



GOVERNMENT OF KARNATAKA

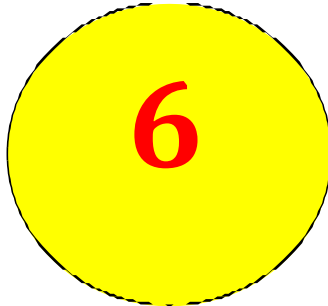
DEPARTMENT OF SCHOOL EDUCATION AND LITERACY

DIET DAVANAGERE

LESSON BASED ASSESMENT

2025-2026

MATHEMATICS



ENGLISH MEDIUM

DEPARTMENT OF STATE EDUCATIONAL RESEARCH AND TRAINING

BANASHANKARI III STAGE - BANGALORE 560085

&

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Sl.no	Chapter Names	Learning outcomes	P.NO
1.	Patterns in Mathematics	Recognizing patterns in numbers and shapes, identifying and formulating rules for patterns.	4-8
2.	Lines and Angles	Identify and classify lines and angles, understand different types of angles, and measure angles accurately.	9-13
3.	Number play	Identify the numbers, number patterns, palindrome patterns, Kaprekar's constant, solve basic arithmetic operations related real life problems.	14-18
4.	Data Handling and Presentation	Students will learn to record data, organize it in tabular form, and represent it visually using pictographs and bar graphs. They will also develop the ability to interpret data and draw conclusions.	19-24
5.	Prime Time	Identify prime numbers, understand the concept of prime factorization, multiples and apply divisibility rules.	25-29
6.	Perimeter and Area	Calculate perimeter and area of different shapes, including triangles, rectangles, and squares, and apply these concepts to solve real-life problems.	30-34
7.	Fractions	Recognizing different types of fractions, representing them on a number line, finding equivalent and lowest terms, comparing fractions, and performing addition and subtraction operations on them.	35-39
8.	Playing with constructions	Develop students understanding of basic geometric constructions, spatial reasoning, and problem-solving skills.	40-43
9.	Symmetry	Understanding line symmetry, reflection symmetry, and rotational symmetry.	44-50
10.	The Other Side of Zero	Visualize integers on a number line, compare them, and perform basic addition and subtraction operations.	51-54
	Answers		55-92

Chapter – 1 Patterns in Mathematics

1. LEARNING OUTCOME :- Recognizing patterns in numbers and shapes, identifying and formulating rules for patterns.

2. Learning points :-

- Patterns in numbers and shapes
- Visualizing number sequences
- Relations among number sequences
- Shape sequences

3. Weightage to Objectives

Sl.NO	Objectives	No. of questions	Marks	Percentage
1	Knowledge	18	19	22%
2	Understanding	23	30	35%
3	Application	7	15	23%
4	Skill	8	18	20%
Total		56	82	100%

4. Weightage to difficulty level

Sl.NO	Difficulty level	No. of questions	Marks	Percentage
1	Easy	18	22	27%
2	Average	27	42	51%
3	Difficult	11	18	22%
Total		56	82	100%

Chapter – 1 Patterns in Mathematics

I. Choose the correct answer from the given four alternatives

$$13 \times 1 = 13$$

(Easy)

1. The next number of the sequence 9, 18, 27, 36 is

- A. 100 B. 81 C. 45 D. 65

2. The next two numbers of the sequence 5, 10, 20, 40 are

(Average)

- A. 80 and 160 B. 60 and 80 C. 40 and 50 D. 50 and 60

3. The fifth number of the sequence 1, 4, 9, 16 is

(Difficult)

- A. 15 B. 25 C. 49 D. 20

4. The next term of the sequence 1, 11, 111, 1111 is

(Easy)

- A. 111111 B. 111 C. 11111 D. 1111111

5. The missing terms in the sequence A1, B2, C3, D4, ___, F6

(Average)

