	**5 + 4**	**9**	**Yes**

Example : 2.2

Athiyan and Mugilan are brothers. Athiyan is 'p' years old and Mugilan is elder to Athiyan by 6 years. Write an algebraic statement for this and find the age of Mugilan if Athiyan is 20 years old.

Age of Athiyan = 'p' years

Age of Mugilan = 'p + 6' years (algebraic statement)

If p = 20, then Mugilan's age is = 20 + 6 = 26 years.

Exercise 2.2

[Page - 49]

1. Fill in the blanks :

(i) The algebraic statement of 'f' decreased by 5 is **F – 5.**

(ii) The algebraic statement of 's' divided by 5 is $\frac{s}{5}$

(iii) The verbal statement of '2m – 10' is **Two times m is reduced by 10** (or) **(10 less then 2 times m)**

(iv) If A's age is 'n' years now, 7 years ago A's age was **n – 7**

(v) If 'p – 5' gives 12 then 'p' is **P = 17** **(P – 5 = 12, P = 12 + 5, P = 17)**

2. Say True or False.

(i) 10 more to three times 'c' is '3c + 13' **Ans: False** [3c + 10]

(ii) If the cost of 10 rice bags is ₹ 't', then the cost of 1 rice bag is ₹ $\frac{'t'}{10}$. **Ans : True**

(iii) The statements 'x' divided by 3 and 3 divided by 'x' are the same. **Ans: False** [$\frac{x}{3} \neq \frac{3}{x}$]

(iv) The product of 'q' and 20 is '20q'. **Ans : True**

(v) 7 less to 7 times 'y' is '7 – 7y' **Ans : False** [7y – 7]

3. Express the following verbal statement to algebraic statement.

(i) 't' is added to 100. **Ans :** t + 100 [added – (+)]

(ii) 4 times 'q'. **Ans :** 4q [times – (×)]

(iii) 8 reduced by 'y'. **Ans :** 8 – y [reduced – (–)]

(iv) 56 added to 2 times 'x' **Ans :** 2x + 56 (or) 56 + 2x [Added – (+)]

(v) 4 less to 9 times of 'y'. **Ans :** 9y – 7 [less – (–)]

4. Express the following algebraic statement to verbal statement.

(i) x ÷ 3 **Ans :** x divided by 3

(ii) 5n – 12 **Ans :** 5 times n reduced by 12 (or) 12 less than 5 time n.

(iii) 11 + 10x **Ans :** 11 added to 10 times x.

(iv) 70s **Ans :** The product of 70 and s.

5. The teacher asked two students to write the verbal statement "8 more than a number" on the board. Vetri wrote '8 + x' but Maran wrote '8x'. Who gave the correct answer?

Ans : 8 more than a number = 8 + x. Vetris answer is correct [More than – (+)].

6. Answer the following questions.

(i) If 'n' takes the value 3 then find the value of 'n + 10'?

Ans : Given n = 3, n + 10 = 3 + 10 ⇒ 13

(ii) If 'g' is equal to 300 what is the value of 'g – 1' and 'g + 1'?

Ans : Given g = 300, g – 1 = 300 – 1 ⇒ 299

g + 1 = 300 + 1 ⇒ 301

(iii) What is the value of 's', If '2s – 6' gives 30?

Ans : Given 2s – 6 = 30, 2s = 30 + 6

2s = 36 $s = \frac{36}{2}$ s = 18

7. Complete the table and find the value of 'k' for which $\frac{'k'}{3}$ gives 5.

k	3	6	9	12	15	18
$\frac{'k'}{3}$	$\frac{3}{3}=1$	$\frac{6}{3}=2$	$\frac{9}{3}=3$	$\frac{12}{3}=4$	$\frac{\mathbf{15}}{\mathbf{3}}=5$	$\frac{18}{3}=6$

K = 15 The value of K is 15.

OBJECTIVE TYPE QUESTIONS

8. The value of 'y' in y + 7 = 13 is

a) y = 5 b) y = 6 c) y = 7 d) y = 8

Ans : b) y = 6 [y + 7 = 13, y = 13 – 7, y = 6]

9. 6 less to 'n' gives 8 is represented as

a) n – 6 = 8 b) 6 – n = 8 c) 8 – n = 6 d) n – 8 = 6

Ans : a) n – 6 = 8

10. The value of 'c' for which $\frac{3c}{4}$ gives 18 is

a) c = 15 b) c = 21 c) c = 24 d) c = 27

Ans : c) c = 24 [$\frac{3c}{4}=18$, $3c = 4 \times 18$, $c = \frac{4 \times \cancel{18}^{6}}{\cancel{3}}$; c = 24]

Exercise 2.3

[Page - 52]

1. Complete the following pattern.

9 – 1 = 8
98 – 21 = 77
987 – 321 = 666
9876 – 4321 = 5555
98765 – 54321 = 44444

What comes next?

987654 – 654321 = 333333

2. A piece of wire is '12s' cm long. What will be the length of the side, if it is formed as

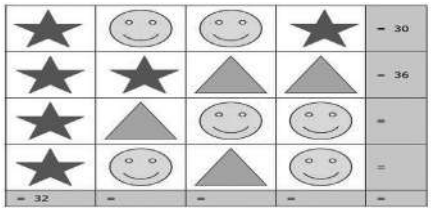
(i) an equilateral triangle.

Ans : $\frac{12s}{3}$ = 4s [An equilateral triangle has 3 equal sides]

(ii) a square?

Ans : $\frac{12s}{4}$ **= 3s** [An square has 4 equal sides]

3. Identify the value of the shapes and figures in the table given below and verify their addition horizontally and vertically.



Solution: In 1 column 4 ★ = 32

★ = $\frac{32}{4}$

The value ★ = 8

In 1 row 2 ★ + 2 ☺ = 30

2 × 8 + 2 ☺ = 30

16 + 2 ☺ = 30

2 ☺ = 30 – 16

2 ☺ = 14

☺ = $\frac{14}{2}$ = 7

The value ☺ = 7

In 2 row 2 ★ + 2 ▲ = 36

2 × 8 + 2 ▲ = 36

16 + 2 ▲ = 36

2 ▲ = 36–16

2 ▲ = 20

▲ = $\frac{20}{2}$ =10

The value ▲ = 10

★ 8	☺ 7	☺ 7	★ 8	= 30
★ 8	★ 8	▲ 10	▲ 10	= 36
★ 8	▲ 10	☺ 7	☺ 7	= 32
★ 8	☺ 7	▲ 10	☺ 7	= 32
= 32	= 32	= 34	= 32	= 130

4. The table given below shows the results or the matches played by 8 teams in a Kabaddi championship tournament. **[Page 53]**

Teams	A	B	C	D	E	F	G	H
Total Matches played	8	7	n	a	9	10	8	y
Matches won	5	6	4	7	b	6	x	3
Matches lost	k	m	6	2	3	c	4	6

Find the value of all the variables in the table given above.

Solution :

Team A	k + 5 = 8 k = 8 – 5 ⇒ k = 3	Team B	6 + m = 7 m = 7 – 6 ⇒ m = 1
Team C	4 + 6 = n ⇒ 10 = n	Team D	a = 7 + 2 ⇒ a = 9
Team E	9 = b + 3 9 – 3 = b ⇒ 6 = b	Team F	c + 6 = 10 c = 10 – 6 ⇒ c = 4
Team G	x + 4 = 8 x = 8 – 4 ⇒ x = 4	Team H	3 + 6 = y ⇒ 9 = y

CHALLENGING PROBLEMS

5. Gopal is 8 years younger to Karnan. If the sum of their ages is 30, how old is Karnan?

Solution :

Let 'x' be the karnan age. If sum of their ages = 30.

Given : Gopal is 8 years younger to karnan.

$$\text{Gopal} = x - 8$$

$$x + x - 8 = 30$$

$$2x - 8 = 30$$

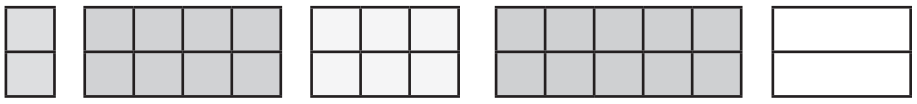
$$2x = 30 + 8$$

$$x = \frac{38}{2}$$

$$x = 19$$

Karnan age is 19 years old.

6. The rectangles made of identical square blocks with varying lengths but having only two square blocks as width are given below.



P Q R S T

(i) How many small size squares are there in each of the rectangles P, Q, R and S?

Squares in rectangle P = 2, Q = 8, R = 6, S = 10 [Just count and write the no of squares]

(ii) Fill in the boxes.

Rectangle	P	Q	R	S	T
Number of small size squares along the breadth	2	2	**2**	2	2
Number of squares along the length	1	4	3	**5**	x
Total number of squares in rectangle	**2**	8	**6**	10	**2x**

7. Find the variables from the clues given below and solve the cross-word puzzle. [Page - 54]

X 6	0		t 3	8	
0		z 2	5		p 9
v 3	6	5		k 4	9
0			u 2	4	
		a 6	0		m 1
	s 2	4	7		0

Across	Down
x + 40 gives 100	x is 1005 multiplied by 6
7 reduced from t gives 31	t ÷ 7 = 5
z is 5 added 5 times	p is the predecessor of first 3 digit number
v is the whole number zero plus number of days in a year	z is the number of weeks in a year (digits reversed)
k is 24 added to 25	k is 11 times 4
u is 2 added to two times 11 gives the number of hours in a day	u is product of 23 and 9
a is 20 more to 40	a is 4 added to the product of 12 and 5
s minus 1 gives 246 is the number of letters in Tamil language	m is the successor of 9

	Across		Down
(i)	x + 40 givens 100 x + 40 = 100 x = 100 – 40 $\Rightarrow$ 60	(i)	x is 1005 multiplied by 6 x = 1005 × 6 x = 6030
(ii)	7 reduced from t gives 31 t – 7 = 31 t = 31 + 7 $\Rightarrow$ t = 38	(ii)	t ÷ 7 = 5 $\frac{t}{7}$ = 5 t = 5 × 7 $\Rightarrow$ t = 35
(iii)	z is 5 added 5 times z = 5 + 5 + 5 + 5 + 5 z = 25	(iii)	p is the predecessor of first 3 digit number p = 100 – 1 p = 99

(iv)	v is the whole number zero plus number of days in a year v = 0 + 365 v = 365	(iv)	z is the number of weeks in a year (digits reversed) z = 52 z = 25 (digits reversed)
(v)	k is 24 added to 25 k = 24 + 25 $\Rightarrow$ k = 49	(v)	k is 11 times 4 k = 11 × 4 $\Rightarrow$ k = 44
(vi)	u is 2 added to two times 11 gives the number of hours in a day u = 2 + 2 × 11 u = 2 + 22 $\Rightarrow$ u = 24	(vi)	u is product of 23 and 9 u = 23 × 9 u = 207
(vii)	a is 20 more 40 a = 20 + 40 a = 60	(vii)	a is 4 added to the product of 12 and 5 a = 4 + 12 × 5 = 4 + 60 $\Rightarrow$ a = 64
(viii)	s minus 1 gives 246 is the number of letters in Tamil language s – 1 = 246 s = 246 + 1 $\Rightarrow$ s = 247	(viii)	m is the successor of 9 m = 9 + 1 m = 10

ADDITIONAL QUESTIONS

Answer the following questions:

1. Give the algebra term of match sticks pattern to form the alphabet `w'. **Ans :** 4n, n ∈ N
2. Give the Algebra term of match sticks pattern to form the Tamil Alphabet`ம'.**Ans :** 5n, n ∈ N
3. Give the Algebra term of match sticks pattern to form the Tamil Alphabet`ய'.**Ans :** 5n, n ∈ N
4. What is the degree of a constant? **Ans :** 0
5. Five fourth of a number is added to half of that number. What is the sum?
   Ans : $\frac{5x}{4}+\frac{x}{2}=\frac{5x+2x}{4}=\frac{7x}{2}$
6. Mathematics statement of the number $\frac{n(n+1)}{2}$.
   Ans : Half of the multiplication of two consecutive numbers.
7. Explain the Algebraic term of square of the Half of the multiplication of the two consecutive numbers. **Ans :** $\left(\frac{n(n+1)}{2}\right)^2$
8. The addition of a number and its reciprocal is $4\frac{1}{4}$. What is that number?
   Ans : $x+\frac{1}{x}=x\frac{1}{x}=4\frac{1}{4}\Rightarrow x=4$
9. Now, the father's age is $3\frac{1}{2}$ times of son's age. Explain in Algebraic term.
   Ans : Let son's age is x. Therefore father's age is $3\frac{1}{2}\ X$.
10. In a office, the age difference of two worker's is 10, then after ten years, find the age difference of them.
    Ans : x-y=10. Always the difference of age is 10

*****

FORMATIVE ASSESSMENT
INTRODUCTION TO ALGEBRA

Time : 10 Minutes Marks : 10

I Say True or False. **5 x 1 = 5**

1. If there are 11 players in a team, then there will be '11+q' players in 'q' teams.
2. 7 less to 7 times 'y' is '7 – 7y'
3. If the cost of an apple is 'x' and the cost of a banana is ₹5, then total cost of fruits is ₹ 'x + 5'.
4. If the cost of 20 rice bays is ₹ 't', then the cost of 1 rice bag is ₹ 't/20'
5. If 'p – 5' gives 12 then 'p' is 17.

II. Choose the best answer. **5 x 1 = 5**

6. '6y' means
   a) 6 + y b) 6 – y c) 6 x y d) 6/y
7. The number of days is 'w' weeks is
   a) 30 + w b) 30 w c) 7 + w d) 7w
8. Radha is 'x' years of age now. 5 years ago, her age was
   a) x – 5 b) 5 – x c) 5 + x d) 5x
9. The value of 'y' in 'y + 6' = 13 is
   a) y = 7 b) y = 6 c) y = – 6 d) y = – 7
10. 5 less to 't' gives 8 is represented as
    a) t – 5 = 8 b) 5 – t = 8 c) 8 – t = 5 d) t – 8 = 5

*****

CHAPTER 3 RATIO AND PROPORTION

Recap

(Page 55)

1. Which of the following fractions is not a proper fraction?

a) $\frac{1}{3}$ b) $\frac{2}{3}$ c) $\frac{5}{10}$ d) $\frac{10}{5}$

Ans : d) $\frac{10}{5}$ [Numerator > Denominator] so it is not a proper fraction.

2. The equivalent fraction of $\frac{1}{7}$ is _____.

a) $\frac{2}{15}$ b) $\frac{1}{49}$ c) $\frac{7}{49}$ d) $\frac{100}{7}$

Ans : c) $\frac{7}{49}$

$\frac{1}{7}\times\frac{7}{7}=\frac{7}{49}$ Equivalent fraction means multiply both numerator and denominator by same number.

3. Write >, < or = in the box.

i) $\frac{5}{8}$ ☐ $\frac{1}{10}$ ii) $\frac{9}{12}$ ☐ $\frac{3}{4}$

i) **Solution:**

LCM of 8 and 10 is 40

$\frac{5}{8}\times\frac{5}{5}=\frac{25}{40}; \frac{1}{10}\times\frac{4}{4}=\frac{4}{40} \Rightarrow \frac{5}{8}(\div 3)=\frac{3}{4}$

Ans : i) $\frac{5}{8}$ [>] $\frac{1}{10}$

ii) **Solution:**

$\frac{25}{40}\boxed{>}\frac{4}{40} \Rightarrow \frac{3}{4}\boxed{=}\frac{3}{4}$

Ans : $\frac{9}{12}$ [=] $\frac{3}{4}$

4. Arrange these fractions from the least to the greatest : $\frac{1}{2}, \frac{1}{4}, \frac{6}{8}, \frac{1}{8}$

The LCM of 2, 4, 8 is 8.

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

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

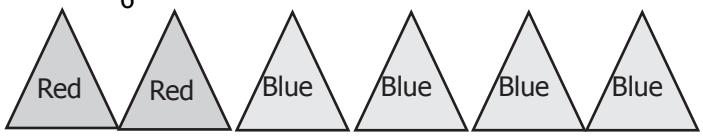
$\frac{6}{8}\times\frac{1}{1}=\frac{6}{8}$

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

Least to greatest is ascending order: $\frac{1}{8}, \frac{2}{8}, \frac{4}{8}, \frac{6}{8}$

ie) $\frac{6}{8}<\frac{1}{4}<\frac{1}{2}<\frac{6}{8}$

5. Anban says that $\frac{2}{6}$ th of the group of triangles given below are blue. Is he correct?



Ans : $\frac{4}{6}$ Anban said incorrect fraction.

6. Joseph has a flower garden. Draw a picture which shows that $\frac{2}{10}$ th of the flowers are red and the rest of them are yellow.

Here R – Red, Y – Yellow

7. Malarkodi has 10 oranges. If she ate 4 oranges, what fraction of oranges was not eaten by her?

Ans : not eaten oranges = 10 – 4 = 6

Total	=	10
eat	=	4 (–)
Remaining	=	6

Fraction of Oranges was not eaten by Malarkodi as $\frac{6}{10}$

8. After sowing seeds on day one, Muthu observes the growth of two plants and records it. In 10 days, if the first plant grew $\frac{1}{4}$ th of an inch and the second plant grew $\frac{3}{8}$ th of an inch, then which plant grew more?

Ans : $\frac{1}{4} \square \frac{3}{8}$ LCM of 4 and 8 is 8

$\frac{1}{4} \times \frac{2}{2} = \frac{2}{8} \Rightarrow \frac{3}{8} \times \frac{1}{1} = \frac{3}{8} \Rightarrow \frac{8}{8} \boxed{<} \frac{3}{8}$

second plant grew more.

Try these

[Page - 57]

1. Write the ratio of red tiles to blue tiles and yellow tiles to red tiles.

Ans : Red to blue tiles = 3 : 2

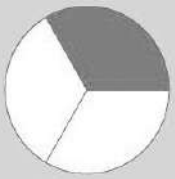
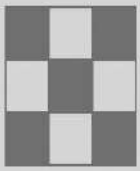
Yellow tiles to red tiles = 2 : 3

2. Write the ratio of blue tiles to that of red tiles and red tiles to that of total tiles.

Ans : Ratio of blue tiles to red tiles = 5 : 3

Ratio of red tiles to total tiles = 3 : 8

3. Write the ratio of shaded portion to the unshaded portions in the following shapes.

	
Ratio **Ans :** Shaded : Unshaded 1 : 2	Ratio Shaded : Unshaded 5 : 4

Try these **[Page - 58]**

If the given Quantity is in the same unit, put ✓ otherwise put × in the table below.

Sl.No	Quantity	Put ✓ or ×
1.	5 cm and 100 cm	✓
2.	₹ 5 and 50 oranges	×
3.	2 m and 75 ml	×
4.	7 km and 700 m	×
5.	3 kg of potatoes and 2 kg of onions	✓
6.	10 cm and 32 pencils	×

Example 3.1 **[Page - 59]**

Simplify the ratio 20 : 5 $= \frac{20}{5}$

$$= \frac{4 \times \cancel{5}}{1 \times \cancel{5}} = \frac{4}{1} = 4 : 1.$$

Example 3.2

Find the ratio of 500g to 250g.

$$= \frac{50\cancel{0}}{25\cancel{0}} = \frac{50}{25} = \frac{10 \times \cancel{5}}{5 \times \cancel{5}} = \frac{2 \times \cancel{5}}{1 \times \cancel{5}}$$

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

Example 3.3

Madhavi and Anbu bought two tables for ₹ 750 and ₹ 900 respectively. What is the ratio of the prices of tables bought by Anbu and Madhavi?

The ratio of the price, of tables bought by Anbu and Madhavi

$$900 : 750 = \frac{90\cancel{0}}{75\cancel{0}} = \frac{90}{75} = \frac{6 \times \cancel{15}}{5 \times \cancel{15}} = \frac{6}{5} = 6 : 5$$

This is the ratio in the simplest form.

Example 3.4

What is the ratio of 40 minutes to 1 hour?

1 hour = 60 minutes $= 40 : 60$

$= \frac{40}{60} = \frac{4}{6} = \frac{2 \times 2}{3 \times 2} = \frac{2}{3} = 2 : 3$

Try these **[Page - 60]**

Write the ratios in the simplest form and fill in the table.

Sl. No	Quantity	Ratio Form	Fraction Form	Dividing by a common number	Simplest form of Ratio
1	Ratio of 15 girls to 10 boys	15 : 10	$\frac{15}{10}$	$\frac{15}{10} \div \frac{5}{5} = \frac{3}{2}$	3 : 2
2	Ratio of 1m 25 cm to 2m	125 : 200 (1m = 100cm)	$\frac{125}{200}$	$\frac{125}{200} \div \frac{25}{25} = \frac{5}{8}$	5 : 8
3	Ratio of 3 Kg to 750 g	3000 : 750 (1Kg = 1000g)	$\frac{3000}{750}$	$\frac{3000}{750} \div \frac{75}{75} = \frac{4}{1}$	4 : 1
4	Ratio of 70 minutes to 30 minutes	70 : 30	$\frac{70}{30}$	$\frac{70}{30} \div \frac{10}{10} = \frac{7}{3}$	7 : 3

Exercise 3.1

1. Fill in the blanks : **[Page - 62]**

(i) Ratio of ₹ 3 to ₹ 5 = **3 : 5.**

(ii) Ratio of 3m to 200cm = **3 : 2**

[1m = 100 cm

3m = 3 × 100

= 300 cm

$300 : 200 \rightarrow \frac{300}{200} \div \frac{100}{100} = \frac{3}{2}$

= 3 : 2]

(iii) Ratio of 5 km 400 m to 6 km = **9 : 10**

[1 km = 1000 m

5000 + 400 = 5400m

6 km = 6000 m

5400 : 6000

$\frac{5400}{6000} \div \frac{6}{6} = \frac{9}{10}$]

(iv) Ratio of 75 paise to ₹ 2 = **3 : 8**

[1 Rupee = 100 paise

2 Rupee = 2 × 100 = 200paise

75 : 200

$\frac{75 \div 5}{200 \div 5} = \frac{15}{40}$; $\frac{15}{40} \div \frac{5}{5} = \frac{3}{8}$]

2. Say whether the following statements are True or False.

(i) The ratio of 130 cm to 1 m is 13 : 10.

Ans : True [∵ 1m = 100 cm; 130 : 100 (÷ 10) 13 : 10]

(ii) One of the terms in a ratio cannot be 1.

Ans : False [eg 5 : 15 ; 1 : 3]

3. Find the simplified form of the following ratios.

(i) 15 : 20

Ans : $15 : 20 = \frac{15 \div 5}{20 \div 5} = \frac{3}{4}$

The simplest form = 3 : 4

(ii) 32 : 24

Ans : $32 : 24 = \frac{32 \div 8}{24 \div 8} = \frac{4}{3}$

The simplest form = 4 : 3

(iii) 7 : 15

Ans : $7 : 15 = \frac{7}{15} = 7:15$ (7 is a prime number)

The simplest form = 7 : 15

(iv) 12 : 27

Ans : $12 : 27 = \frac{12 \div 3}{27 \div 3} = \frac{4}{9}$

The simplest form = 4 : 9

(v) 75 : 100

Ans : $75 : 100 = \frac{75 \div 25}{100 \div 25} = \frac{3}{4}$

The simplest form = 3 : 4

4. Akilan walks 10 km in an hour while Selvi walks 6 km in an hour. Find the simplest ratio of the distance covered by Akilan to that of Selvi.

Ans : The ratio of the distance covered by Akilan to selvi = 10km : 6km

$$10 : 6 = \frac{10 \div 2}{6 \div 2} = \frac{5}{3}$$

The simplest ratio of the distance covered by Akilan to that of selvi is = 5 : 3

5. The cost of parking a bicycle is ₹ 5 and the cost of parking a scooter is ₹ 15. Find the simplest ratio of the parking cost of a bicycle to that of a scooter.

Ans : Bicycle : Scooter

5 : 15

$5 : 15 = \frac{5 \div 5}{15 \div 5} = \frac{1}{3}$

The simplest ratio of the Parking cost of bicyle to that of a scooter is 1 : 3

6. Out of 50 students in a class, 30 are boys. Find the ratio of

Total students = 50

Number of boys = 30

Number of girls = 50 – 30 = 20

(i) number of boys to the number of girls.

ratio of number of boys to the number of girls

30 : 20 (÷ 10)

3 : 2

(ii) number of girls to the total number of students.

ratio of number of girls to total number of students

20 : 50 (÷ 10)

2 : 5

(iii) number of boys to the total number of students.

ratio of number of boys to the total number of students

30 : 50 (÷ 10)

3 : 5

OBJECTIVE TYPE QUESTIONS

7. The ratio of ₹ 1 to 20 paise is _____.

a) 1 : 5 b) 1 : 2 c) 2 : 1 d) 5 : 1

Ans : d) 5 : 1

[1 Rupee = 100 paise
100 : 20 (÷ 10)
10 ÷ 2 (÷ 2)
5 : 1]

8. The ratio of 1m to 50 cm is _____.

a) 1 : 50 b) 50 : 1 c) 2 : 1 d) 1 : 2

Ans : c) 2 : 1

[1m = 100 cm
100 : 50 (÷ 50)
2 : 1]

9. The length and breadth of a window are in 1m and 70cm respectively. The ratio of the length to the breadth is _____. **[Page - 63]**

a) 1 : 7 b) 7 : 1 c) 7 : 10 d) 10 : 7

Ans : d) 10 : 7

[1m = 100cm
100 : 70 (÷ 10)
10 : 7]

10. The ratio of the number of sides of a triangle to the number of sides of a rectangle is a) 4 : 3 b) 3 : 4 c) 3 : 5 d) 3 : 2

Ans : b) 3 : 4

[Number of sides of a triangle = 3
number of sides of a rectangle = 4]

11. If Azhagan is 50 years old and his son is 10 years old then the simplest ratio between the age of Azhagan to his son is a) 10 : 50 b) 50 : 10 c) 5 : 1 d) 1 : 5

Ans : c) 5 : 1

[50 : 10 (÷ 10)
5 : 1]

Try thes

[Page - 64]

1. For the given ratios, find two equivalent ratios and complete the table.

S.No	Ratio	Fraction Form	Equivalent ratio
(i)	1 : 3	$\frac{1}{3}$	$\frac{1}{3}\times\frac{2}{2}=\frac{2}{6}=2:6$ and $\frac{1}{3}\times\frac{3}{3}=\frac{3}{9}=3:9$
(ii)	3 : 7	$\frac{3}{7}$	$\frac{3}{7}\times\frac{2}{2}=\frac{6}{14}=6:14$ and $\frac{3}{7}\times\frac{3}{3}=\frac{9}{21}=9:21$
(iii)	5 : 8	$\frac{5}{8}$	$\frac{5}{8}\times\frac{2}{2}=\frac{10}{16}=10:16$ and $\frac{5}{8}\times\frac{3}{3}=\frac{15}{24}=15:24$

2. Write three equivalent ratios and fill in the boxes.

S.No	Ratio	Equivalent Ratios		
(i)	4 : 5	8 : $\boxed{10}$ (× 2)	$\boxed{40}$: 50 (× 10)	12 : $\boxed{15}$ (× 3)
(ii)	7 : 2	$\boxed{35}$: 10 (× 5)	14 : $\boxed{4}$ (× 2)	49 : $\boxed{14}$ (× 7)
(iii)	8 : 5	32 : $\boxed{20}$ (× 4)	$\boxed{80}$: 50 (× 10)	4 : $\boxed{10}$ (× 2)

3. For the given ratios, find their simplest form and complete the table.

S.No	Ratio	Fraction Form	Simplest Form
(i)	5 : 60	$\frac{5}{60}$	$\frac{5\div5}{60\div5}=\frac{1}{12}=1:12$
(ii)	4000 : 6000	$\frac{4000}{6000}$	$\frac{4000\div1000}{6000\div1000}=\frac{4}{16}$ (÷ 2) = 2 : 3
(iii)	1100 : 5500	$\frac{1100}{5500}$	$\frac{1100\div100}{5500\div100}=\frac{11}{55}$ (÷ 11) = 1 : 5

Example 3.5

Kumaran has ₹ 600 and wants to divide it between Vimala and Yazhini in the ratio 2 : 3. Who will get more and how much?

Total Amount = ₹ 600

Total Amount is divided vimala and yazhini in the ratio = 2 : 3

Total parts = 2 + 3 = 5 parts

Amount in each part = $\frac{600}{5}$

= ₹ 120

∴ Vimala gets = ₹ 120 × 2

= ₹ 240

Yazhini gets = ₹ 120 × 3

= ₹ 360

Yazhini gets ₹ 120 more than that a Vimala.

Exercise 3.2

[Page - 66]

1. Fill in the blanks of the given equivalent ratios.

(i) 3 : 5 = 9 : 15 (multiply by 3)

(ii) 4 : 5 = 8 : 10 (multiply by 2)

(iii) 6 : 12 = 1 : 2 (multiply by 6)

2. Complete the table.

(i)

Feet	1 (× 12)	2 (× 12)	3 (× 12)	(6)
Inch	12	24	(36)	72

[3×12=36, 6×12=72]

(ii)

Days	28 (÷ 7)	21 (÷ 7)	(14)	63 (÷ 7)	7 × 2 = 14
Weeks	4	3	2 (× 7)	(9)	7 × 9 = 63

3. Say True or False.

(i) 5 : 7 is equivalent to 21 : 15

Ans : False correct Answer is 15 : 21

(ii) If 40 is divided in the ratio 3 : 2, then the larger part is 24.

Ans : True [∴ Total parts 3 + 2 = 5; $\frac{40}{5}$ = 8; 3 × 8 = 24; 2 × 8 = 16]

4. Give two equivalent ratios for each of the following.

(i) 3 : 2 = $\frac{3}{2}$ equivalent ratio's are

Solution : $\frac{3}{2} \times \frac{2}{2} = \frac{6}{4}$ = 6 : 4

$\frac{3}{2} \times \frac{5}{5} = \frac{15}{10}$ = 15 : 10

∴ The two equivalent ratio's are 6 : 4 and 15 : 10

(ii) 1 : 6 = $\frac{1}{6}$

Solution : $\frac{1}{6} \times \frac{2}{2} = \frac{2}{12}$ = 2 : 12

$\frac{1}{6} \times \frac{3}{3} = \frac{3}{18}$ = 3 : 18

∴ The two equivalent raito's are 2:12 and 3:18

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

Solution : $\frac{5}{4} \times \frac{2}{2} = \frac{10}{8}$, $\frac{5}{4} \times \frac{3}{3} = \frac{15}{12}$

∴ The two equivalent ratio's are 10 : 8 and 15 : 12.

5. Which of the two ratios is larger?

(i) 4 : 5 (or) 8 : 15

Solution : $4 : 5 = \frac{4}{5}$

$8 : 15 = \frac{8}{15}$

$\frac{4}{5} \square \frac{8}{15}$

LCM of 5 and 15 is 15

$\frac{4}{5} \times \frac{3}{3} = \frac{12}{15}$, $\frac{8}{15} \times \frac{1}{1} = \frac{8}{15}$

$\frac{12}{15} > \frac{8}{15}$

4 : 5 is larger than 8 : 15

(ii) 3 : 4 (or) 7 : 8

Solution : $3 : 4 = \frac{3}{4}$ $\quad 7 : 8 = \frac{7}{8}$

LCM of 4 and 8 is 8

$\frac{3}{4} \times \frac{2}{2} = \frac{6}{8}$ $\quad \frac{7}{8} \times \frac{1}{1} = \frac{7}{8}$

$\frac{6}{8} \boxed{<} \frac{7}{8}$

$\frac{7}{8}$ is larger than $\frac{3}{4}$

7 : 8 is larger than 3 : 4

(iii) 1 : 2 (or) 2 : 1

Solution :

$1 : 2 = \frac{1}{2}$; $\quad 2 : 1 = \frac{2}{1}$

$\frac{1}{2} \square \frac{2}{1}$ LCM of 1 and 2 is 2

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

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

$\frac{1}{2} < \frac{4}{2}$ $\quad 1 : 2 < 2 : 1$

$\therefore$ 2 : 1 is larger than 1 : 2

6. Divide the numbers given below in the required ratio.

(i) 20 in the ratio 3 : 2

Total = 20

Total parts = 3 + 2 = 5

3 parts $20 \times \frac{3}{5} = \frac{\cancel{20}^{4} \times 3}{\cancel{5}_{1}} = 12$

2 parts $20 \times \frac{2}{5} = \frac{\cancel{20}^{4} \times 2}{\cancel{5}_{1}} = 8$

12 : 8 is the ratio of 20.

(ii) 27 in the ratio 4 : 5

Solution :

Total parts $= 4 + 5 = 9$

4 parts $= \frac{4}{9} \times 27$

$= \frac{4 \times \cancel{27}^{3}}{\cancel{9}} = 12$

5 parts $= \frac{5}{\cancel{9}} \times \cancel{27}^{3} = 15$

12 : 15 is th ratio of 27.

(iii) 40 in the ratio 6 : 14

Solution :

Total parts $= 14 + 6 = 20$

6 parts $= \frac{60}{20} \times 40$

$= \frac{60}{\cancel{20}} \times \cancel{40}^{2} = 12$

14 parts $= \frac{14 \times 40}{20}$

$= \frac{14 \times \cancel{40}^{2}}{\cancel{20}} = 28$

$\therefore$ 12 : 28 is th ratio of 40 [check : 12 + 28 = 40]

7. In a family, the amount spent in a month for buying provisions and Vegetables are in the ratio 3 : 2. If the allotted amount is ₹ 4000, then what will be the amount spent for

(i) Provisions and (ii) Vegetables?

Solution :

Total alloted amount = ₹ 4000

The ratio of provisions and vegetables = 3 : 2

Total parts $= 3 + 2 = 5$

3 parts $= \frac{3}{5} \times 4000$

$= \frac{3}{\cancel{5}} \times \cancel{4000}^{800} = 2400$

2 parts $= \frac{2}{5} \times 4000$

$= \frac{2}{\cancel{5}} \times \cancel{4000}^{800} = 1600$

(i) Provisions amount = ₹ 2400

(ii) Vegetables amount = ₹ 1600

8. A line segment 63 cm long is to be divided into two parts in the ratio 3 : 4. Find the length of each part.

Solution :

Length of line segment = 63 cm
Ratio of lengths = 3 : 4
Total parts = 3 + 4 = 7

3 parts $= \frac{3}{7} \times 63$

$= \frac{3}{\cancel{7}} \times \cancel{63}^{9} = 27\text{cm}$

4 parts $= \frac{4}{7} \times 63$

$= \frac{4 \times \cancel{63}^{9}}{\cancel{7}} = 36\text{cm}$

∴ First part is 27 cm and second part is 36 cm.

OBJECTIVE TYPE QUESTIONS

9. If 2 : 3 and 4 : _____ are equivalent ratios, then the missing term is

a) 6 b) 2 c) 4 d) 3

Ans : a) 6 [2 : 3 = 4 : $\square$ $\frac{2 \times 2}{3 \times 2} = \frac{4}{\boxed{6}}$]

10. An equivalent ratio of 4 : 7 is

a) 1 : 3 b) 8 : 15 c) 14 : 8 d) 12 : 21

Ans : d) 12 : 21 [4 : 7 = $\frac{4 \times 3}{7 \times 3} = \frac{12}{21}$ = 12 : 21]

11. Which is not an equivalent ratio of $\frac{16}{24}$?

a) $\frac{6}{9}$ b) $\frac{12}{18}$ c) $\frac{10}{15}$ d) $\frac{20}{28}$

Ans : d) $\frac{20}{28}$ $\frac{16}{24}(+8) = \frac{2}{3}$

$\frac{12}{18}(\div 6) = \frac{2}{3}; \frac{12}{10}(\div 5) = \frac{2}{3}; \frac{6}{9}(\div 3) = \frac{2}{3}$

$\frac{20}{28}(\div 2) = \frac{10}{14}(\div 2) = \frac{5}{7}; \frac{5}{7} \neq \frac{2}{3}$

12. If ₹ 1600 is divided among A and B in the ratio 3 : 5 then, B's share is

a) ₹ 480 b) ₹ 800 c) ₹ 1000 d) ₹ 200

Ans : c) ₹ 1,000 [Total parts = 3 + 5 = 8

B' share = $\frac{5}{\cancel{8}} \times \cancel{1000}^{200}$ = 5 × 200 = ₹ 1000]

Example 3.6 **[Page 69]**

Proportionality law :-

If two ratios are in proportion

a : b : : c : d

X X

then the product of the extremes is equal to the product of the means

$a \times d = b \times c$

3 : 2 and 30 : 20

X X

3×20 and 2×30

$60 = 60$

Hence 3 : 2 and 30 : 20 are in proportion.

Example 3.7

The given pictures are in the ratio

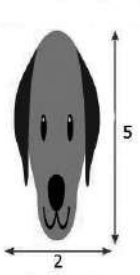
2 : 5 and 4 : 3

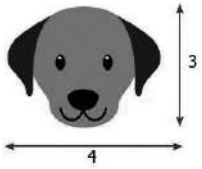
X X

2×3 and 5×4

$6 \neq 20$

Hence 2 : 5 and 4 : 3 are not in proportion





Try these **[Page - 70]**

1. **Fill the box by using cross product rule of two ratios** $\frac{1}{8} = \frac{5}{\square}$

$\frac{1}{8} = \frac{5}{\boxed{40}}$ $1 \times 5 = 5$

$8 \times 5 = 40$

2. **Use the digits 1 to 9 only once and write as many ratios that are in proportion as possible. (For example :** $\frac{2}{4} = \frac{3}{6}$ **)**

$\frac{8}{5} = \frac{8}{5}$ (× 1) $\frac{3}{8} = \frac{6}{16}$ (× 2) $\frac{4}{9} = \frac{12}{27}$ (× 3)

$\frac{3}{9} = \frac{12}{36}$ (× 4) $\frac{4}{6} = \frac{20}{30}$ (× 5) $\frac{2}{5} = \frac{12}{30}$ (× 6)

$\frac{1}{6} = \frac{7}{42}$ (× 7) $\frac{1}{7} = \frac{7}{49}$ (× 7) $\frac{5}{3} = \frac{40}{24}$ (× 8) $\frac{2}{7} = \frac{18}{63}$ (× 9)

Exercise 3.3

[Page 70]

1. Fill in the blanks :

(i) 3 : 5 : : ☐ : 20

Solution : $3 \times 20 = x : 20$

$5 \times x = 3 \times 20$

$x = \frac{3 \times \cancel{20}^{4}}{\cancel{5}}$

$x = 3 \times 4$

$x = 12$

(ii) ☐ : 24 : : 3 : 8

Solution : $x : 24 : : 3 : 8$

$8 \times x = 24 \times 3$

$x = \frac{\cancel{24}^{3} \times 3}{\cancel{8}}$

$x = 9$

(iii) 5 : ☐ : : 10 : 8 : : 15 : ☐

Solution : $5 : x : : 10 : 8$

$x \times 10 = 8 \times 5$

$x = \frac{\cancel{8}^{4} \times 5}{\cancel{10}\ \cancel{2}}$

$x = 4$

$10 : 8 : : 15 : y$

$y \times 10 = 15 \times 8$

$y = \frac{\cancel{15}^{3} \times \cancel{8}^{4}}{\cancel{10}\ \cancel{2}}$

$y = 12$

(iv) 12 : ☐ = ☐ : 4 = 8 : 16

Solution : $12 : x : : 8 : 16$

$8 \times x = 16 \times 12$

$x = \frac{\cancel{16}^{2} \times 12}{\cancel{8}}$

$x = 24$

$y : 4 : : 8 : 16$

$16 \times y = 8 \times 4$

$y = \frac{\cancel{8}^{2} \times 4}{\cancel{16}\ \cancel{4}}$

$y = 2$

2. Say True or False.

(i) 2 : 7 : : 14 : 4

Solution : $2 : 7 : : 14 : 4$

$2 \times 4 = 7 \times 14$

$8 \neq 98$

Ans : False

(ii) 7 persons is to 49 persons as 11 kg is to 88 kg

Solution : 7 : 49 :: 11 : 88

$7 \times 88 = 49 \times 11$

$616 \neq 539$

49x11=49x(10+1)

490+

49

539

Ans : False

(iii) 10 books is to 15 books as 3 books is to 15 books.

Solution : 10 : 15 : : 3 : 15

$10 \times 15 = 15 \times 3$

$150 \neq 45$

Ans : False

3. Using the numbers 3, 9, 4, 12 write two ratios that are in proportion.

(i) 3 : 9 : : 4 : 12

Solution : 3 : 9 : : 4 : 12

$3 \times 12 = 9 \times 4$

$36 = 36$

The given numbers are in proportion.

4. Find whether 12, 24, 18, 36 in that order can be expressed as two ratios that are in proportion.

(i) 12 : 24 : : 18 : 36

Solution : 12 : 24 : : 18 : 36

$12 \times 36 = 24 \times 18$

$432 = 432$

12 : 24 : : 18 : 36 are in proportion

36 × (10 + 2) | 18 × (20 + 4)

360+ 72 = 432 | 360+ 72 = 432

5. Write the mean and extreme terms in the following ratios and check whether they are in proportion.

(i) 78 litres is to 130 litres and 12 bottles is to 20 bottles

Solution : 78 : 130 : : 12 : 20

Mean : 130 : : 12

Extreme : 78 : : 20

$78 \times 20 = 130 \times 12$

$1560 = 1560$

They are in proportion.

130 × (10 + 2)

1300+ 260 = 1560

(ii) 400 gm is to 50 gm and 25 rupees is to 625 ruppes

Solution : 400 : 50 : :20 : 625

$400 \times 625 = 50 \times 20$

$2500 \neq 1000$

Mean : 50, 20

Extremes : 400, 625

They are not in proportion.

$625 \times 4 = 2500$

6. The America's famous Golden Gate bridge is 6480 ft long with 756 ft tall towers. A model of this bridge exhibited in a fair is 60 ft long with 7 ft tall towers. Is the model in proportion to the original bridge?

Given : Golden Gate bridge — Model bridge

long : 6480 ft — long : 60 ft

tall : 756 ft. — tall : 7 ft

Proportion :

6480 : 756 : : 60 : 7

$756 \times 60 = 6480 \times 7$

$45360 = 45360$

Yes, the model is in proportion to the original bridge.