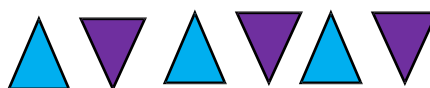
- A. E5 B. D5 C. E8 D. F5

6. The number which is not belongs to the pattern 2, 4, 8, 16, 34, 64 is

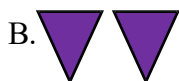
(Difficult)

- A. 2 B. 8 C. 64 D. 34

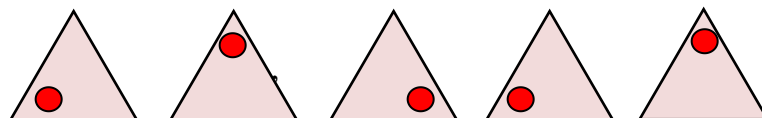
7. If we continue the pattern then we get.



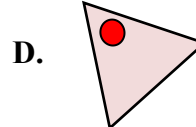
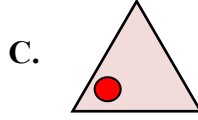
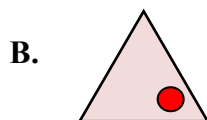
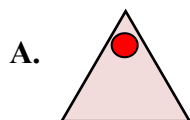
(Easy)



8. Next pattern of the sequence



(Average)



9. The fifth term of the pattern AB, BC, CD, DE

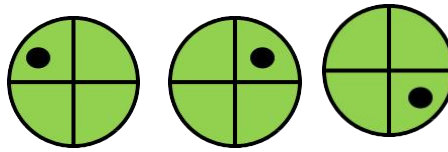
(Average)

- A. FG B. DF C. EF D. EE

10. The sequence which is not belongs to this pattern bf, cg , dh, ek, fi (Difficult)

- A. ae B. eg C. ek D. fi

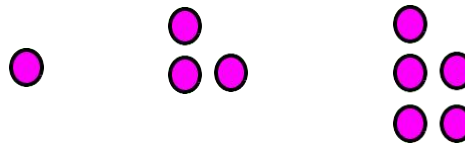
11. The next picture of this sequence is



(Average)

- A. B. C. D.

12. Next pattern is



(Average)

- A. B. C. D.

13. The next number of the pattern 2, 6, 12, 20, 30

(Average)

- A. 36 B. 40 C. 42 D. 48

II. Fill up the blanks with suitable answers.

$10 \times 1 = 10$

14. The sequence of numbers 1, 3, 6, 10, 15.... are called _____

(Average)

15. The sequence of numbers 1, 4, 9, 16, 25.... are called _____

(Easy)

16. The sequence of numbers 1, 8, 27, 64 _____

(Difficult)

17. The next shape of this sequence is _____

(Easy)



18. The missing vowel in the sequence. a, e, _____, o, u

(Easy)

19. The next term of the sequence 1, 4, 9, 16, 25 is _____

(Average)

20. The sum of first three consecutive numbers is _____

(Average)

21. The third triangular number _____ (Average)
22. The branch of Mathematics that studies pattern in shapes is called _____ (Easy)
23. Regular polygon are _____ (Average)

III. If the statement is right put ($\checkmark$) mark, if wrong put ($\times$) mark. $8 \times 1 = 8$

24. Patterns can be made using numbers, shapes or letters. (Easy)
25. The sequence 1, 3, 5, 7, 9... is a pattern of odd numbers. (Average)
26. All patterns must increase in order in value. (Difficult)
27. Pattern help in predicting the next number or figure in the sequence. (Average)
28. In geometric patterns the shapes must be the same size. (Easy)
29. The sequence 100, 90, 80, 70 follows a pattern with a common difference. (Easy)
30. In a pattern the difference between consecutive terms is always same. (Average)
31. A pattern is always created by a rule. (Average)

IV. Define the following. $5 \times 1 = 5$

32. Number sequence (Easy)
33. Sequence of shapes (Easy)
34. Triangular numbers (Average)
35. Square numbers (Average)
36. Cube numbers (Average)