OBJECTIVE TYPE QUESTIONS

7. Which of the following ratios are in proportion?

a) 3 : 5, 6 : 11 b) 2 : 3, 9 : 6 c) 2 : 5, 10 : 25 d) 3 : 1, 1 : 3

Ans : c) 2 : 5, 10 : 25

a) 3 : 5 : : 6 : 11

$3 \times 11 = 5 \times 6$

$33 \neq 30$

2 : 5 : : 10 : 25

$2 \times 25 = 5 \times 10$

$50 = 50$

b) 2 : 3 : : 9 : 6

$2 \times 6 = 3 \times 9$

$12 \neq 27$

d) 3 : 1 : : 1 : 3

$3 \times 3 = 1 \times 1$

$9 \neq 1$

8. If the ratios formed using the numbers 2, 5, x, 20 in the same order are in proportion, then 'x' is

a) 50 b) 4 c) 10 d) 8

Ans : d) 8

2 : 5 : : x : 20

$5 \times x = 2 \times 20$

$x = \frac{2 \times 20^{4}}{5}$

$x = 8$

9. If 7 : 5 is in proportion to x : 25, then 'x' is

a) 27 b) 49 c) 35 d) 14

Ans : c) 35

$$7 : 5 :: x : 25$$

$$5 \times x = 7 \times 25$$

$$x = \frac{7 \times 25^{5}}{\cancel{5}}$$

$$x = 35$$

Example 3.8 **[Page - 71]**

Pari wants to buy 5 tennis balls from a sports shop. If a dozen balls cost ₹ 180, how much should Pari pay to buy 5 balls?

cost of a dozen balls cost = ₹ 180

cost of 1 ball = $₹ \frac{180}{12}$

= ₹ 15

cost of 5 balls = ₹ 15 × 5

= ₹ 75

Hence pari has to pay ₹ 75 for 5 balls.

Example 3.9 **[Page - 72]**

A heater uses 3 units of electricity in 40 minutes. How many units does it consume in 2 hours?

In 40 minutes, electricity used = 3 units. (60 minits = 1 hr)

In 1 minutes, electricity used = $\frac{3}{40}$ units

In 120 minutes (2 hours) electricity used = $\frac{3}{\cancel{40}} \times 3\cancel{12}$

= 9 units.

Thus, the heater consumed 9 units of electricity in 2 hours.

Exercise 3.4

[Page - 72]

1. Fill in the blanks :

(i) If the cost of 3 pens is ₹ 18, then the cost of 5 pens is _____.

Ans : ₹ 30 3 pens cost = ₹ 18

1 Pen cost = $\frac{\cancel{18}^{6}}{\cancel{3}} \times 5$

5 Pens cost = ₹ 6 × 5 = ₹ 30]

(ii) If Karkuzhali earns ₹ 1800 in 15 days, then she earns ₹ 3000 in _____ days.

Ans : 25 days

15 days = ₹ 1800

x = ₹ 3000

$$x = \frac{\overset{5}{\cancel{15}}}{\cancel{6}} \times \frac{\overset{5}{\cancel{30}}\ \cancel{00}}{\cancel{18}\ \cancel{00}} = 25$$

x = 25 days.

2. Say True or False.

(i) If the weight of 40 books is 8 kg, then the weight of 15 books is 3kg.

Ans : True [40 books = 8 kg, 15 book = 3 kg

$\frac{40}{8} = 5$ | $\frac{15}{3} = 5$

(ii) A car travels 90 km in 3 hours with constant speed. It will travel 140 km in 5 hours at the same speed.

Ans : False

[90 km 3 hours

140 km 5 hours

$\frac{90}{3} = 30$ | $\frac{140}{5} = 28$

$30 \neq 28$

3. If a person reads 20 pages of a book in 2 hours, how many pages will he read in 8 hours at the same speed?

Solution :

In 2 hours he read = 20 pages

In 8 hours he read = $\frac{\overset{10}{\cancel{20}}}{\cancel{2}} \times 8 \times 8$

= 80 pages

Thus that person reads 80 pages in 8 hours.

4. The cost of 15 chairs is ₹ 7500. Find the number of such chairs that can be purchased for ₹ 12,000?

Solution :

The cost of 15 chairs = ₹ 7500

The cost of x chairs = ₹ 12,000

Number of chairs = $\frac{\cancel{15}}{\cancel{75}\ \cancel{00}} \times \overset{24}{\cancel{120}}\ \cancel{00}$

= 24

24 chairs can be purchased for ₹ 12,000.

5. A car covers a distance of 125 km in 5 kg of LP Gas. How much distance will it cover in 3 kg of LP Gas?

Solution :

In 5 kg of LP Gas a car cover a distances = 125 km

In 3 kg it covers $= \frac{\overset{25}{\cancel{125}}}{\cancel{5}} \times 3\text{km}$ km

= 75 km

Distance will it cover in 3kg of LP Gas is 75km.

6. Cholan walks 6 km in 1 hour at constant speed. Find the distance covered by him in 20 minutes at the same speed.

Solution :

In 1 hour cholan walks

= 6 km,

In 20 minutes he walks

$= \frac{\cancel{6}}{\cancel{60}} \times 2\cancel{0} = 2$ km

2 km covered by cholan in 20 minutes.

[1 hour = 60 minutes]

7. The number of correct answers given by Kaarmugilan and Kavitha in a quiz competition are in the ratio 10 : 11. If they had scored a total of 84 points in the competition, then how many points did Kavitha get?

Solution :

Total points	= 84
Ratio of kaarmugilan and Kavitha	= 10 : 11
Total parts	= 10 + 11 = 21
Each part	$= \frac{\overset{4}{\cancel{84}}}{\cancel{21}} = 4$ = 4 points
Kaarmugilan scored	= 10 × 4
	= 40 points
Kavitha scored	= 11 × 4
	= 44 points

Kavitha get 44 points.

8. Karmegan made 54 runs in 9 overs and Asif made 77 runs in 11 overs. Whose run rate is better? (run rate = ratio of runs to overs)

Solution :

Karmegan	Asif
9 Overs – 54 Runs	11 Overs – 77 Runs
1 over = $\frac{54}{9}$	1 over = $\frac{77}{11}$
= 6 runs	= 7 runs

$\therefore$ 6 < 7 Asif's run rate is better.

9. You purchase 6 apples for ₹ 90 and your friend purchases 5 apples for ₹ 70. Whose purchase is better?

Solution :

You purchase	Yours Friend
6 apples = ₹ 90	5 apples = ₹ 70
1 apple = $\frac{90}{6}$	1 apple = $\frac{70}{5}$
= ₹ 15	= ₹ 14

15 > 14 [14 is less than 15] My friend purchase is better than me.

OBJECTIVE TYPE QUESTIONS

10. If a barbie doll costs ₹ 90, then the cost of 3 such doll is ₹ _____.

a) 260 b) 270 c) 30 d) 93

Ans : b) 270 [one barbie doll cost = ₹ 90,
3 barbie doll cost = ₹ 90 × 3 = ₹ 270]

11. If 8 oranges cost ₹ 56, then the cost of 5 oranges is ₹ _____.

a) 42 b) 48 c) 35 d) 24

Ans : c) 35 [8 oranges cost = ₹ 56
1 orange cost = $\frac{56}{8}$ × 5
5 oranges cost = 35]

12. If a man walks 2 km in 15 minutes, then he will walk _____ km in 45 minutes.

a) 10 b) 8 c) 6 d) 12

Ans : c) 6km [2 km = 15 minutes
? km = 45 minutes
x = $\frac{3}{45} \times \frac{2}{15}$ = 6 km]

Exercise 3.5

Miscellaneous Practice Problems

1. The maximum speed of some of the animals are given below:
The Elephant = 20 km/h; the Lion = 80 km/h; the Cheetah = 100 km/h Find the following ratios of their speeds in simplified form and find which ratio is the least?

Solution :

The Elephant = 20 km/h
The Lion = 80 km/h
The Cheetah = 100 km/h

(i) The Elephant and the Lion

Ratio of their speed between the Elephant and the Lion

20 : 80 (÷ 10)
2 : 8 (÷ 2)
1 : 4

(ii) The Lion and the Cheetah

Ratio between the Lion and the cheetah.

80 : 100 (÷ 10)

8 : 10 (÷ 2) = 4 : 5

(iii) The Elephant and the Cheetah

Ratio between the Elephant and the cheetah.

20 : 100 (÷ 10)

2 : 10 (÷ 2) = 1 : 5

(iv) Ratio of **elephant to cheetah** is least.

2. A particular high school has 1500 students 50 teachers and 5 administrators. If the school grows to 1800 students and the ratio are maintained, then find the number of teachers and administrators.

Solution : 1500 students 50 teachers and 5 administrators

No fo students	No of teachers	No of administrator
1500	50	5
1800	x	y

Let 'x' be no of teachers

1500 : 50 : : 1800 : x

$x \times 1500 = 50 \times 1800$

$$x = \frac{\cancel{5} \times {}^{6}\cancel{18\,00}}{{}^{3}\cancel{15\,00}}$$

x = 60 **No of teachers = 60**

No fo students	No of administrators
1500	5
1800	y

Let 'y' be the No of administrators

1500 : 5 : : 1800 : y

$y \times 1500 = 5 \times 1800$

$$y = \frac{\cancel{5} \times {}^{6}\cancel{18\,00}}{{}^{3}\cancel{15\,00}}$$

y = 6 **No of admistrators = 6.**

3. I have a box which has 3 green, 9 blue, 4 yellow, 8 orange coloured cubes in it.

Solution :

Number of green cubes = 3

Number of blue cubes = 9

Number of yellow cubes = 8

(a) What is the ratio of orange to yellow cubes?

Ratio of orange to yellow cube = 8 : 4 (÷ 4)

= 2 : 1

(b) What is the ratio of green to blue cubes?

Ratio of green to blue cubes = 3 : 9 (÷ 3)

= 1 : 3

(c) How many different ratios can be formed, when you compare each colour to anyone of the other colours?

(i) Green : blue 3 : 9

(ii) Green : orange 3 : 8

(iii) blue : Green 9 : 3

(iv) blue : orange 9 : 8

(v) orange : green 8 : 3

(vi) orange : yellow 8 : 4

(vii) Green : yellow 3 : 4

(viii) orange : blue 8 : 9

(ix) yellow : orange 4 : 8

(x) yellow : green 4 : 3

(xi) blue : yellow 9 : 4

(xii) yellow : blue 4 : 9

12 different ratios can be formed.

4. A gets double of what B gets and B gets double of what C gets. Find A : B and B : C and verify whether the result is in proportion or not. (Page 74)

Solution :

A gets double of what B gets ratio A : B = 2 : 1

B gets double of what C gets C ratio B : C = 2 : 1

Proportion of A : B : : B : C

2 : 1 : : 2 : 1

Product of Means = Product of Extrems

$2 \times 1 = 1 \times 2$

$2 = 2$

They are in proportion.

5. The ingredients required for the preparation of Ragi Kali, a healthy dish of Tamilnadu is given below.

Ingredients	Quantity
Ragi Flour	4 cups
Raw rice broken	1 cup
Water	8 cups
Sesame oil	15 ml
Salt	10 mg

(a) If one cup of ragi flour is used then, what would be the amount of raw rice required?

Solution :

Ragi	Raw rice broken
4	1
1	$\frac{1}{4}$

The amount of raw rice required for one cup of ragi flour is $\frac{1}{4}$ cup.

(b) If 16 cups of wate is used, then how much of ragi flour should be used?

Solution :

water	Ragi flour	
8 cups	4 cups	8 × 2 = 16
16 cups	?	4 × 2 = 8

8 cups of Ragi flour should be used.

(c) Which of these ingredients cannot be expressed as a ratio? Why?

Solution :

Sesame oil and salt

because oil in ml. Salt in mg.

Both are different units. So it cannot be expressed as a ratio.

Challenging Problems

6. Antony brushes his teeth in the morning and night on all days in a week. Shabeen brushes her teeth only in the morning. What is the ratio of the number of times they brush their teeth in a week?

Solution :

Antony brushes his teeth – two time in a day

Shabeen brushes her teeth – only one time in a day.

Number of days in a week = 7

Antony : Shabeen

(2 × 7) : (1 × 7)

14 : 7 (÷ 7)

2 : 1

2 : 1 is the ratio of the number of times they brush their teeth in a week.

7. Thirumagal's mother wears a bracelet made of 35 red beads and 30 blue beads. Thirumalgal wants to make smaller bracelets using the same two coloured beads in the same ratio. In how many different ways can she make the bracelets?

Solution :

The ratio of red beeds and blue beeds in Thirumagal's mother

Red beads	Blue beads	
35	30	(÷ 5)
7	6	

Thirumagal can make her bracelets in four ways they are

7 : 6, 14 : 12, 21 : 18 and 28 : 24

There are four different ways.

8. Team A wins 26 matches out of 52 matches. Team B wins three - fourth of 52 matches played. Which team has a better winning record?

Solution :

Team A	Team B
Wins 26	$\frac{3}{\cancel{4}} \times \overset{13}{\cancel{52}}$
Out of 52	

Wins = 39 matches

26 < 39

Team A < Team B

∴ Team B has a better winning record.

9. In a school excursion, 6 teachers and 12 students from 6th standard and 9 teachers and 27 students from 7th standard, 4 teachers and 16 students from 8th standard took part. Which class has the least teacher to student ratio?

Solution :

	6th standard	7th standard	8th standard
Teachers	6	9	4
Students	12	27	16
Ratio	6 : 12	9 : 27	4 : 16
Simplest form	1 : 2	1 : 3	1 : 4

The standard 8 is the least ratio.

10. Fill the boxes using any set of suitable numbers 6 : ☐ : ☐ : 15.

Solution :

6 : ☐ : ☐ 15

Product of Means = Product of extrems

Let Means as x and y.

$x \times y = 6 \times 15$

$xy = 90$

Factors of 90 are :

1 × 90	5 × 18
2 × 45	6 × 15
3 × 30	9 × 10

We can fill in the boxes in 6 different ways. 1 and 90; 2 and 45, 3 and 30, 5 and 18, 6 and 15; 9 and 10.

11. From your school diary, write the ratio of the number of holidays to the number of working days in the current academic year.

Solution :

Number of holidays = 145

Number of working days = 220

Ratio of these = 145 : 220 (÷ 5)

29 : 44

Holidays and working days are may very depend upon local festivals.

29
×4
116
29
145
44
× 5
220

12. If the ratio of Green, Yellow and Black balls in a bag is 4 : 3 : 5, then

(a) Which is the most likely ball that you can choose from the bag? [Page - 75]

Black balls

(b) How many balls in total are there in the bag if you have 40 black balls in it?

Solution :

4 : 3 : 5 (× 8)

Total black balls = 32 : 24 : 40 (Black)

= 32 + 24 + 40

= 96 Balls.

(c) Find the number of green and yellow balls in the bag.

Number of green = 32 balls.

Number of yellow = 24 balls.

ADDITIONAL QUESTIONS

Answer the following questions.

1. Find the ratio to 75 cm and 3.5 m. **Ans :** 75 : 350 = 3:14
2. Thousands of Employees work in a office. If 473 of them are men set the following ratios.

(i) Total Employees and Men (ii) Total Employees and Women (iii) Men and Women

Ans:

(i) 1000 : 473 (ii) 1000 : 527 (iii) 473 : 527

3. Fill in the box: 1:1.6 = 8 : ☐

Ans:

Let ☐ be x.

$1 \times x = 1.6 \times 8 \quad x = 12.8$

4. Write the four equivalent rotios of $\frac{6}{19}$ **Ans:** $\frac{6}{19} = \frac{12}{38} = \frac{18}{57} = \frac{24}{76} = \frac{30}{95}$

5. If the length of the clothes is need for 5 students is 6.75m, Find the length of the clothes for 45 students using proportion.

Ans: 5 : 6.75 = 45 : x

$5x = 6.75 \times 45$

$x = \frac{6.75 \times 45}{5} = 70.75$ m

6. If an auto passes the distance 220km in 5l petrol then How much distance covered in 1.5l petrol.

Ans:

$x = \frac{220}{5} \times 1.5 = 66$km

7. Fill in the box: $\frac{1}{7} : \frac{5}{8} = \frac{4}{13} : ☐$

Ans:

Let ☐ be x.

$\frac{1}{7} \times x = \frac{5}{8} \times \frac{4}{13} \times \frac{7}{1} \quad x = \frac{35}{26}$

8. Fill in the box: 5.65 : 0.07 = ☐ : 0.0013

Ans:

Let ☐ be x.

$5.65 \times 0.0013 = 0.07 \times x$

$x = \frac{5.65 \times 0.0013}{0.07}$ $x = 0.104928$

9. In six overs, Anish take 42 runs. But Anoob take 63 runs in 7 overs. Find the best run rate.

Ans:

The average runs of Anish = $\frac{42}{6} = 7$

The average runs of Anoob = $\frac{63}{7} = 7$ Anoob take best run rate.

10. The train A passing the distance of 400 km in 6 hours. At that time, another train B passing the distance of 8404km in 11 hours. Find the best speed of the trains A and B.

Ans:

Speed of A is = $\frac{400}{6}$ = 66.67

Speed of B is = $\frac{400}{6}$ = 764 The speed of the train B is best.

FORMATIVE ASSESMENT

RATIO AND PROPORTION

Time : 10 Minutes Marks : 10

I Fill in the blanks. **5 x 1 = 5**

1. Ratio of 75 paise to ₹ 2 = _____ .
2. 2 : 5 = _____ : 10
3. 3 : 5 : : ☐ : 20
4. If the cost of 3 pens is ₹ 18, then the cost of 6 pen is _____ .
5. A ratio has _____ unit.

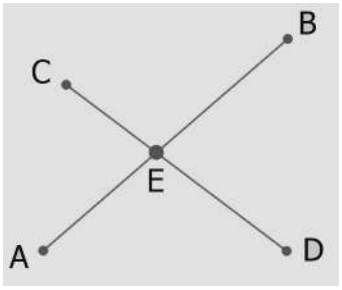
II. Choose the best answer

6. The ratio of 1m to 50 cm is _____
   a) 1 : 50 b) 2 : 1 c) 50 : 1 d) 1 : 2
7. An equivalent ratio of 3 : 2 is
   a) 1 : 3 b) 8 : 15 c) 14 : 8 d) 6 : 4
8. If 7 : 5 is in proportion to x : 25, then 'x' is
   a) 27 b) 49 c) 35 d) 14
9. If 8 oranges cost ₹ 56, then the cost of 7 oranges is ₹
   a) 42 b) 48 c) 49 d) 124
10. If a man walks 2 km in 15 minutes, then he will walk _____ km in 45 minutes.
    a) 10 b) 8 c) 6 d) 12

CHAPTER 4 GEOMETRY

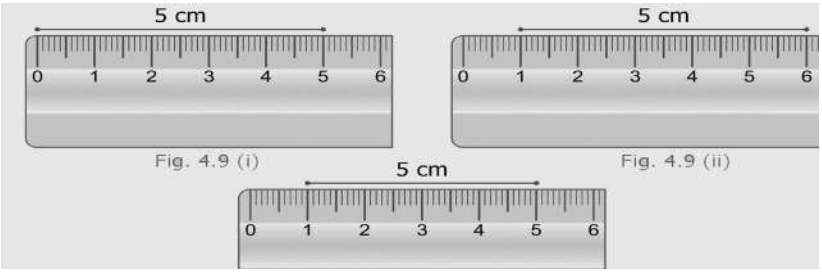
Try this **[Page - 80]**

1. Name of the line segments



Ans : Line segments, $\overline{AE}$, $\overline{EB}$, $\overline{CE}$, $\overline{ED}$, $\overline{AB}$ and $\overline{CD}$

2. If AB = 5cm, say which of the measuers are Correct figure is 4.9



Ans : Correct figure is 4.9 (i)

Exercise 4.1

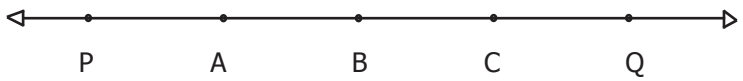
1. Fill in the blanks :

(i) A line through two end points 'A' 'B' is denoted by _____. **Ans :** $\overleftrightarrow{AB}$

(ii) A line segment from point 'B' to point 'A' is denoted by _____ . **Ans :** $\overline{BA}$

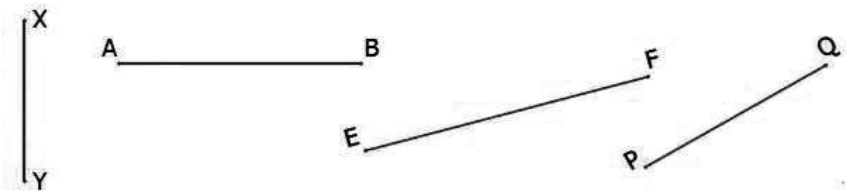
(iii) A ray has _____ end point(s). **Ans :** One

2. How many line segments are there in the given line? Name them.



Ans : 10, $\overline{PA}$, $\overline{PB}$, $\overline{PC}$, $\overline{PQ}$, $\overline{AB}$, $\overline{AC}$, $\overline{AQ}$, $\overline{BC}$, $\overline{BQ}$, $\overline{CQ}$

3. Measure the following line segments.



Ans : $\overline{XY}$ =2 cm, $\overline{AB}$ = 3 cm, $\overline{EF}$ = 3.4 cm, $\overline{PQ}$ = 2.6 cm

4. Construct a line segment using ruler and compass.

(i) $\overline{AB}$ = 7.5 cm

Ans : A 7.5cm B

(ii) $\overline{CD}$ = 3.6 cm

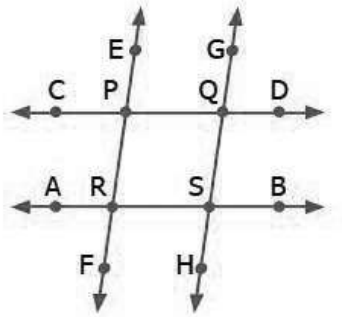
Ans : C 3.6cm D

(iii) $\overline{QR}$ = 10 cm

Ans : Q 10cm R

5. From the given figure

(i) identify the parallel lines



Ans : $\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$

$\overleftrightarrow{EF}$ and $\overleftrightarrow{GH}$

(ii) identify the intersecting lines

Ans : $\overleftrightarrow{AB}$ and $\overleftrightarrow{EF}$

$\overleftrightarrow{AB}$ and $\overleftrightarrow{GH}$

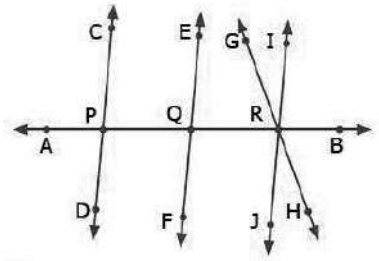
$\overleftrightarrow{CD}$ and $\overleftrightarrow{EF}$

$\overleftrightarrow{CD}$ and $\overleftrightarrow{GH}$

(iii) name the points of intersection.

Ans : P, Q, R and S.

6. From the given figure, name the



(i) parallel lines

Ans : $\overleftrightarrow{CD}$ and $\overleftrightarrow{EF}$

$\overleftrightarrow{CD}$ and $\overleftrightarrow{IJ}$

$\overleftrightarrow{EF}$ and $\overleftrightarrow{IJ}$

(ii) intersecting lines

Ans : $\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$

$\overleftrightarrow{AB}$ and $\overleftrightarrow{EF}$

$\overleftrightarrow{AB}$ and $\overleftrightarrow{IJ}$

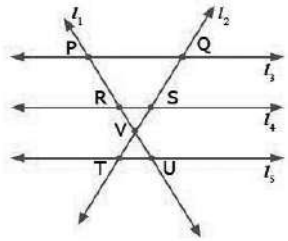
$\overleftrightarrow{AB}$ and $\overleftrightarrow{GH}$

$\overleftrightarrow{IJ}$ and $\overleftrightarrow{GH}$

(iii) points of intersection.

Ans : P, Q and R

7. From the given figure, name **(Page 87)**



(i) all pairs of parallel lines.

Ans : l_3 and l_4, l_3 and l_5, l_4 and l_5

(ii) all pairs of intersecting lines.

Ans : l_1 and l_3, l_2 and l_3, l_1 and l_4,

l_2 and l_4, l_1 and l_2, l_2 and l_5, l_1 and l_5

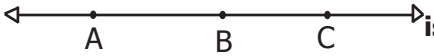
(iii) pair of lines whose point of intersection is 'V'.

Ans : l_1 and l_2

(iv) point of intersection of the lines 'l_2' and 'l_3'. **Ans :** Q

(v) point of intersection of the lines 'l_1' and l_5'. **Ans :** U

OBJECTIVE TYPE QUESTIONS

8. The number of line segments in 

is

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

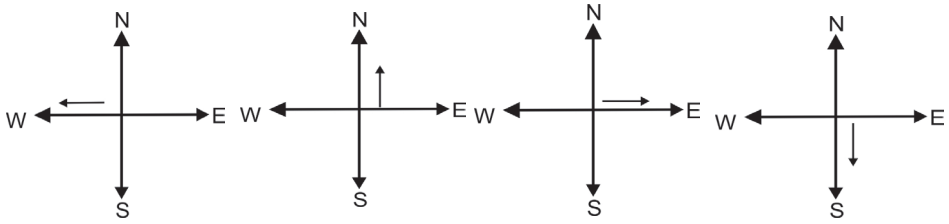
Ans : c) 3 [$\overline{AB}$, $\overline{BC}$ and $\overline{AC}$]

9. A line is denoted as

a) AB b) $\overline{AB}$ c) $\overleftrightarrow{AB}$ d) $\overrightarrow{AB}$ **Ans : c)** $\overleftrightarrow{AB}$

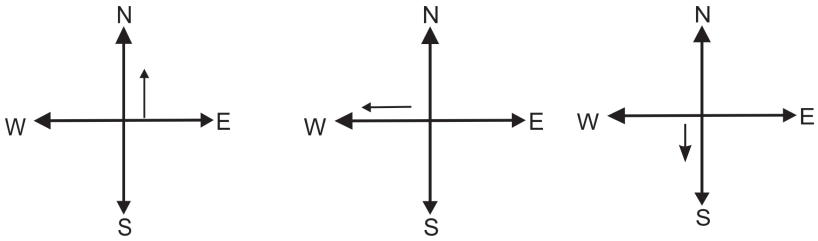
Try these **[Page - 90]**

1. Which direction will you face if you start facing West and take three right turns clockwise?



Ans :South Direction

2. Which direction will you face if you start facing North and take two right turns anticlocwise?



Ans : South Direction

Try these

Adjust the hands of the clock for the following time, note the angle made between the hour hand and the minute hand and write the type of angle.

12.10	12.40	3.25	9.40	5.55	1.25	4.25	7.05
Acute Angle	Obtuse Angle	Acute Angle	Acute Angle	Obtuse Angle	Obtuse Angle	Acute Angle	Straight Angle

Exercise 4.2

[Page - 97]

1. Use any number of the given dots to make different angles.

(i) An Acute Angle

(ii) An Obtuse Angle

(iii) A Right Angle

(iv) A straight Angle

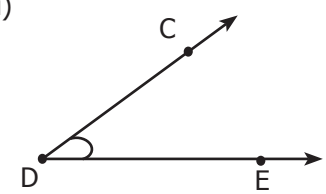
2. Name the vertex and sides that form each angle.

(i)

Vertex = D

Sides = $\overrightarrow{DE}$ and $\overrightarrow{DF}$

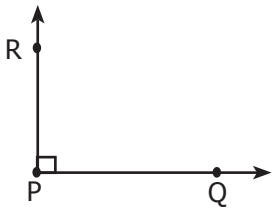
(ii)



Vertex = D

Sides = $\overrightarrow{DE}$ and $\overrightarrow{DC}$

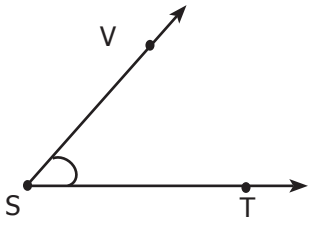
(iii)



Vertex = P

Sides = $\overrightarrow{PQ}$ and $\overrightarrow{PR}$

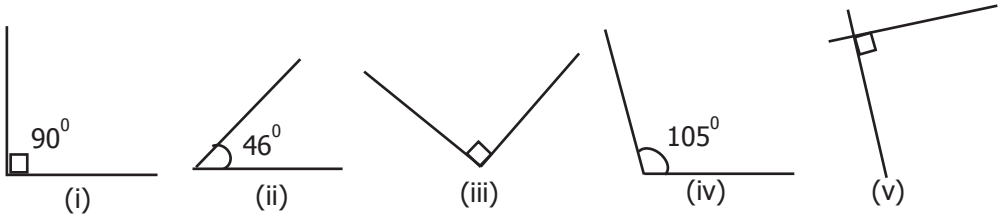
(iv)



Vertex = S

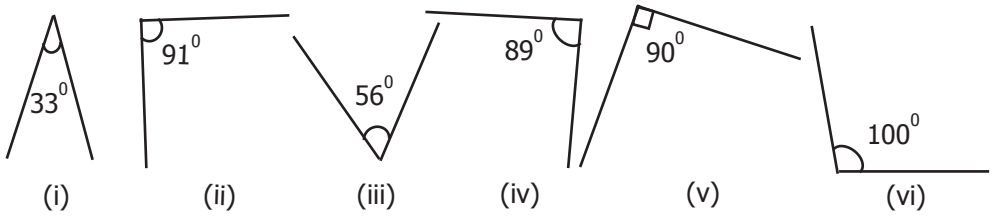
Sides = $\overrightarrow{ST}$ and $\overrightarrow{SV}$

3. Pick out the Right angles from the given figures. **[Page - 98]**



Ans : Right angles = 90^0 (i), (iii) and (v) are Right angles.

4. Pick out the Acute angles from the given figures.



Ans : Acute angle = Less than 90^o

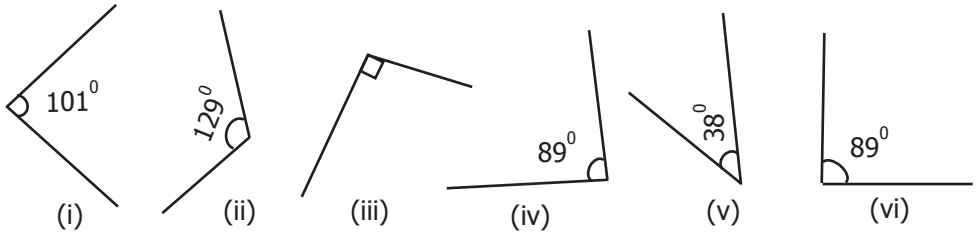
(i), (iii) and (iv) are acute angles

(i) $33^o < 90^o$ (ii) $91^o > 90^o$

(iii) $56^o < 90^o$ (v) $90^o = 90^o$

(iv) $89^o < 90^o$ (vi) $100^o > 90^o$

5. Pick out the Obtuse angles from the given figures.



Ans : Obtuse angle = greater than 90^o

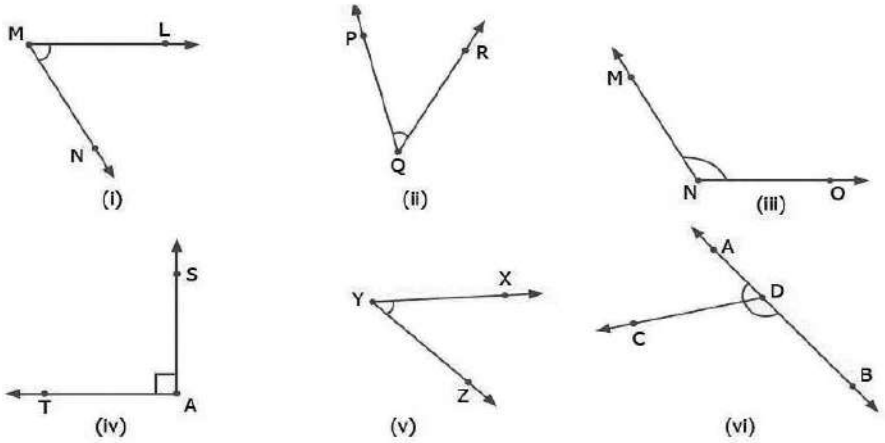
(i) $101^o > 90^o$ (ii) $129^o > 90^o$

(iii) $90^o = 90^o$ (iv) $89^o < 90^o$

(v) $38^o < 90^o$ (vi) $89^o < 90^o$

(i) and (iii) are obt use angle.

6. Name the angle in each figure given below in all the possible ways. **[Page - 99]**



Ans : i) $\angle LMN$, $\angle NML$, $\angle M$ iv) $\angle TAS$, $\angle SAT$, $\angle A$

ii) $\angle PQR$, $\angle RQP$, $\angle Q$ v) $\angle XYZ$, $\angle ZYX$, $\angle Y$

iii) $\angle MNO$, $\angle NOM$, $\angle N$ vi) $\angle ACD$, $\angle CDA$, $\angle D$, $\angle BDC$, $\angle CDB$, $\angle ADB$, $\angle BDA$

7. Say True or False.

(i) 20^0 and 70^0 are complementary.

Ans : True $[20^0 + 70^0 = 90^0 \longrightarrow$ Complementary$]$

(ii) 88^0 and 12^0 are complementary.

Ans : False $[\because 88^0 + 12^0 = 100^0 \longrightarrow 100^0 > 90^0]$

(iii) 80^0 and 180^0 are supplementary. [Complementary = 90^0

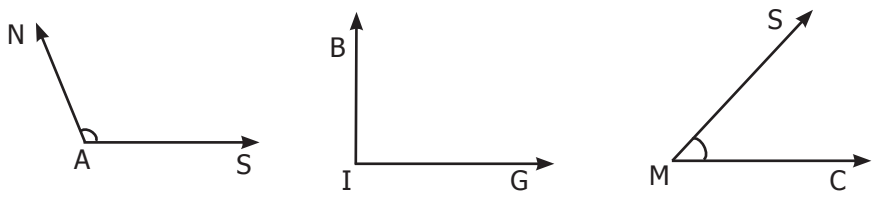
Ans : False $[\because 80^0 + 180^0 = 260^0]$ supplementary = 100^0]

(iv) 0^0 and 180^0 are supplementary.

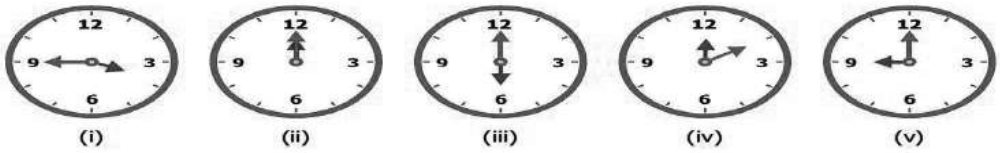
Ans : True $[0^0 + 180^0 = 180^0 \longrightarrow$ supplementary$]$

8. Draw and label each of the angles.

(i) $\angle$NAS (ii) $\angle$BIG (iii) $\angle$SMC

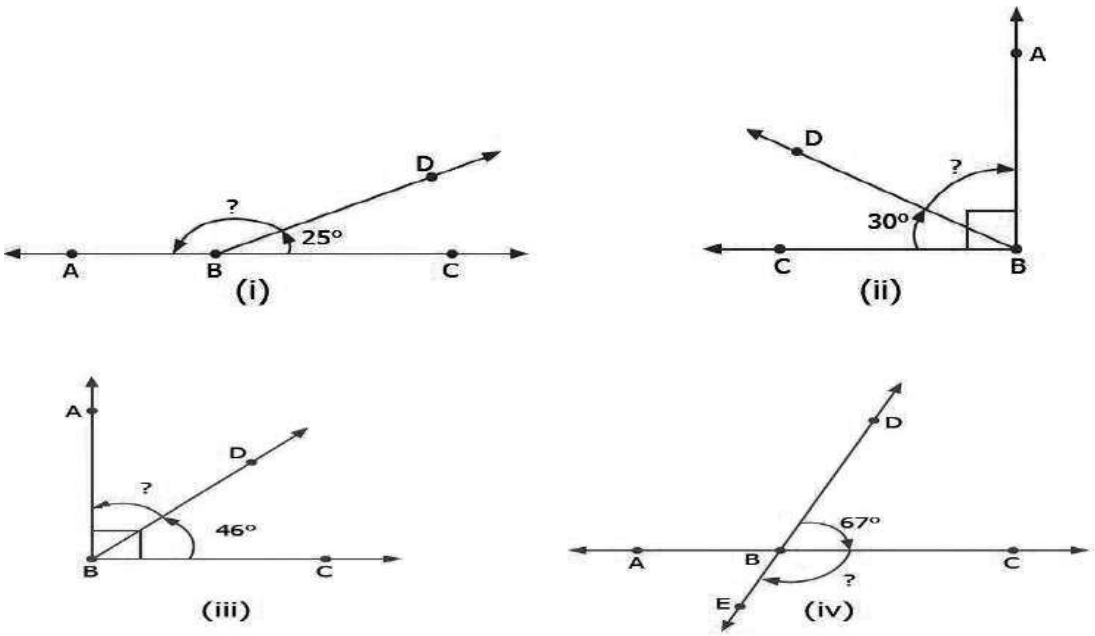


9. Identify the types of angles shown by the hands of the given clock.



Obtuse angle Zero angle Straight angle Acute angle Right angle.

10. Find the supplementary / complementary angles in each case.



Ans :

i) Given is supplementary

Let 'x' be the another angle.

$25^0 + x^0 = 180^0$

$x^0 = 180^0 - 25^0 = 155^0$

ii) Given is complementary

Let ' x' be the another angle

$30^0 + x^0 = 90^0$

$x^0 = 90^0 - 30^0 = 60^0$

iii) Given is complementary

Let 'x' be the another angle.

$x^0 + 46^0 = 90^0$

$x^0 = 90^0 - 46^0 = 44^0$

iv) Given is supplementary

Let 'x' be the another angle.

$x^0 + 67^0 = 180^0$

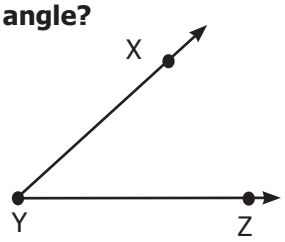
$x^0 = 180^0 - 67^0 = 113^0$

OBJECTIVE TYPE QUESTIONS

11. In this Figure, which is not the correct way of naming an angle?

a) ∠Y b) ∠ZXY

c) ∠ZYX d) ∠XYZ

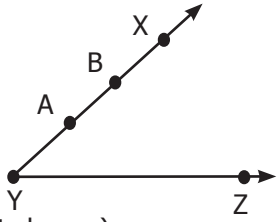


Ans : b) ∠ZXY

12. In this Figure, ∠AYZ = 45^0. If point 'A' is shifted to point 'B' along the ray, then the measure of ∠BYZ is _____.

a) more than 45^0 b) 45^0

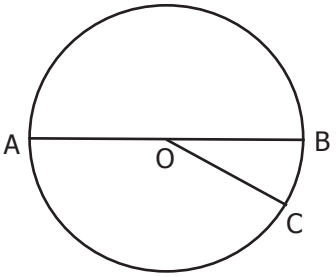
c) Less than 45^0 d) 90^0



Ans : b) 45^0 (point more on same line angle is not change)

Exercise 4.3

1. Observe the diagram and fill in the blanks.



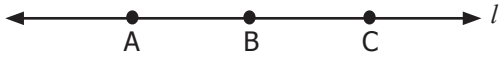
i) 'A', 'O' and 'B' are **collinear** points.

ii) 'A', 'O' and 'C' are **Non - collinear** points.

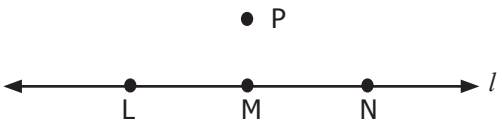
iii) 'A', 'B' and 'C' are **Non - collinear** points.

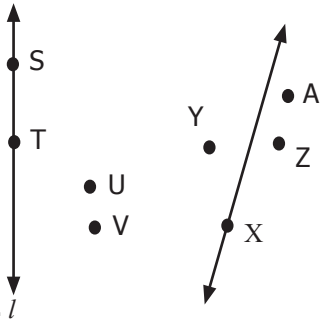
iv) **O** is the point of concurrency.

2. Draw any line and mark any 3 points that are collinear.



3. Draw any line and mark any 4 points that are not collinear.



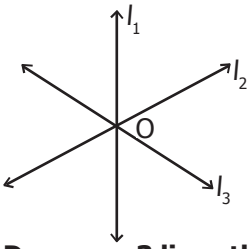


The points L, M, N and P are not collinear.

The points S, T, U and V are are not collinear.

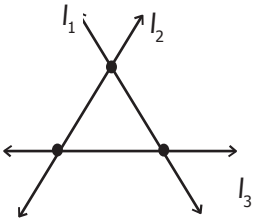
The points X, Y, Z and A are are not collinear.

4. Draw any 3 lines to have a point of concurrency.



Three lines l_1, l_2, l_3 are concurrent at the point 'O'

5. Draw any 3 lines that are not concurrent. Find the number of points of intersection.



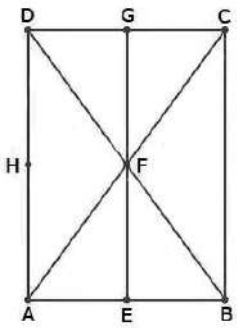
Three line l_1, l_2, l_3 are not concurrent. T

he number of point of intersections are 3.

OBJECTIVE TYPE QUESTIONS

6. A set of collinear points in the figure are ___ [Page 103]

a) A, B, C
b) A, F, C
c) B, C, D
d) A, C, D



Ans : b) A, F, C

7. A set of non - collinear points in the figure are _____.

a) A, F, C b) B, F, D c) E, F, G d) A, D, C **Ans : d) A, D, C**

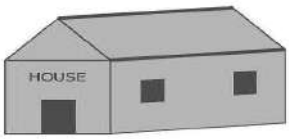
8. A point of concurrency in the figure is _____.

a) E b) F c) G d) H **Ans : b) F**

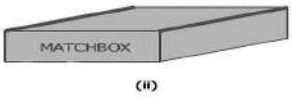
Exercise 4.4

MISCELLANEOUS PRACTICE PROBLEMS

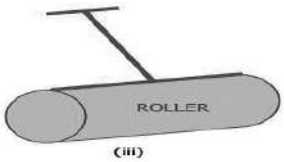
1. Find the type of lines marked in thick lines (Parallel, intersecting or perpendicular).



(i)



(ii)



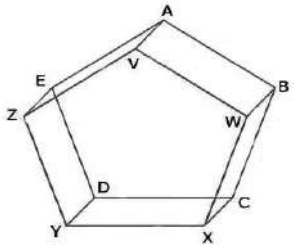
(iii)

(iv)

(i) Parallel lines (ii) Parallel lines

(iii) Parallel and Perpendiculer lines. (iv) Intersecting Lines.