V. Solve the following . $6 \times 1 = 6$

37. What is numerical pattern? (Average)
38. What is the next term of the pattern 3, 6, 9, 12 ? (Easy)
39. Write the rule of this pattern 2, 4, 6, 8, 10, ... (Difficult)
40. Write the missing number in the pattern. 65, 75, _____ 95. (Easy)
41. Write the rule of the sequence 2, 4, 8, 16, 32, (Average)

42. What is the rule of pattern in the sequence 3, 9, 27, 81,? (Easy)

VI. Solve the following.

$$8 \times 2 = 16$$

43. Write next two terms of the sequence A2, C4, E6, G8 (Average)

44. Write the missing terms 1, 3,....., 7, 9,..... (Difficult)

45. Write next two term of the sequence Blue, green, red, Blue, green, (Easy)

46. Write the next term and rule of the sequence 3, 6, 12, 24 (Average)

47. Write the rule of the term sequence 9, 18, 27, 36... (Difficult)

48. 1, 2, 4, 7, 11 Which is the next term and why? (Average)

49.  Next shape of this sequence. (Difficult)

50. Write the rule of Virahanka numbers. (Average)

VII. Solve the following.

$$2 \times 3 = 6$$

51. Write the rule of given sequence and next four terms. (Average)

25, 30, 35, 40, 45

52. 1, 2, 3, 5, 8, 13, 21 what these numbers called and explain the rule of this number sequence with example. (Average)

VIII. Solve the following problems.

$$2 \times 4 = 8$$

53. Write the next line of the sequence and rule used. (Average)

1
1 2 1
1 2 3 2 1

54.  ... Write the fourth and tenth term with rule. (Easy)

IX. Solve the problems.

$$2 \times 5 = 10$$

55. 1, 7, 19, 37 represent these hexagonal numbers pictorially and rule with next two numbers. (Difficult)

56. Consider the following sequence of numbers 3, 6, 9, 12, (Average)

a) Describe the rule that governs this sequence.

b) Write the next 3 numbers in the sequence.

c) How do you find the missing numbers in the sequence.

Chapter – 2 Lines and Angles

1. LEARNING OUTCOME:- Identify and classify lines and angles, understand different types of angles, and measure angles accurately.

2. Learning points :-

- Concept of point, line segment, line, ray, angle
- Types of angles
- Measuring Angles
- Introduction & use of protractor
- Construction of angles.

3. Weightage to Objectives

SL.NO	Objectives	No. of questions	Marks	Percentage
1	Knowledge	19	19	35%
2	Understanding	07	20	36%
3	Application	07	07	13%
4	Skill	04	09	16%
Total		37	55	100 %

4. Weightage to difficulty level

SL.NO	difficulty level	No. of questions	Marks	Percentage
1	Easy	15	20	36%
2	Average	15	15	28%
3	Difficult	7	20	36%
Total		37	55	100 %

Chapter – 2 Lines and Angles

I. Choose the correct answer from the given four alternatives.

$$5 \times 1 = 5$$

1. The symbol of ray is

(Easy)

A. 

B. 

C. 

D. 

2. The measure of a full turn in degrees

(Easy)

A. 90°

B. 360°

C. 180°

D. 270°

3. Clock which shows 30° angle

(Easy)

A.



B.



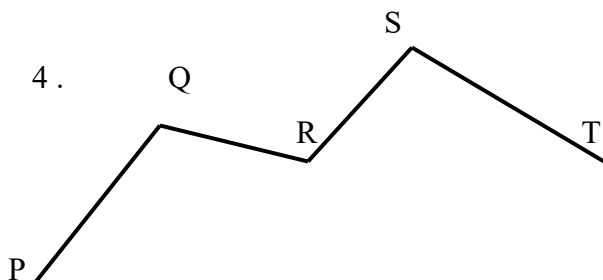
C.



D.



4.