2. Find the parallel and concurrent line segments in the picture given below. [Page - 104]



(i) Parallel lines

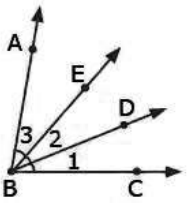
$\overline{XY}$ and $\overline{CD}$, $\overline{VW}$ and $\overline{AB}$, $\overline{ZE}$ and $\overline{VA}$, $\overline{YZ}$ and $\overline{DE}$, $\overline{WX}$ and $\overline{BC}$, $\overline{VA}$ and $\overline{WB}$, $\overline{ZV}$ and $\overline{EA}$, $\overline{YD}$ and $\overline{XC}$, $\overline{WB}$ and $\overline{XC}$, $\overline{YD}$ and $\overline{ZE}$

Concurrent Lines

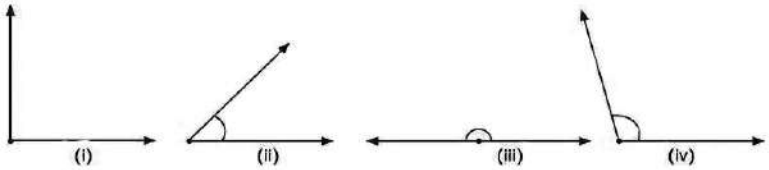
$\overline{AB}$, $\overline{AE}$, $\overline{AV}$	$\overline{DC}$, $\overline{DE}$, $\overline{DY}$	$\overline{YX}$, $\overline{YZ}$, $\overline{YD}$
$\overline{BA}$, $\overline{BC}$, $\overline{BW}$	$\overline{EA}$, $\overline{CZ}$, $\overline{ED}$	$\overline{ZY}$, $\overline{ZE}$, $\overline{ZV}$
$\overline{CB}$, $\overline{CX}$, $\overline{CD}$	$\overline{XC}$, $\overline{XY}$, $\overline{XW}$	$\overline{VA}$, $\overline{VW}$, $\overline{VZ}$
	$\overline{WB}$, $\overline{WV}$, $\overline{WX}$	

3. Name the following angles as shown in the figure.

i)	$\angle 1$	=	$\overline{DBC}$ or $\overline{CBD}$
ii)	$\angle 2$	=	$\overline{DBE}$ or $\overline{EBD}$
iii)	$\angle 3$	=	$\overline{EBA}$ or $\overline{ABE}$
iv)	$\angle 1 + \angle 2$	=	$\overline{EBC}$ or $\overline{CBE}$
v)	$\angle 2 + \angle 3$	=	$\overline{ABD}$ or $\overline{DBA}$
vi)	$\angle 1 + \angle 2 + \angle 3$	=	$\overline{ABC}$ or $\overline{CBA}$



4. Measure the angles of the given figures using protractor and identify the type of angle as acute, obtuse, right or straight.



i) right angle = 90^0 ii) Acute angle $\longrightarrow$ 45^0 ($< 90^0$)

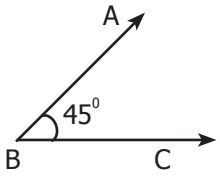
iii) Straight angle = 180^0 iv) Obtuse angle $\longrightarrow$ 110^0 ($> 90^0$ but $< 180^0$)

5. Draw the following angles using the protractor.

i) 45^0 ii) 120^0 iii) 65^0 iv) 135^0 v) 0^0

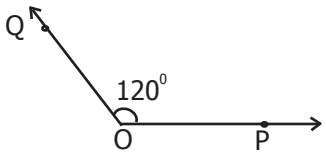
vi) 180^0 vii) 38^0 viii) 90^0

i)



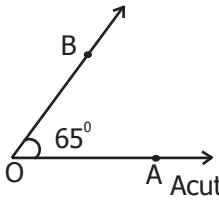
Acute Angle

ii)



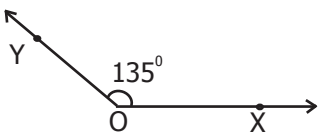
Obtuse Angle

iii)



Acute Angle

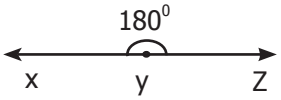
iv)



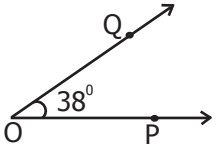
Obtuse Angle

v) 

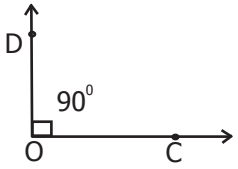
Zero Angle

vi) 

Straight Angle

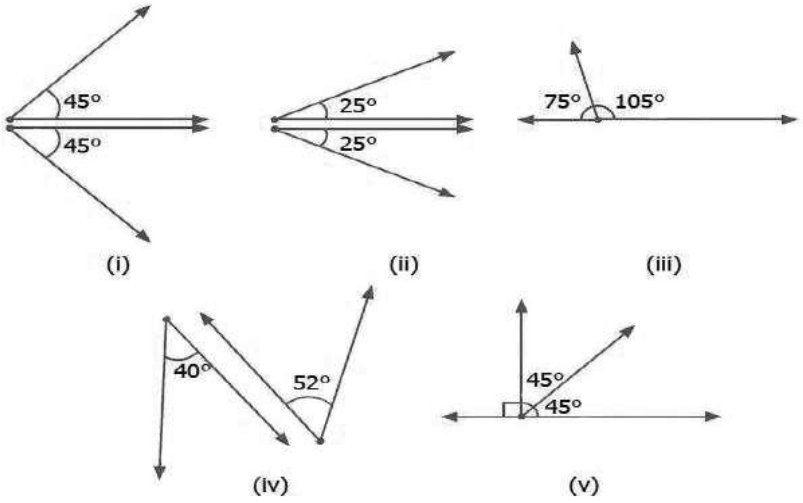
vii) 

Acute Angle

viii) 

Right Angle

6. From the figures given below, classify the following pairs of angles into complementary. [Page 105]



i) $45^0 + 45^0$ = 90^0 complementary

ii) $25^0 + 25^0$ = 50^0 non complementary

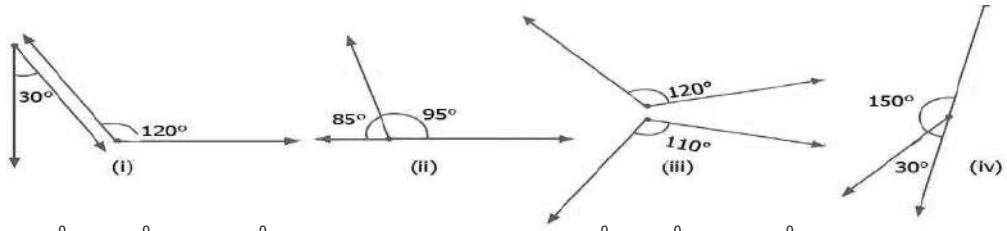
iii) $105^0 + 75^0$ = 180^0 non complementary

iv) $40^0 + 52^0$ = 92^0 non complementary

v) $45^0 + 45^0$ = 90^0 complementary

7. From the figures given below, classify the following pairs of angles into supplementary and non supplementary.

Supplementary : Sum of two angles equal to 180^0



i) $30^0 + 120^0 = 150^0$ non supplementary ii) $95^0 + 85^0 = 180^0$ supplementary

iii) $125^0 + 110^0 = 230^0$ Non supplementary iv) $30^0 + 150^0 = 180^0$ supplementary

8. From the figure

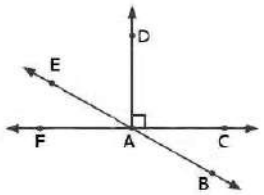
i) Name a pair of complementary angles.

$\angle FAE$ and $\angle EAD$

ii) Name a pair of supplementary angles.

$\angle FAD$ and $\angle DAC$, $\angle BAC$ and $\angle CAE$

$\angle FAB$ and $\angle BAC$ $\angle FAB$ and $\angle FAE$



9. Find the complementary angle of **[Page - 109]**

i) 30^0 ii) 26^0 iii) 85^0 iv) 0^0 v) 90^0

Solution :

i) 30^0

Let 'x' be another angle.

$x + 30^0 = 90^0$

$x = 90^0 - 30^0$

$x = 60^0$

$\therefore$ The complementary of 30^0 is 60^0

ii) 26^0

Let 'x' be another angle.

$x + 26^0 = 90^0$

$x = 90^0 - 26^0$

$x = 64^0$

$\therefore$ The complementary of 26^0 is 64^0

iii) 85^0

Let 'x' be another angle.

$x + 85^0 = 90^0$

$x = 90^0 - 85^0$

$x = 5^0$

$\therefore$ The complementary of 85^0 is 5^0

iv) 0^0

Let 'x' be another angle.

$x + 0^0 = 90^0$

$x = 90^0 - 0^0$

$x = 90^0$

$\therefore$ The complementary of 0^0 is 90^0

v) 90^0

Let 'x' be another angle.

$x + 90^0 = 90^0$

$x = 90^0 - 90^0$

$x = 0^0$

$\therefore$ The complementary of 90^0 is 0^0

10. Find the supplementary angle of

i) 70^0 ii) 35^0 iii) 165^0 iv) 90^0 v) 0^0 vi) 180^0 vii) 95^0

Solution :

i) 70^0

Let 'x' be another angle.

$x + 70^0 = 180^0$

$x = 180^0 - 70^0$

$x = 110^0$

$\therefore$ The supplementary of 70^0 is 110^0

ii) 35^0

Let 'x' be another angle.

$x + 35^0 = 180^0$

$x = 180^0 - 35^0$

$x = 145^0$

$\therefore$ The supplementary of 35^0 is 145^0

iii) 165^0

Let 'x' be another angle.

$x + 165^0 = 180^0$

$x = 180^0 - 165^0$

$x = 15^0$

$\therefore$ The supplementary of 165^0 is 15^0

iv) 90^0

Let 'x' be another angle.

$x + 90^0 = 180^0$

$x = 180^0 - 90^0$

$x = 90^0$

$\therefore$ The supplementary of 90^0 is 90^0

v) 0^0

Let 'x' be another angle.

$x + 0^0 = 180^0$

$x = 180^0 - 0^0$

$x = 180^0$

$\therefore$ The supplementary of 0^0 is 180^0

vi) 180^0

Let 'x' be another angle.

$x + 180^0 = 180^0$

$x = 180^0 - 180^0$

$x = 0^0$

$\therefore$ The supplementary of 180^0 is 0^0

vii) 95^0

Let 'x' be another angle.

$x + 95^0 = 180^0$

$x = 180^0 - 95^0$

$x = 85^0$

$\therefore$ The supplementary of 95^0 is 85^0

CHALLENGING PROBLEMS

11. Think and write an object having

*** Parallel lines :**

1) Legs of the table 2) Railway Track 3) Edges of the scale.

*** Perpendicular lines :**

1) Adjacent sides of a Board 2) Cross bars of windows 3) Adjacent sides of the textbook.

*** Intersecting lines :**

1) Cross bars of windows 2) Ladder 3) Blades of a scissor.

12. Which angle is equal to twice its complement?

Solution :

Let x be an angle

$x + 2x = 90^0$

$3x = 90^0$

$x = \frac{90^0}{3}$

$x = 30^0$

$2x = 2 \times 30^0$

$= 60^0$

The complement angle of 30^0 is 60^0

13. Which angle is equal to two - third of its supplement?

Solution :

Let x be an angle

Given : $x + \frac{2}{3}x = 180^0$

$\frac{3x+2x}{3} = 180^0$

$\frac{5x}{3} = 180^0$

$x = \frac{\overset{36^0}{\cancel{180} \times 3}}{\cancel{5}_1}$

$= 108^0$

$\frac{\cancel{2}}{\cancel{3}}x = \frac{2}{\cancel{3}_1} \times \overset{36^0}{\cancel{108^0}}$

$x = 72^0$ is two - third of its supplement.

14. Given two angles are supplementary and one angle is 20^0 more than other. Find the two angles.

Solution :

Let 'x' be an angle

Given $x + (x + 20^0) = 180^0$

$2x + 20^0 = 180^0$

$2x = 180^0 - 20^0$

$2x = 160^0$

$x = \frac{90^0}{2}$

$x = 80^0$

$x + 20^0 = 80^0 + 20^0 = 100^0$

∴ The two angles are 80^0 and 100^0.

15. Two complementary anlges are in ratio 7 : 2. Find the angles.

Solution :

Given 7 : 2 Two complementary angle ratio Let x be an angle.

$7x + 2x = 90^0$

$9x = 90^0$

$x = \frac{90^0}{9}$

$x = 10^0$

$7x = 7 \times 10^0 = 70^0$

$2x = 2 \times 10^0 = 20^0$

∴ The two angles are 70^0 and 20^0.

16. Two supplementary angles are in ratio 5 : 4. Find the angles.

Solution :

Let x be an angle

$5x + 4x = 180^0$

$9x = 180^0$

$x = \frac{180^0}{9}$

$x = 20^0$

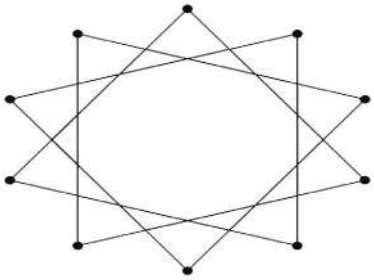
$5x = 5 \times 20^0 = 100^0$ and $4x = 4 \times 20^0 = 80^0$.

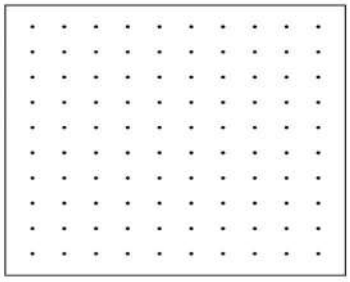
∴ The angles are 100^0 and 80^0.

ACTIVITIES

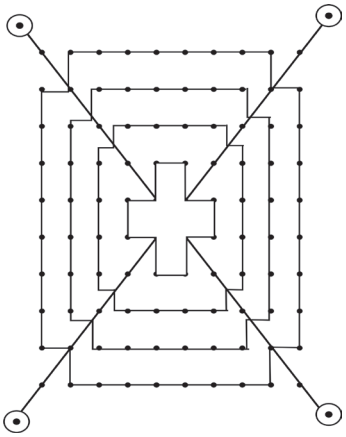
Activity-1

[Page - 83]





Enjoy trying kolams using line segments!

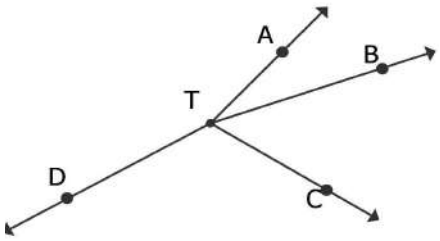


Name of the rays in the given figure. What is the common point of all these rays?

[Page - 85]

The Rays are $\overline{TD}$, $\overline{TA}$, $\overline{TB}$ and $\overline{TC}$

The common points is T.



Activity-2

[Page - 101]

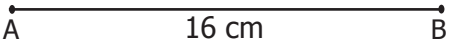
A book is an object where you can see parallel, perpendicular and intersecting lines.

i) Tiles on the floor, ii) Spokes arrangement in cycle wheel iii) Fence.

ADDITIONAL QUESTIONS

Answer the following questions.

1. Which have two end points? **Ans:** line segment
2. How many points are in a line? **Ans:** uncountable
3. If Tirupathi Express, Kuruvayur Express and Muthunagar express are passes through Madurai, then What can say about Madurai? **Ans:** Madurai is a point.
4. A clock show the time 1 : 10. Find the angle of time.
   Ans: inner angle = 90^0
   Outer angle= 3×90
   = 270^0
5. Can you say 180^0 is a reflex angle?
   Ans: 180^0 is a straight angle. So we cannot say 180^0 is a reflex angle.
6. Draw a line of length 16cm. **Ans:**



7. Explain using geometry:
   Tirupathi Express starts from Madurai and passes through Trichy, Villupuram and Nagari and reaches Tirupathi.
   Ans: Madurai, Trichy, Villupuram and Nagari are in a straight line.
   ∴ These are collinear cities.
8. 12 o' clock is zero angle. Find the angle covered by the small hand of the clock in a week.
   Ans: $7 \times 2 \times 360 = 5040^0$
9. 12 o' clock is zero angle. Find the angle covered by the big hand of the clock in a week.
   Ans: $24 \times 360 \times 7 = 60480^0$

****

FORMATIVE ASSESMENT
GEOMETRY

Time : 10 Minutes Marks : 10

I Fill in the blanks. **5 x 1 = 5**

1. A ray has _____ end point(s) .
2. A line through two end points 'A' and 'B' is denoted by _____ .
3. Complementary angle of 70^0 is _____.
4. Supplementary angle of 180^0 is _____.
5. A line segment from point 'B' to point 'A' is denoted by _____.

II. Answer the following question. **1 x 5 = 5**

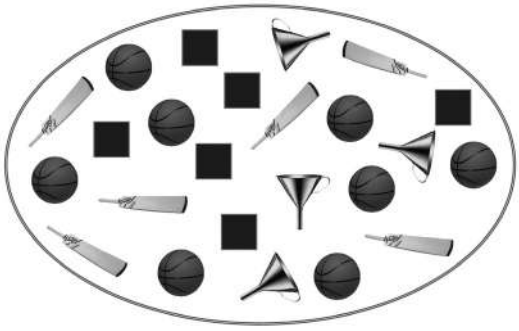
6. Use a protractor to draw an obtuse angle 120^0 **(Or)**
   Construct a line segment using ruler and compass $\overline{AB}$ = 3.6cm.

*****

CHAPTER 5 STATISTICS

Recap

[Page -108]



Object	Number of Objects
Ball	8
Bat	6
Funnel	4
Square	6
Total	24

From the above table, answer the following question.

i) The total number of objects in the above picture is 24

ii) The difference between the number of squares and the number of bats is Zero
[Number of Squares : 6
Number of bats : 6]

iii) The ratio of the number of balls to the number of bats is 8 : 6, 4 : 3 (÷2)

iv) What are the objects equal in number?
Ans : Number of squares and Number of bats are equal.

v) How many more balls are there than the number of bats?
Ans : 2 more bats equal to number of balls.

Activity

[Page - 110]

Collect the data of the birth months of your classmates.

Name	Birth month	Name	Birth month
Ganesh	October	Pitchai	March
Selvam	December	Indra	May
Arul	August	Iyyappan	November
Durai	March	Saranam	June
Baskar	February	Rani	September
Sundari	Janauary	Hari	December
Meera	March	Moorthy	June
Mitra	March	Prema	August
Karthi	July	Somu	January
Muthu	April	Sai Ram	January
Bagavathi	January	Akshara	March

Try these

Tabulate different kinds of crops cultivated by the farmers in a village.

Ragi	Pulses	Oil seeds
Millets	Sugarcane	Coffee
Wheat	Tobacco	Tea
Maize	Cotton	Rubber
Rice	Jute	Cocount
Fruits	Vegetables	Groundnet
Sunflower	Rabi	

List out different kinds of plants / trees in your school campus.

Mango	Aloe vera
Tamarind	Cactus
Hybiscus	Tulasi
Pappaya	Greens
Beans	Rose

Activity

[Page - 111]

Collect data on the level of literacy of people in your street.

	Total Members	Literate	Illiterate
Family 1	5	3	2
Family 2	3	2	1
Family 3	6	6	0
Family 4	4	2	2
Family 5	7	5	2
Family 6	2	2	0
Family 7	6	5	1
Family 8	5	4	1
Family 9	3	1	2
Family 10	7	7	0

Exercise 5.1

[Page - 115]

1. Fill in the blanks.

i) The collected information is called **Data**

ii) An example of a Primary Data is **List of absentees in a class.**

iii) An example of a Secondary Data is **Cricket scores gathered from a website.**

iv) The tally marks for number 7 in standard form is 𝍸 ||

2. Viji threw a die 30 times and noted down the result each time as follows. Prepare a table on the numbers shown using Tally Marks.

1	4	3	5	5	6	6	4	3	5	4	5	6	5	2
4	2	6	5	5	6	6	4	5	6	6	5	4	1	1

Solution :

Face of die	Tally Marks	Frequency
1	|||	3
2	||	2
3	||	2
4	𝍸 |	6
5	𝍸 ||||	9
6	𝍸 |||	8
	Total	30

3. The following list tells colours liked by 25 students. Prepare a table using Tally Marks.

Red	Blue	White	Grey	White
Green	Grey	Blue	Green	Grey
Blue	Grey	Red	Green	Red
Blue	Blue	Green	Blue	Green
Grey	Grey	Green	Grey	Red

Solution :

Colours	Tally Marks	Frequency
Red	||||	4
Blue	𝍸 |	6
White	||	2
Grey	𝍸 ||	7
Green	𝍸 |	6
	Total	25

4. The following are the marks obtained by 30 students in a class test out of 20 in Mathematics subject.

11	12	13	12	12	15	16	17	18	12
20	13	13	14	14	14	15	15	15	15
16	16	16	15	14	13	12	11	19	17

Prepare a table using Tally Marks.

Solution :

Mathematics Marks Scored	Tally Marks	Frequency
11	||	2
12	𝍸	5
13	||||	4
14	||||	4
15	𝍸 |	6

16	||||	4
17	||	2
18	|	1
19	|	1
20	|	1
	Total	30

5. The tables shows the number of calls recorded by a Fire Service Station in one year.

Types of Calls	Tally Marks	Frequency
Building Fires	𝍸 |	
Other Fires	𝍸 𝍸 |	
Hazardous Materials		7
Rescues		4
False Alarms	𝍸 ||	
Total		

Complete the table and answer the following questions.

i) Which type of call was recorded the most?
ii) Which type of call was recorded the least?
iii) How many calls were recorded in all?
iv) How many calls were recorded as False Alarms?

Solution :

Types of Calls	Tally Marks	Frequency
Building Fires	𝍸 |	6
Other Fires	𝍸 𝍸 |	11
Hazardous Materials	𝍸 ||	7
Rescues	||||	4
False Alarms	𝍸 ||	7
	Total	35

i) Other Fires **ii)** Rescues **iii)** 35 **iv)** 7

Objective Type Questions

6. The tally marks for the number 7 in standard form is _____.

a) 7 b) 𝍸 \|\| c) ✓✓✓✓✓✓ d) 𝍸𝍸 **Ans : b)** 𝍸 \|\|

7. The tally marks 𝍸 \|\|\|\| represents the number count

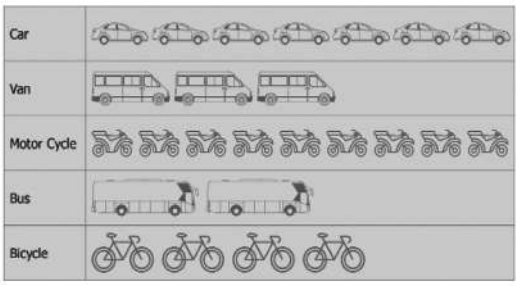
a) 5 b) 8 c) 9 d) 10 **Ans : C) 9**

8. The plural form of 'datum' is

a) datum b) datums c) data d) datas **Ans : C) data**

Example 5.2.

The following table shows the number of vehicles sold in a year.



Key : One Picture represents 10 vehicles

Look at the pictograph and answer the following questions.

(i) How many motor cycles were sold in a year?

(ii) Number of buses sold in a year is 20. Say True or False.

(iii) How many bicycles were sold ?

(iv) How many cars and vans were sold?

(v) How many vehicles were sold altogether?

Solution :

Given : 1 picture represents 10 vehicles

(i) The number of motor cycles sold on 9 × 10 = 90.

(ii) False, Number of buses sold in a year is 3 x 10 = 30.

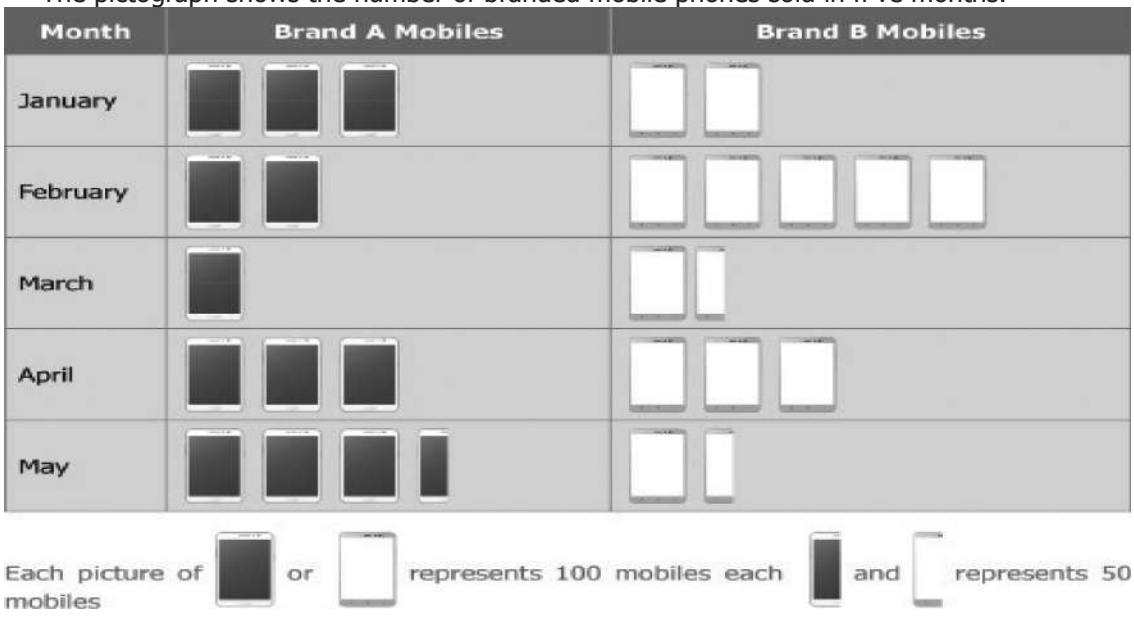
(iii) There number bicycles were sold on 4 x 10 = 40.

(iv) The number of Cars and Vans were sold on 7 x 10 + 3 x 10 = 70 + 30 = 100

(v) The total vehicles were sold altogether = 25 x 10
= 250 vehicles sold.

Example 5.3.

The pictograph shows the number of branded mobile phones sold in fi ve months.



Observe the given table and answer the following questions.

(i) In which month was the maximum number of brand B mobiles sold?
(ii) In which month was equal number of brand A and brand B mobiles sold?
(iii) In which month was the minimum number of brand A mobiles sold?
(iv) Find the total number of Brand A Mobiles that were sold in 5 months.
(v) What is the difference between the sale of brand A and brand B Mobiles in the month of May?

Solution :

Given : 1 picture represents 10 vehicles
(i) 1 Picture represents 100 mobiles.
1/2 Picture represents 50 mobiles.
(ii) February month was the maximum number of band of Mobiles sold.
(iii) April month was equal number of brand A and brand B mobiles sold.
(iv) The total number of Band A mobile that were sold in 5 months.

12 x 100 = 1200
1 x 50 = 50

1250 mobiles

(v) In the Month of May,
Brand A mobiles sale = 3 x 100 = 300
1 x 50 = 50
==========
350
==========

Brand B mobiles sale = 1 x 100 = 100
1 x 50 = 50
==========
150
==========

The difference between two brands
= 350 - 150
= 200 mobiles

Activity **[Page - 120]**

Game	No of Students
Foot Ball	15
basket Ball	5
Volley Ball	10
Kabadi	5
Kho Kho	10

Game	No of Students
Foot Ball	🎈 🎈 🎈
Basket ball	🎈
Volley Ball	🎈 🎈
Kabadi	🎈
Kho Kho	🎈 🎈

🎈 – represents 5 students.

Exercise 5.2

1. Fill in the blanks.

i) If  represents 100 balls then  represents **150** balls.

ii) If 200 is represented by  then 600 is represented by **(3 bats).**

iii) Representation of data by using pictures is known as **Pictograph.**

2. Draw a pictograph for the given data.

Month	June	July	August	September
Number of Computer sold	300	450	600	550

(Choose your own suitable scale)

Solution :

Month	Number of Computers Sold
June	
July	
August	
Septemer	

 – 100 Computers and  – 50 computers

3. The following table shows the number of tourists who visited the places in the month of May. Draw a pictograph.

Place	Mahabalipuram	Vedanthangal	Hogenakkal	Ooty
Number of Tourists	20,000	15,000	40,000	35,000

(Choose your own suitable scale)

Solution :

Place	No of Tourists
Mahabalipuram	
Vedanthangal	
Hogenakkal	
Ooty	

 – 5,000 Touristes

4. The following Pictograph shows the number of students playing different games in a school.

Games	Number of Students
Kho–Kho	
Kabaddi	
Basket ball	
Volley ball	
Hockey	

– Represents 10 students

Answer the following questions.

i) Which is the most popular game among the students?
ii) Find the number of students playing Kabaddi.
iii) Which two games are played by equal number of students?
iv) What is the difference between the number of students playing Kho–Kho and Hockey?
v) Which is the least popular game among the students?

Solution :

i) Kho Kho - 90 Students ii) Kabaddi - 110 Students
iii) Basket ball - 30 Students iv) Volley ball - 40 Students
v) Hockey- 90 Students

Objective Type Questions

5. The pictorial representation for a phrase is a _____.

a) Picto b) Tally mark c) Frequency d) Data **Ans : a) Picto**

6. The representation of 'one picture to many objects' in a Pictograph is called _____.

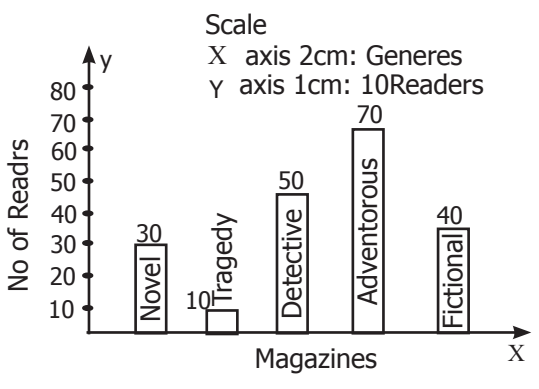
a) Tally mark b) Pictoword c) Scaling d) Frequency **Ans : c) Scaling**

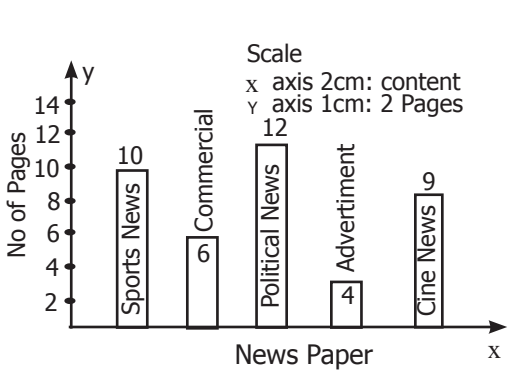
7. A Pictograph is also known as _____.

a) Pictoword b) Pictogram c) Pictophrase d) Pictograft **Ans : b) Pictogram**

Activity **[Page - 125]**

Collect different data from Newspapers, Magazines, etc. and interpret them using Bar graphs.





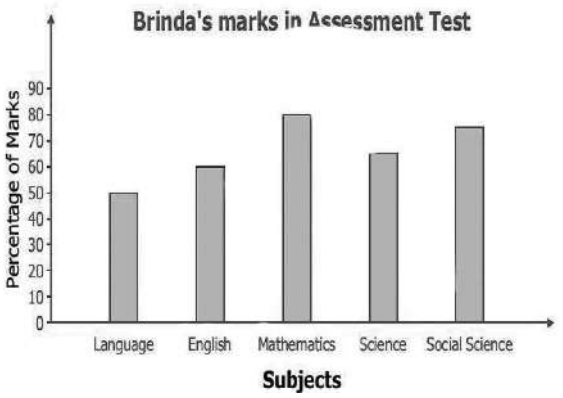
Think **[page - 126]**

Can you use 1 unit =1 student? Justify your answer.

Yes, we can use, the bar length will increase if we take 1 unit = 1 student.

Exercise 5.3

1. Read the given Bar Graph which shows the percentage of marks obtained by Brinda in different subjects in assessment test.



Observe the Bar Graph and answer the following question.

i) 1 Unit = **10%** of marks on vertical line.

ii) Brinda has scored maximum marks in **Mathematics** subject.

iii) Brinda has scored minimum marks in **Language** subject.

iv) The percentage of marks scored by Brinda in Science is **65%**

v) Brinda scored 60% marks in the subject **English.**

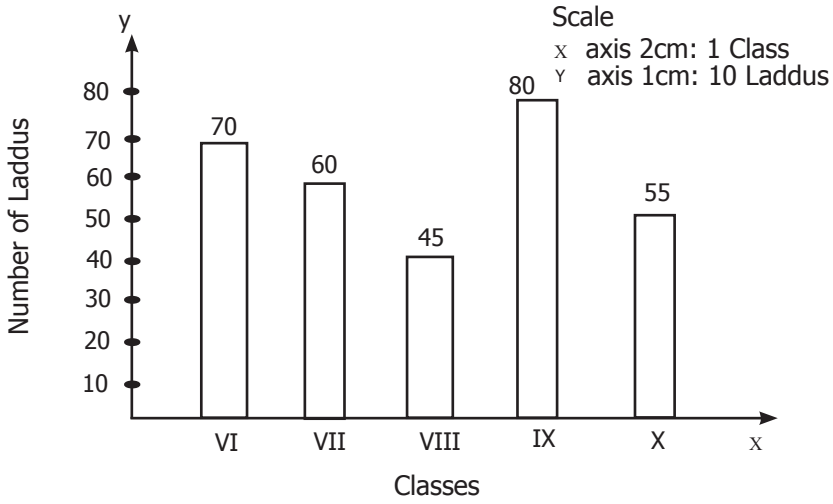
vi) Brinda scored 20% more in **Mathematics** subject than **Science** subject.

2. Chitra has to buy Laddus in order to distribute to her friends as follows :

Classes	VI	VII	VIII	IX	X
Number of Laddus	70	60	45	80	55

Draw a Bar Graph for this data

Solution :

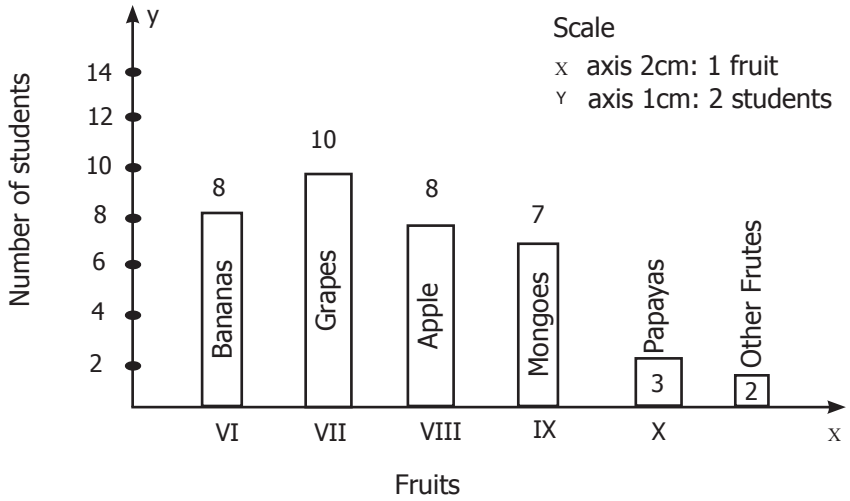


3. The fruits liked by the students of a class are as follows:

Fruits	Bananas	Grapes	Apples	Mangoes	Gauvas	Papayas	Other fruits
Number of students	8	10	8	7	12	3	2

Draw a Bar Graph for this data

Solution :

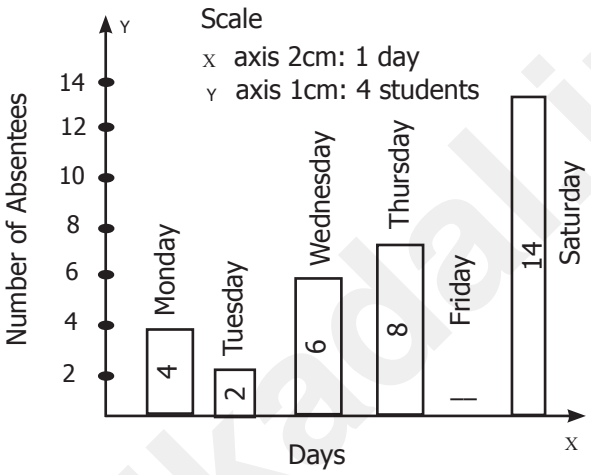


4. The pictograph below gives the number of absentees on different days of the week in class six. Draw the Bar graph for the same.

Day	Number of Absentees
Monday	
Tuesday	
Wednesday	
Thursday	
Friday	– –
Saturday	

represents 4 students represents 2 students

Solution :



Objective Type Questions

5. A bar graph cannot be drawn using _____.

a) Horizontal bars only b) Vertical bars only
c) Both horizontal bars and vertical bars d) Either horizontal bars or vertical bars.

Ans : d) Either horizontal bars or vertical bars.

6. The spaces between any two bars in a bar graph _____.

a) Can be different b) Are the same
c)Are not the same d) All of these

Ans : b) Are the same

Exercise 5.4

MISCELLANEOUS PRACTICE PROBLEMS

1. The heights (in centimeters) of 40 children are.

110	112	112	116	119	111	113	115	118	120
110	113	114	111	114	113	110	120	118	115
112	110	116	111	115	120	113	111	113	120
115	111	116	112	110	111	120	111	120	111

Prepare a tally mark table.

Solution :

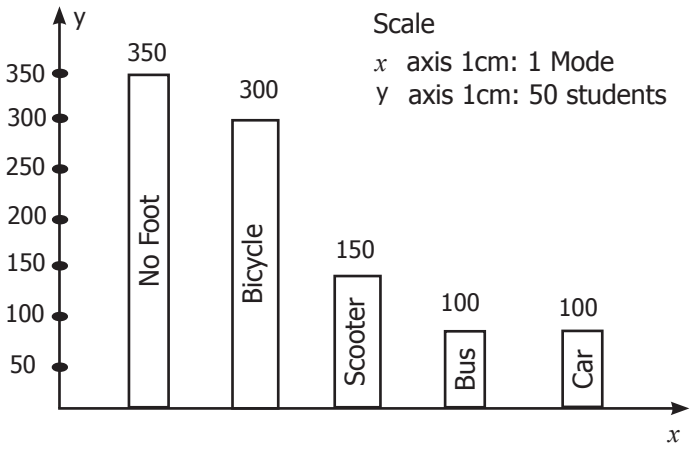
Minimum : 110 Maximum : 120

Heights (in cms)	Tally Marks	Frequency
110	𝍸	5
111	𝍸 | | |	8
112	| | | |	4
113	𝍸	5
114	| |	2
115	| | | |	4
116	| | |	3
117	.	0
118	| |	2
119	|	1
120	𝍸 |	6
	Total	40

2. There are 1000 students in a school. Data regarding the mode of transport of the students is given below. Draw a pictograph to represent the data.

Mode of Travel	On Foot	Bicycle	Scooter	Bus	Car
Number of students	350	300	150	100	100

Solution :



3. The following pictograph shows the total savings of a graup of friends in a year. Each picture represents a saving of Rs. 100. Answer the following questions.

Ruby		Ruby = ₹ 500
Malarkodi		Malarkodi = ₹ 700
Thasnim		Thasnim = ₹ 400
Kuzhali		Kuzhali = ₹ 500
Iniya		Iniya = ₹ 300
 = represents ₹ 100	Total	= ₹ 2400

i) What is the ratio of Ruby's saving to the of Thasmin's?

Ans : Ruby : Thasnim
500 : 400 (÷ 100)
5 : 4

ii) What is the ratio of Kuzhali's savings to that of others?

Ans : Kuzhali's : Other
500 : 1900 (÷ 100)
5 : 19

iii) How much is Iniya's savings?

Ans : Iniya – ₹ 300

iv) Find the total amount of saving of all the friends?

Ans : I ₹ 2400

v) Ruby and Kuzhali save the same amount. Say True or False.

Ans : True Ruby = 500, Kuzhali = 500.

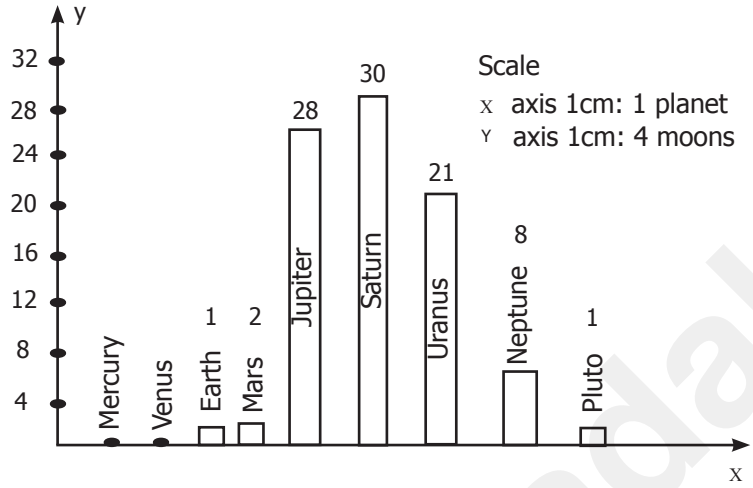
CHALLENGING PROBLEMS

4. The table shows the number of moons that orbit each of the planets in our solar system.

Planet	Mercury	Venus	Earth	Mars	Jupiter	Saturn	Uranus	Neptune	Pluto
Number of Moons	0	0	1	2	28	30	21	8	1

Make a Bar graph for the above data.

Solution :



5. The prediction of weather in the month of September is given below.

September						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					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

Sunny **Partly Cloudy** **Cloudy** **Rainy**

Solution :

Sunny – 10 days, Partly Cloudy – 5 days, Cloudy – 9 days, Rainy – 6 days,

i) Make a frequency table of the types of weather by reading the calendar.

Weather	Tally Marks	No of days
Sunny	𝍸 𝍸	10
Partly Cloudy	𝍸	5
Clloudy	𝍸 ||||	9
Rainy	𝍸 |	6
	Total	30

ii) How many days are either cloudy or partly cloudy?

Ans : Cloudy – 9
Partly Cloudy – 5
14 days

iii) How many days do not have rain? Give two ways to find the answer?

Way 1	Way 2
Total days – 30 Rainy – 6 24 days	Sunny + Partlycloudy + Cloudy 10 + 5 + 9 = 24 days 24 days do not have rain

iv) Find the ratio of the number of Sunny days to Rainy days.

Ans : No of Sunny days : No of Rainy days
10 : 6 (Divided by 2)
5 : 3

6. 30 students were interviewed to find out what they want to become in future. Their responses are given in the following table.

Profession	Tally Marks
Teacher	𝍸 | |
Pilot	| | |
Bank Manager	𝍸 | |
Doctor	| | |
Engineer	𝍸 | |
Other Professions	| | |

Represent this data using pictograph.

Solution :

Profession	Number	Pictograph
Teacher	7	
Pilot	3	
Bank Manager	5	
Doctor	3	
Engineer	5	
Other Professions	3	

= 1 Person

7. Yasmin of class VI was given a task to count the number of books which are biographies, in her school library. The information collected by her is represented as follows.