Number of line segments in this figure

(Easy)

A. 1

B. 2

C. 3

D. 4

5. The shape formed by two rays with same starting point.

(Easy)

A. Point

B. Straight line

C. Plane

D. Angle

II. Fill up the blanks.

$$4 \times 1 = 4$$

6. The line that bisects angle is called _____

(Average)

7. There are set of _____ numbers on the protractor.

(Average)

8. Angles are measured in _____

(Average)

9. _____ determine a position.

(Easy)

III. 10. Match the following.

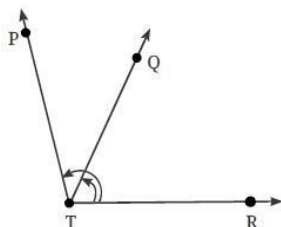
(Easy)

 $6 \times 1 = 6$

- | | | |
|--|---|----------------|
| a. Equal to 90° | - | Acute angle |
| b. More than 180° and less than 360° | - | Right angle |
| c. Equal to 360° | - | Obtuse angle |
| d. More than 90° less than 180° | - | Straight angle |
| e. Equal to 180° | - | Reflex angle |
| f. Less than 90° | - | Complete angle |

IV. If the statement is right put (✓) mark, if wrong put (×) mark. $5 \times 1 = 5$

- | | |
|---|-----------|
| 11. There are two right angles in a straight angle. | (Average) |
| 13. One angle can measure more than 360° | (Easy) |
| 14. A straight line has definite measurement. | (Easy) |
| 15. Protractor is used to measure the angles. | (Easy) |
| 16. TQ is called angular bisector in this figure. | (Easy) |

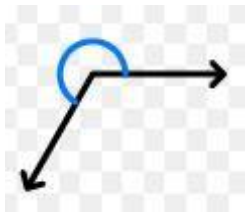
**V. Define the following.** $10 \times 1 = 10$

- | | |
|--------------------|-----------|
| 16. Point | (Average) |
| 17. Line segment | (Average) |
| 18. Straight line | (Average) |
| 19. Ray | (Average) |
| 20. Angle | (Average) |
| 21. Right angle | (Easy) |
| 22. Acute angle | (Easy) |
| 23. Obtuse angle | (Easy) |
| 24. Straight angle | (Easy) |
| 25. Reflex angle | (Average) |

VI. Measure and write the given angles by using protractor.

$5 \times 1 = 5$

26.



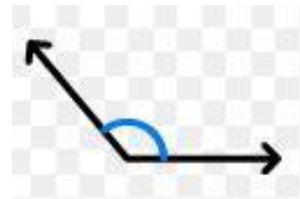
(average)

27.



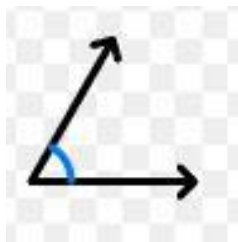
(average)

28.



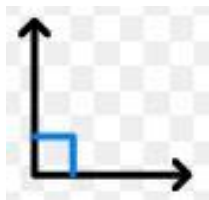
(average)

29.



(average)

30.



(average)

VII. Construct the given angles by using protractor.

$3 \times 2 = 6$

31. 120°

(Difficult)

32. 80°

(Difficult)

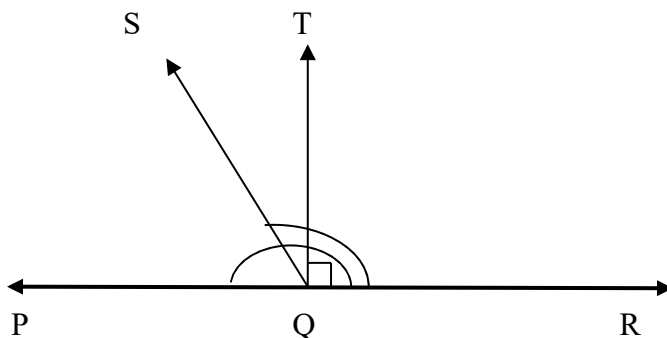
33. 192°

(Difficult)

VIII. Solve the following problems.

$2 \times 3 = 6$

34. Measure and write the given angles by using protractor and write the type of the angles. (Difficult)



35. Express the following statements by drawing rough diagram.

(Difficult)

- i. AB and BC starts from B point.
- ii. EF and CD are intersect at 'O'
- iii. P and Q points are on MN straight line.