Biographies	Number of books	Number of books
Mathematicians		**30**
Scientists		**20**
Novelists		**50**
Sportspersons		**25**
Politicians		**35**

No. of Students

Mode of Travel

Key represents 20 Books

Observe the pictograph and answer the following questions:

Solution :

i) Which title has the maximum number of biographies? **Ans :** Novelists

ii) Which title has the minimum number of biographies? **Ans :** Scientists

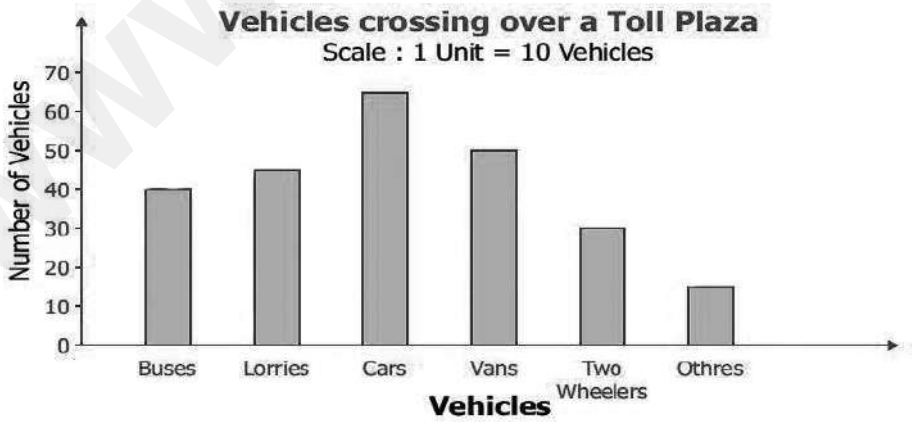
iii) Which title has exactly half the number of biographies as Novelists? **Ans :** Sports person

iv) How many biographies are there on the title of Sportspersons? **Ans :** 25

v) What is the total number of biographies in the library?

Ans : Total = 30 + 20 + 50 + 25 + 35 = 160 Biographies.

8. The bar graph illustrates the results of a survey conducted on vehicles crossing over a Toll plaza in one hour.



Observe the bar graph carefully and fill up the following table.

Solution :

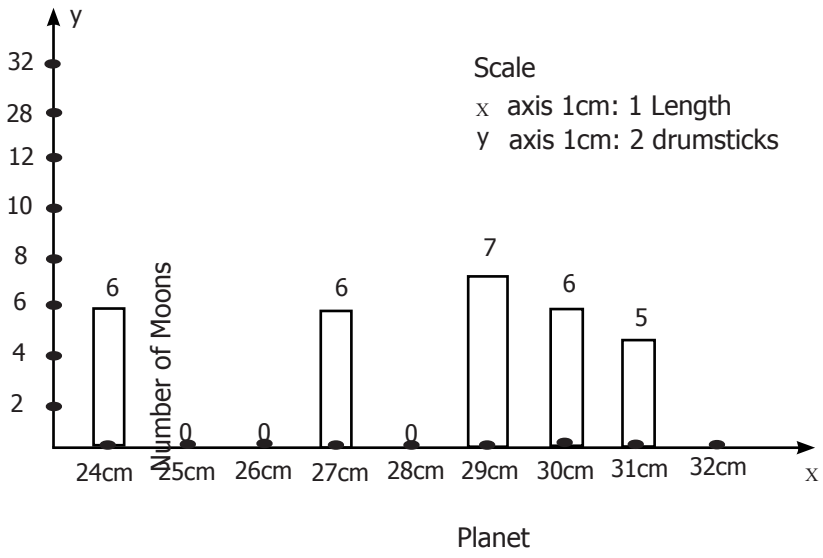
Vehicles	Vans	Two Wheelers	Buses	Loories	Cars	Others	Total Vehicles
Number of Vehicles	50	30	40	45	65	15	245

9. The lengths (in the nearest centimetre) of 30 drumsticks are given as follows.

Lengths	Number of drumsticks	Number of Drumsticks
24	𝍸	5
25	-	0
26	-	0
27	𝍸 I	6
28	–	0
29	𝍸 III	8
30	𝍸 I	6
31	𝍸	5

Draw the bar graph showing the same information.

Solution :



ADDITIONAL QUESTIONS

Answer the following questions:

1. The following table represents data about the doctors in a particular city.

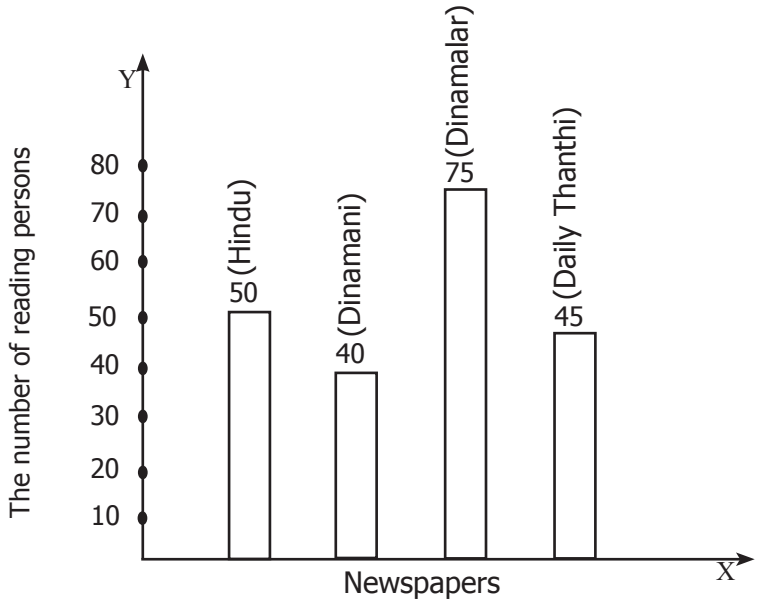
Number of Doctors (General)	Number of Doctors (Specialist)	Total
48	13	61

(i) The above table is a _____ **Ans:** Standard Data

(ii) The data about the doctors is a _____
(Primary Data / Secodary Data) **Ans:** Primary Data

(iii) The ratio between the General doctors and the specialists is _____ **Ans:** 48 : 13

2.

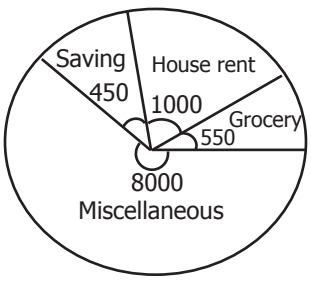


(i) Find the difference between the total newspapers and the Hindu newspapers.
Ans: 210 – 50 = 160

(ii) Which newspaper is circulated minimum? **Ans:** Dina Mani = 25

3. A ◯ represents 100. Draw pictogram for 330 balls. **Ans:** ◯◯◯◗

4.



The Pie chart represents the monthly expenditure of a person.

(i) Find the total income of the person?
Ans: 10,000

(ii) Find the angle represented by the House rent.
Ans: $\frac{1000}{10000} \times 360 = 36^0$

FORMATIVE ASSESMENT

STATISTICS

Time : 10 Minutes Marks : 10

I. Choose the best answer

1. The tally marks 𝍸 || represents the number count
a) 5 b) 8 c) 7 d) 9

2. The plural form of 'datum' is
a) datum b) datums c) data d) datas

3. A pictograph is also known as ____
a) pictoword b) pictogram c) pictophrase d) pictograft

4. The spaces between any two bars in a bar graph_____
a) can be different b) are the same c) are not the same d) all of these

5. The pictorial representation for a phrase is a _____
a) picto b) Tally mark c) Frequency d) Data

II. Answer the following question : **1 x 5 = 5**

6. Raajee has to buy Laddus in order to distribute to her friends as follows :

Classes	VI	VII	VIII	IX	X
No of Laddus	70	60	45	80	55

Draw a Bar graph for this data.

*****

CHAPTER 6 INFORMATION PROCESSING

Try these

[Page - 138]

Write four digit numbers by using the digits 3, 6, 9 and 5. What are the possible numbers you can write using ech digit exactly once?

The four digit number formed by each digit exactly once.

Th	H	T	O
4	3	2	1

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

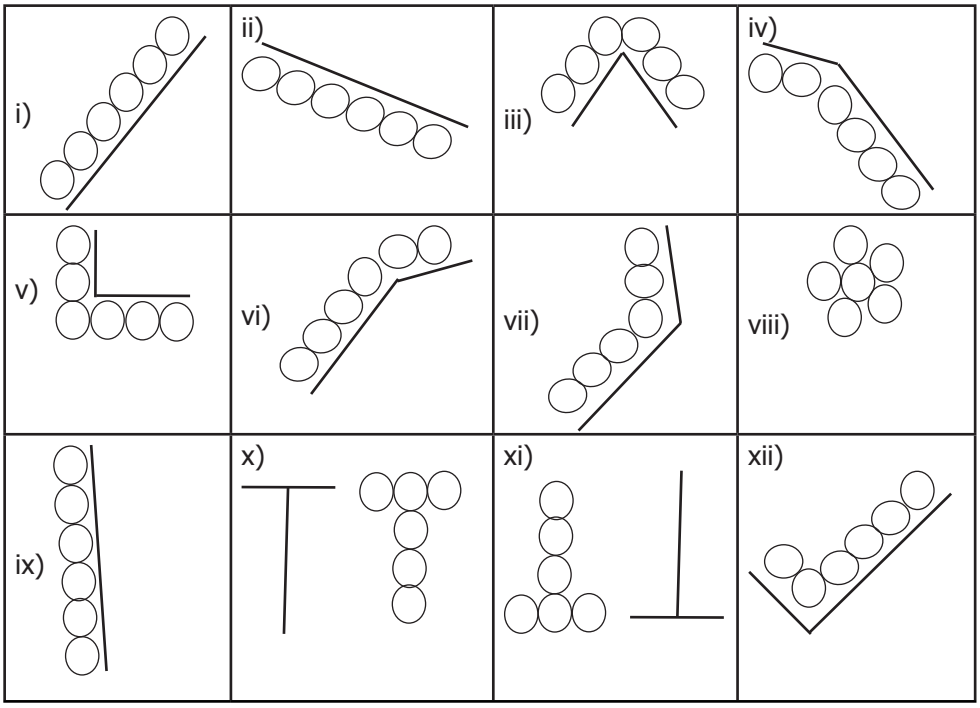
Now drop the condition that each digit must be used exactly once. List the numbers that are possible now and find the numbers that were not listed above.

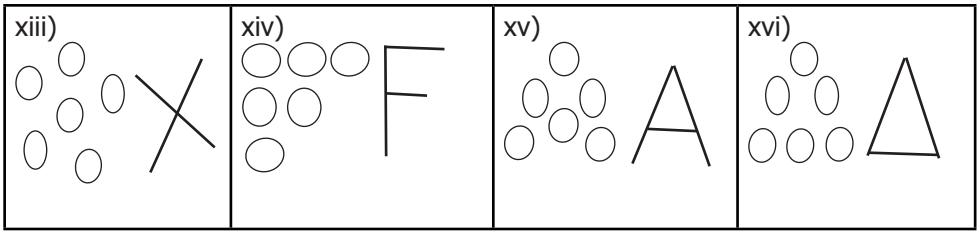
Th	H	T	O
4	4	4	4

$= 4 \times 4 \times 4 \times 4 = 256$ numbers

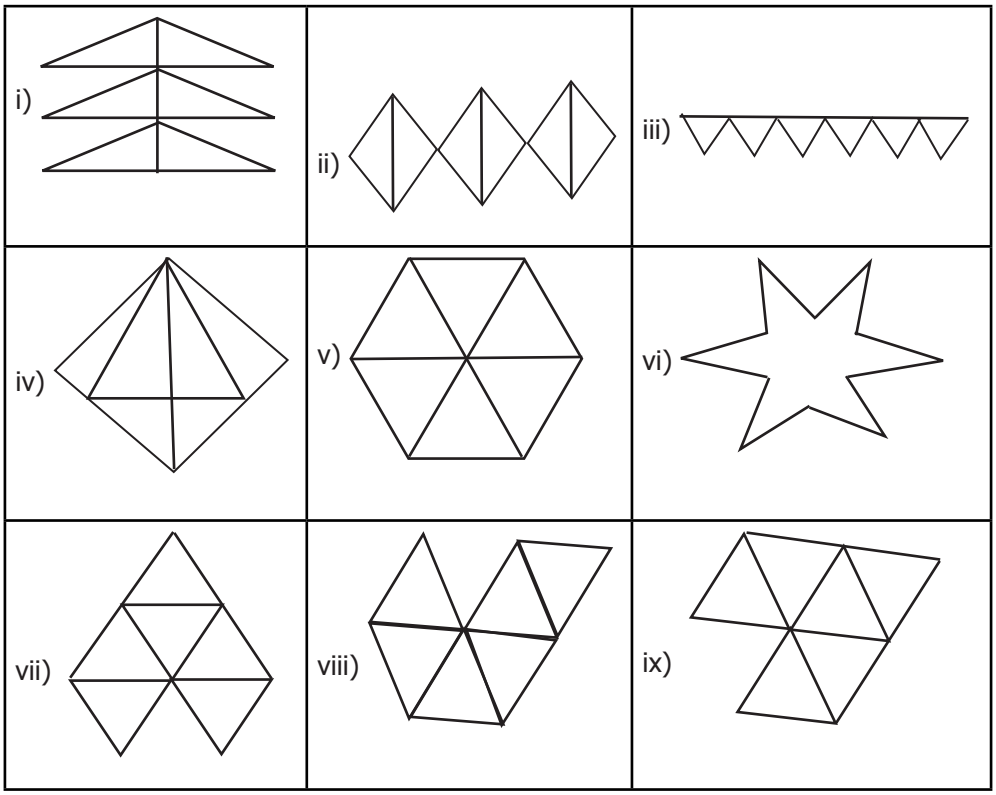
Try these

Mother had a lot of wooden pieces in different shapes with her. She gave 6 triangles to Kannagi and 6 circles to Madhan and asked them to create different figures using them. They tried and got some interesting figures. Can you create figures like them that are nice and interesting?





6. Triangles :



Exercise 6.1

1. Suppose, you have two shorts, one is black and the other one is blue; three shirts which are in white, blue and red. You again wish to make different combinations, but you always want to make sure that the shorts and shirt that you wear are of different colours. List and check how many combinations are possible now.

Solution :

6 combinations are possible

Black – white	Blue – white	Black – Blue
Blue – blue	Black – Red	Blue – Red

Shorts – {black, blue} Shirts – {white, Blue, red}.

2. You have two red and two blue blocks. How many different towers can you build that are four blocks high using these blocks? List all the possibilities.

R	R	B	B

R – Red
B – Blue

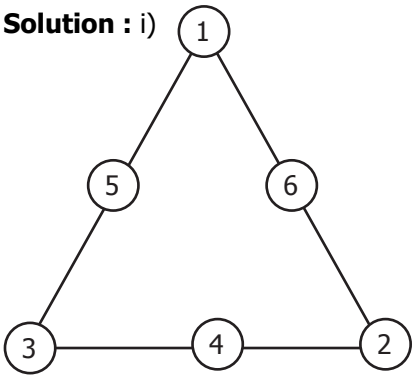
6 Possibilities :

R – R – B – B
R – B – R – B
R – B – B – R
B – R – R – B
B – R – B – R
B – B – R – R

Exercise 6.2

1. In the following magic triange, arrange the numbers from 1 to 6, So that you get the same sum on all its sides.

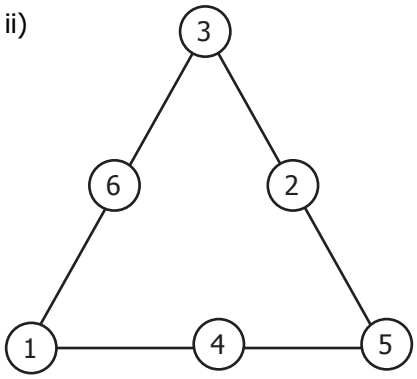
Solution : i)



Sum on sides = 9

1 + 5 + 3 = 9
3 + 4 + 2 = 9
1 + 6 + 2 = 9

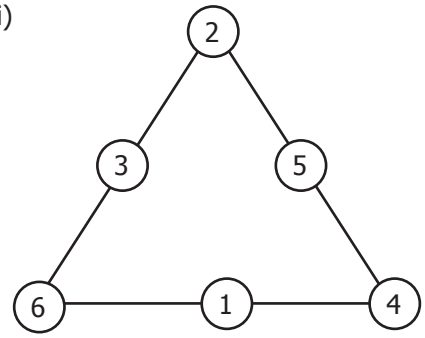
ii)



Sum on sides = 10

3 + 2 + 5 = 10
3 + 6 + 1 = 10
1 + 4 + 5 = 10

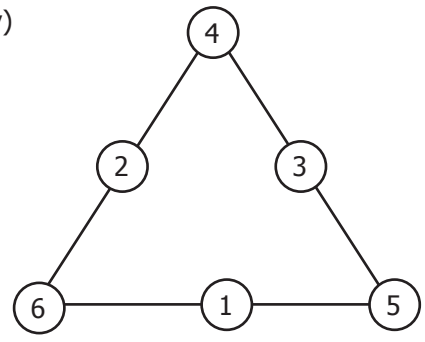
iii)



Sum on sides = 11

2 + 3 + 6 = 11
6 + 1 + 4 = 11
2 + 5 + 4 = 11

iv)



Sum on sides = 12

4 + 2 + 6 = 12
6 + 1 + 5 = 12
4 + 3 + 5 = 12

2. Using the numbers from 1 to 9

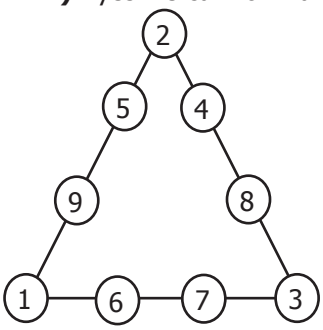
i) Can you form a magic triangle?

ii) How many magic triangles can be formed?

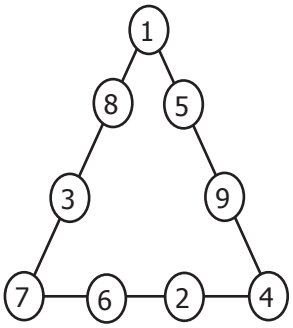
iii) What are the sums of the sides of the magic triangle?

Solution :

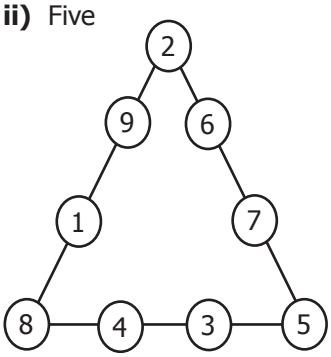
i) yes we can form a magic triangle. **ii)** Five



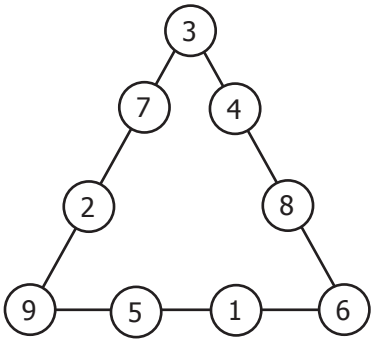
Sum on sides = 17



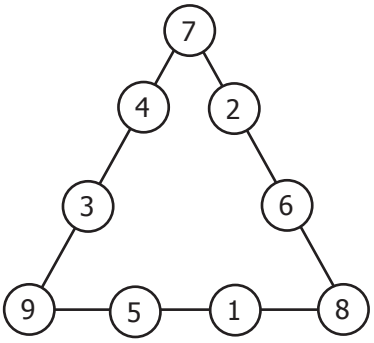
Sum on sides = 19



Sum on sides = 20



Sum on sides = 21

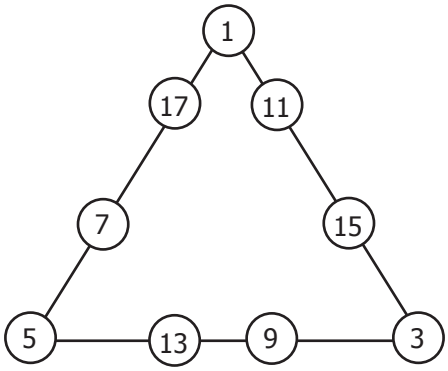


Sum on sides = 23

iii) The sums of the sides of the magic triangle are 17, 19, 20, 21 and 23.

3. Arrange the odd numbers from 1 to 17 without repetition to get a sum of 30 on each side of the magic triangle.

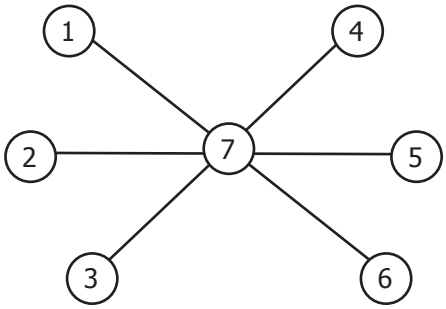
Solution :



Sum on sides = 30

4. Put the numbers 1, 2, 3, 4, 5, 6 & 7 in the circles so that each straight line of three numbers add up to the same total.