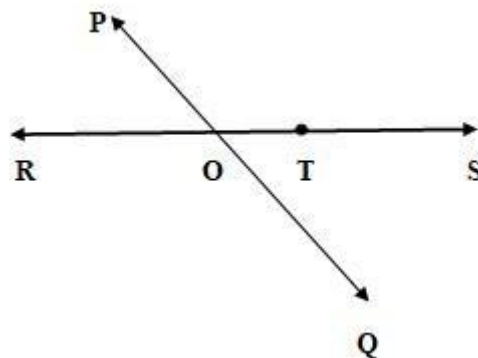
IX. Solve the problems.

$$2 \times 4 = 8$$

36. Name the following.

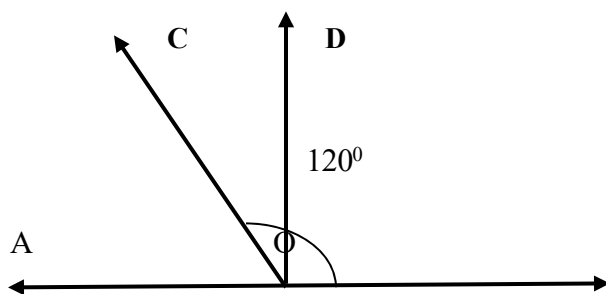
(Difficult)

- iv. 6 points
- v. 4 angles
- vi. 4 rays
- vii. 2 straight lines and 1 segment



37. If $\angle BOC = 120^\circ$, find $\angle AOC$ and $\angle COD$

(Difficult)



Chapter – 3 Number play

1. LEARNING OUTCOME:- Identify the numbers, number patterns, palindrome patterns, Kaprekar's constant, solve basic arithmetic operations related real life problems.

2. Learning points:-

- Recognizing patterns .
- Classifying numbers.
- Applying number theory concepts in practical situations
- Understanding Palindrome numbers & Kaprekar s magic number.

3. Weightage to Objectives

Sl.NO	Objectives	No. of questions	Marks	Percentage
1	Knowledge	13	15	30 %
2	Understanding	14	17	34 %
3	Application	08	10	20 %
4	Skill	03	08	16%
Total		38	50	100 %

4. Weightage to difficulty level

Sl.NO	difficulty level	No. of questions	Marks	Percentage
1	Easy	14	14	28 %
2	Average	20	27	54%
3	Difficult	04	09	18 %
Total		38	50	100 %

Chapter – 3 Number play

I. Choose the correct answer from the given four alternatives.

$10 \times 1 = 10$

1. The greatest 5-digit number using the digits 3, 1, 0 (Easy)
A. 10003 B. 33310 C. 33333 D. 33301
2. The 5-digit palindrome number using the digits 2, 5, 4 is (Easy)
A. 22254 B. 55542 C. 25452 D. 44522
3. In the following , the smallest three digit number that does not change even if the digits are written in reverse order. (Average)
A. 110 B. 101 C. 330 D. 909
4. The Kaprekar's magic number (Easy)
A. 1234 B. 4321 C. 6174 D. 9999
5. The main property of palindrome number (Average)
A. They are divisible by 10 B. They read the same forwards and backwards
C. They have no repeated digits D. They are always even
6. In the game "The 21 Game" what is the winning number (Easy)
A. 10 B. 21 C. 50 D. 100
7. On a number line the pattern represents numbers increasing by a fixed amount (Easy)
A. Even and odd numbers B. Prime numbers
C. Square numbers D. Equal intervals
8. I am a 4-digit palindrome number, my ten's digit is 3 more than my thousand's digit, my digit sum is 22. The number is. (Average)
A. 3773 B. 4774 C. 5775 D. 6776
9. How many times does the digit '7' appear when writing all the numbers from 1 to 100? (Average)
A. 10 B. 15 C. 20 D. 25
10. By using dot (.) patterns, which of the following numbers can be arranged in all the three ways namely a line, a triangle and a rectangle. (Average)
A. 9 B. 10 C. 11 D. 12