Solution :



Sum on sides = 14

1 + 7 + 6 = 14

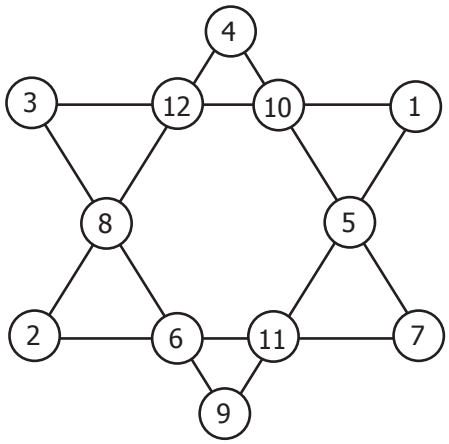
2 + 7 + 5 = 14

3 + 7 + 4 = 14

5. Place the number 1 to 12 in the 12 circles so that the sum of the numbers in each of the six lines of the star is 26. use each number from 1 to 12 exactly once. Find more possible ways?

Solution :

i)



Possible ways are

4 + 12 + 8 + 2 = 26

4 + 10 + 5 + 7 = 26

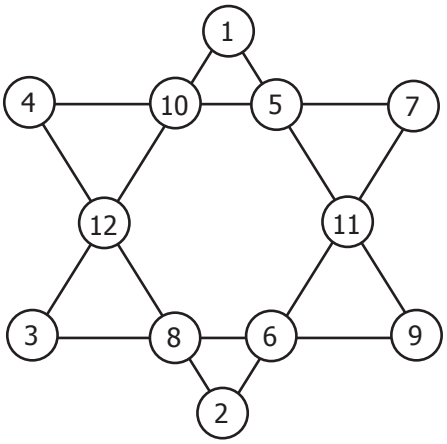
3 + 12 + 10 + 1 = 26

2 + 6 + 11 + 7 = 26

3 + 8 + 6 + 9 = 26

1 + 5+ 11 + 9 = 26

ii)



1 + 10 + 12 + 3 = 26

4 + 10 + 5 + 7 = 26

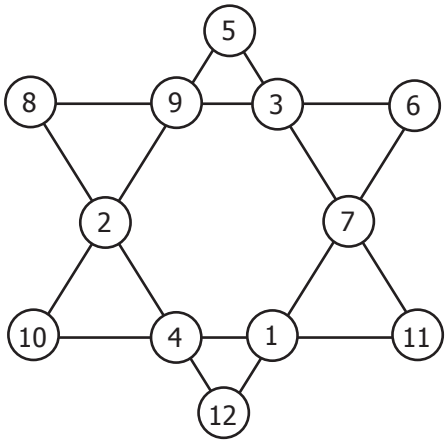
1 + 5 + 11 + 9 = 26

3 + 8 + 6 + 9 = 26

4 + 12 + 8 + 2 = 26

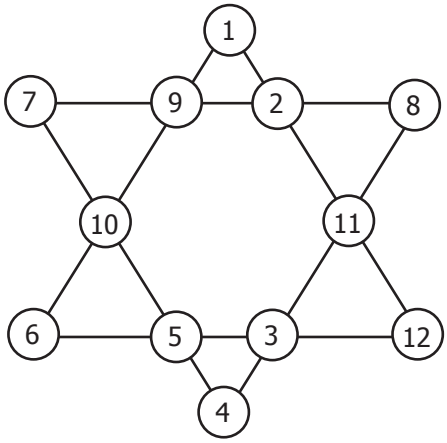
7 + 11 + 6 + 2 = 26

iii)



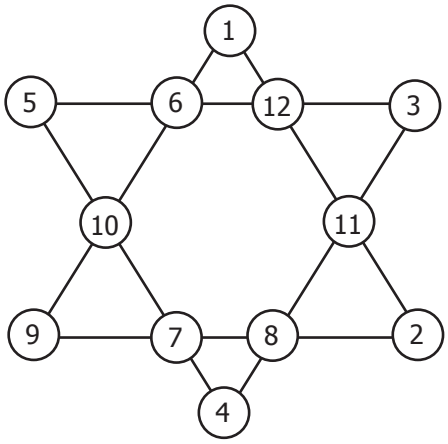
5 + 9 + 2 + 10 = 26
5 + 3 + 7 + 11 = 26
8 + 9 + 3 + 6 = 26
10 + 4 + 1 + 11 = 26
8 + 2 + 4 + 12 = 26
6 + 7 + 1 + 12 = 26

iv)



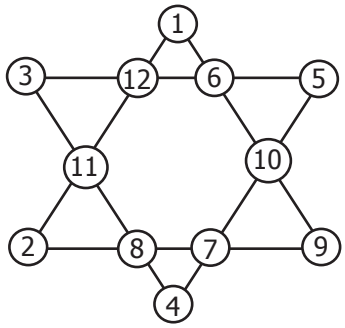
1 + 9 + 10 + 6 = 26
7 + 9 + 2 + 8 = 26
1 + 2 + 11 + 12 = 26
8 + 11 + 3 + 4 = 26
6 + 5 + 3 + 12 = 26
7 + 10 + 5 + 4 = 26

v)



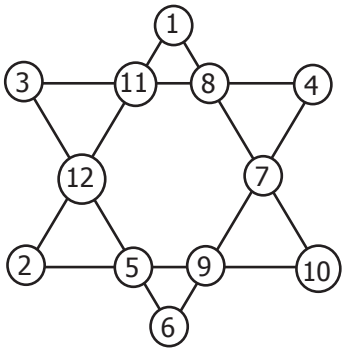
5 + 6 + 12 + 3 = 26
1 + 6 + 10 + 9 = 26
3 + 11 + 8 + 4 = 26
9 + 7 + 8 + 2 = 26
1 + 12 + 11 + 2 = 26
5 + 10 + 7 + 4 = 26

vi)



3 + 12 + 6 + 5 = 26
2 + 8 + 7 + 9 = 26
1 + 12 + 11 + 2 = 26
1 + 6 + 10 + 9 = 26
3 + 11 + 8 + 4 = 26
5 + 10 + 7 + 4 = 26

vii)

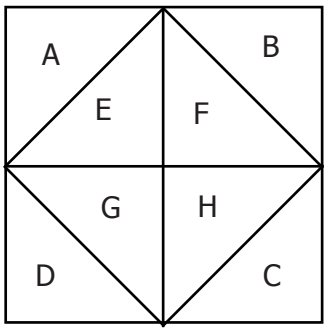


3 + 11 + 8 + 4 = 26
2 + 5 + 9 + 10 = 26
1 + 11 + 12 + 2 = 26
1 + 8 + 7 + 10 = 26
3 + 12 + 5 + 6 = 26
4 + 7 + 9 + 6 = 26

Exercise 6.3

1. How many Triangles are there in each of the following figures?

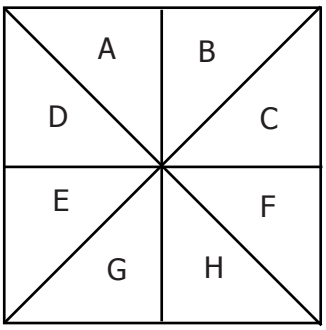
i)



A, B, C, D, E, F, G, H → 8 Triangles
E & G, F & H → 2 Triangles
E & F, G & H → 2 Triangles

Hence, the total triangles
8 + 2 + 2 = 12 Triangles.

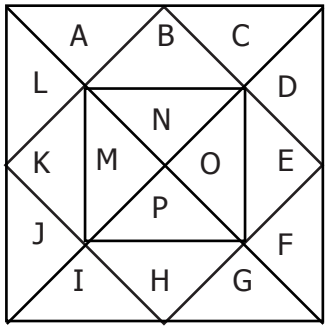
ii)



A, B, C, D, E, F, G, H → 8 Triangles
A & B, C & F, G & H, E & D → 4 Triangles
A, B, C, & F, C, F, G & H
H, G, E & D, E, D, A & B → 4 Triangle

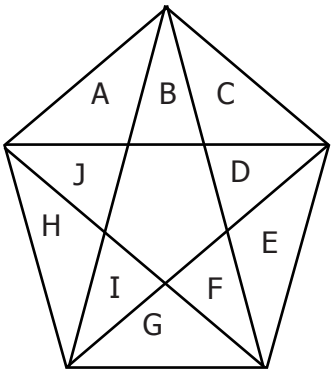
Hence, the total Triangles
8 + 4 + 4 = 16 Triangles

iii)



A to P = 16 Triangles
I, P, H & G, O, D, E & F, A, B, N
and C, M, L, K & J → 4 Triangles
N & O; M & P → 2 Triangle
C & D, F & G, I and J; L & A → 4 Triangles
I, P, O, D, E, H, G & F
A, B, C, J, K, L, M & N → 2 Triangle
A, B, C, N, D, O, E & F, L, K,
J, M, P, H & G → 2 Triangle
O & P, M & N → 2 Triangle
Hence the total Triangles are
16 + 4 + 2 + 4 + 2 + 2 + 2 = 32 Triangles

iv)

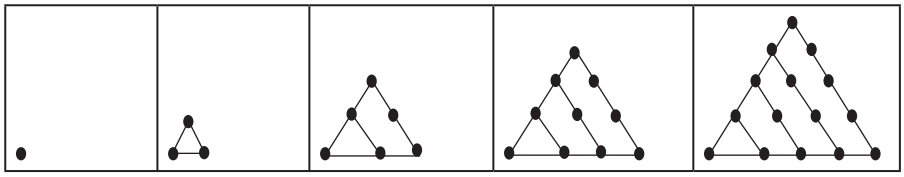


Solution :
A to J → 10 Triangle
A & B, B & C, C & D, D & E,
E & F, F & G, G & I, I & H, H & J → 10 Triangle
J & A
Triples Pattern:
A+b+C, C+D+E, E+G+G, G+I+H, H+J+A
J+K+D, J+K+F, I+K+D, I+K+B, F+K+B
Total = 10

5's Pattern : B+K+I+F+G, J+K+F+D+E, I+K+B+C+D, F+K+A+B+J, D+K+H+I+J
Total = 5

2. Find the number of dots in the tenth figure of the following patterns.

i)



Solution :

Pattern :	1	2	3	4	5
	1	1 + 2 3	1 + 2 + 3 6	1 + 2 + 3 + 4 10	1 + 2 + 3 + 4 + 5 15

6	7	8	9	10
15 + 6 21	21 + 7 28	28 + 8 36	36 + 9 45	45 + 10 55

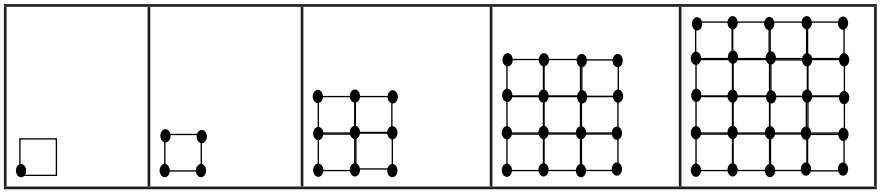
In the tenth figure 55 dots are present.

We can use :

Sum of 'n' natural number formula : $\sum_{1}^{10} n = \frac{n \times (n+1)}{2}$

Here n = 10 $= \frac{10 \times (10+1)}{2}$

$= \frac{\overset{5}{\cancel{10}} \times 11}{\cancel{2}} = 55$ dots

ii) 

Solution :

Pattern :	1	2	3	4	5	6	7	8	9	10
	1	4	9	14	25	36	49	64	81	100

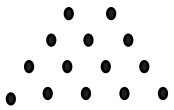
In tenth figure 100 dots are present

Hints : Square number of n = 10 [$n^2 = 10^2 = 100$]

3. 

Solution :

i) Draw the next pattern.

 2, 3, 4 & 5 dots.

ii) Prepare a table for the number of dots used for each pattern.

Pattern :	1	2	3	4
No of dots	2	5	9	14

iii) Explain the pattern.

Pattern :	1	2	3	4
No of dots	2	2+3	2+3+4	2+3+4+5

iv) Find the number of dots in the 25th pattern.

Number of dots in the 25th pattern.

2 + 3 + 4 + ... + 24 + 25 + 26

Sum of "n" natural number $= n\frac{(n+1)}{2}$

n = 26

$$= \frac{\overset{13}{\cancel{26}} \times 27}{\cancel{2}} = 27 \times (10 + 3)$$

$$= 270 + 81 = 351$$

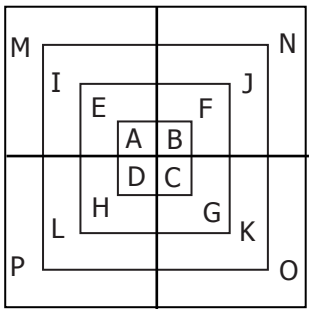
Dots started from 2

so 351 – 1 = 350

350 dots are in 25th pattern.

4. Count the number of squares in each of the following figures?

i)



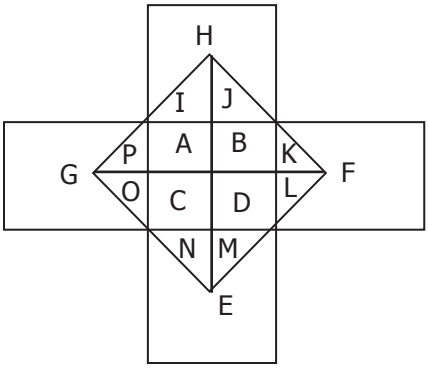
Solution :

A to P → 16 squares

ABCD, EFGH, IJKL, MNOP → 4 squares.

Total → 20 squares.

ii)



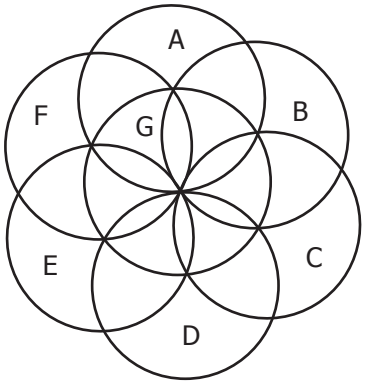
Solution :

A to H → 8 squares (ABC & D,

IJKLMNO & P) → 2 squares.

Total → 8+2=10 squares.

5. How many Circles are there in the following figure?

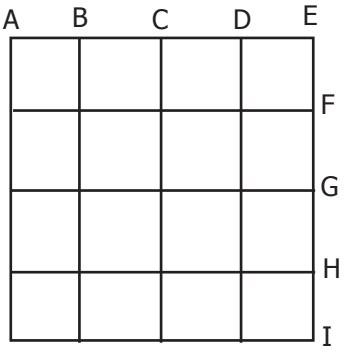


Solution :

A to G = 7 Circles.

6. Find the minimum number of straight lines used in forming the following figures.

i)



Solution :

A to I → 10 lines

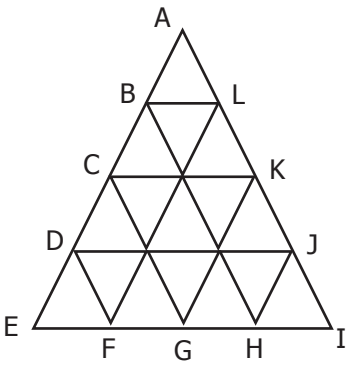
(Or)

Horizontal → 5 lines

Vertical → 5 lines

Total → 10 lines.

ii)



Solution :

Straight line

BL, CE, DJ, EI, EA, AI, LF, KG, JH, DF, CG, BH,

Total → 12 lines.

*****

FORMATIVE ASSESMENT

INFORMATION PROCESSING

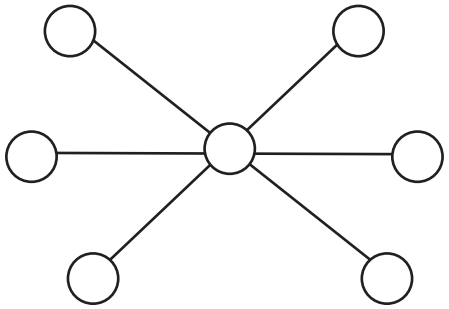
Time : 10 Minutes Marks : 20

I.Fill in the blanks. **5 x 1 = 5**

1. 2, 4, 6, 8 _____
2. 1, 1, 2, 3, 5, _____
3. ⌞ , ⌟ , ⌝ _____.
4.  _____
5. A, D, H, M, _____

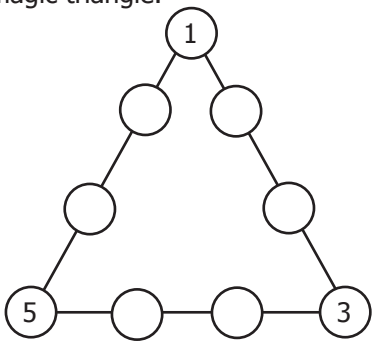
II. Answer the following question : **15**

6. Put the numbers 1, 2, 3, 4, 5, 6 and 7 in the circles so that each straight line of three numbers add up to the same total.



(Or)

Arrange the odd numbers from 1 to 17 without repetition to get sum of 30 on each side of the magic triangle.



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SUMMATIVE ASSESSMENT

MATHEMATICS

Time : 2 Hrs. Marks : 60

I. Fill in the blanks. **5 x 1 = 5**

1. If Arulmozhi saves ₹ 12 per day, then she saves ₹ ____ in 30 days.
2. If 'p – 5' gives 12 then 'p' is _____
3. Ratio of 4m to 200 cm = _____
4. A ray has _____ end point(s)
5. An example of a primary data is _____

II. Choose the correct Answer : **5 x 1 = 5**

6. The value of 3 + 5 – 7 x 1 is _____
   a) 5 b) 7 c) 8 d) 1
7. The number of days is 'w' weeks is
   a) 30 + w b) 30w c) 7 + w d) 7w
8. The ratio of 21 to 20 paise is _____
   a) 1 : 5 b) 1 : 2 c) 2 : 1 d) 5 : 1
9. A line is denoted as
   a) AB b) $\overrightarrow{AB}$ c) $\overleftrightarrow{AB}$ d) $\overline{AB}$
10. The plural form of 'datum' is
    a) datum b) datums c) data d) datas

III. Say True or False 5 x 1 = 5

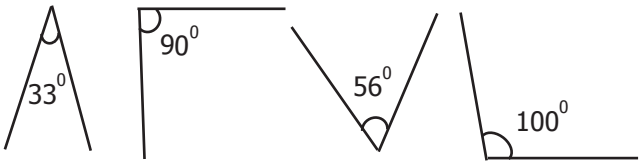
11. 88888 = 8 x 10000 + 8 x 100 + 8 x 10 + 8 x 1.
12. 10 more to three times 'c' is '3c + 13'
13. One of the terms in a ratio cannot be 1.
14. 20^0 and 70^0 are complementary.
15. The tally marks 𝍸 ||| represents the number count is 8.

IV. Match the following : 5 x 1 = 5

16. 50000 – 4 : 1
17. 4 times q – An acute angle
18. 20 : 5 – data
19. 45^0 – Fifty thousand
20. datum – 4q

V. Answer any 10 question 10 x 2 = 20

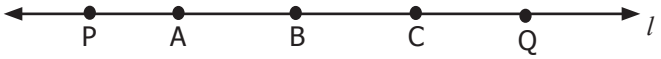
21. How many thousands are there in 1 lakh?
22. In a year, a whole – sale paper firm sold 6,25,600 note books out of 7,50,000 note books. Find the number of notebooks. left unsold.
23. Find the estimate value of 5598 ÷ 689.
24. The teacher forms groups of fire students in a class. How many students will be there in 'p' groups.
25. Arivazhagan is 30 years younger to his father. Write Arivazhagan's age in terms of his father is age.
26. Athiyan and mugilan are brothers. Athiyan is 'p' years old and maglilian is elder to Athiyan be 6 years. Write an algebraic statement for this and find the age of mugilan if Athiyan is 20 years old.
27. Malarkodi has 10 oranges. If she abe 4 oranges, what fraction of oranges was not eaten by her?
28. Give two equivalent ratios for each of the following. (i) 3 : 2 (ii) 1 : 6
29. Using the numbers 3, 9, 4, 12 write two ratios that are in proportion.
30. Pick out the Acute angles from the given figures.



31. Find the supplementary angle to (i) 35^0 (ii) 180^0
32. Which angle is equal to twice its complement?
33. Two complementary angles are in the ratio 7 : 2. Find the angle.
34. Two supplementary angles are in the ratio 5 : 4. Find the angle.

VI. Answer any Five of the following question **5 x 3 = 15**

35. Compare 59283746 and 59283748 using place value chart.
36. Arrange the following numbers in the descending order :
    128435, 10835, 21354, 6348, 25840
37. Answer the following questions:
    i) If n takes the value 3 then final the value of 'n + 10'?
    ii) If 'g' is equal to 300 what is the value of 'g – 1' and 'g + 1'
    iii) What is the value of 's', if '23 – 6' gives 30?
38. Express the following allergenic statement to verbal statement.
    (i) x ÷ 3 (ii) 11 + 10x (iii) 70s.
39. Out of 50 students in a class 30 are boys. Find the ratio of
    (i) number of boys to the number of girls.
    (ii) number of boys to the total number of students.
40. Kumaran has ₹ 600 and wants to divide it between vimala and yazhini in the ratio 2 : 3 who will get more and how much?
41. How many line segments are there in the given line? Name them



42. Draw any line and mark any 4 points that are not collinear.
43. Draw pictograph for the given data.

Month	June	July	August	September
Number of Computers sold	300	450	600	550

(Choose your own suitable scale)

44. The fruits liked by the students of a class are as follows:

Fruits	Bananas	Grapes	Apples	Mangoes	Guaves	Papayas
No of students	8	10	8	7	12	3

Draw a Bal Graph for this data.

VII. Answer any one of the following questions **1 x 5 = 5**

45. Constrict a line segment using ruler and compass QR = 10 cm. (Or)
    Use a protractor to draw an obtuse angle 120^0.

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