II. Choose the correct answer for each of the following.**5 × 1 = 5**

11. The smaller number whose digit sum is 15 is _____ [96000 / 000015] (Easy)
12. The smallest digit in the number 1111 _____ in the blank space, so that the digit sum is an even number. [0 / 1] (Easy)
13. _____ is not a method of estimation mentioned in the chapter? [Finding exact values / Rounding numbers] (Average)
14. _____ is the smallest number whose digit sum is 11 [29 / 74] (Average)
15. The next number in the sequence 2, 4, 8, 16, ----- ? [32 / 18] (Average)

III. State true / false.**10 × 1 = 10**

16. The largest 6-digit telephone number that can be formed by using digits 5, 3, 4, 7, 0, 8 using each digit only once is 875403. (Easy)
17. The largest 4-digit number formed by the digits 6, 7, 0, 9 using each digit only once is 976. (Average)
18. The numbers 4578, 4587, 5478, 5487 are in descending order. (Average)
19. 8439 is an odd number. (Easy)
20. 2787 is an even number. (Easy)
21. The Kaprekar's constant is 7164. (Easy)
22. The number 1221 is a palindrome number. (Average)
23. The sum of 56560 and 3228 gives a five digit number. (Difficult)
24. The sum of digits of 672 and 564 is different. (Difficult)
25. All even numbers are composite numbers. (Easy)

IV. Solve the following problems.**7 × 1 = 7**

26. Define palindrome numbers? (Easy)
27. Write the kaprekar's constant? (Average)
28. Make the greatest five digit number using the digits 1,2,7,9,4 without repetition? (Average)
29. Write the smallest four digit palindrome number. (Easy)
30. Identify the super cells in the given table? (Average)

9780	9882	5662	1290	7662	8192
------	------	------	------	------	------

31. What happens to the number 11 in the collatz conjecture? (Difficult)
32. What is the difference of largest and smallest four digit number made by using digits 4, 6, 8, 1? (Average)

V. Solve the following problems.

$2 \times 2 = 4$

33. Colour or mark the super cells in the table below.

(Average)

596	451	265	104	105	106	107	109	108	210
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

34. Fill the table below with only 4-digit numbers such that the super cell are exactly the coloured cells.

6543								8653	
------	--	--	--	--	--	--	--	------	--

(Average)

VI. Solve the following problems.

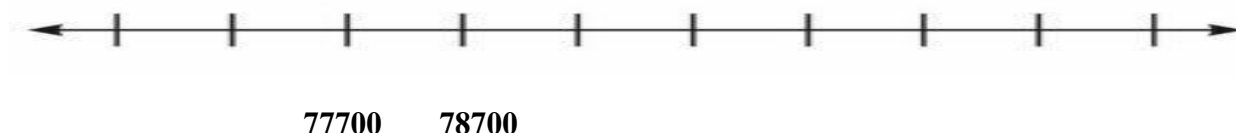
$2 \times 3 = 6$

35. state which number is in left, middle and right on number line.

(Average)

- i. 123
- ii. 234
- iii. 111

36. Identify the numbers marked on the number lines below and label the missing numbers. Put a circle around the smallest number and a box around the largest number in the sequence below.(Difficult)

**VII. Solve the following problems.**

$2 \times 4 = 8$

37. Complete the given table with 5-digit numbers whose digits are 1, 0, 4, 3 and 8 in some order. Only shaded have a number greater than all its neighbors. (Difficult)

84310	84301	34106	
	13408	40318	18304
	10348	40183	
	10843		

- i. Write the biggest number in the table.
- ii. Write the smallest odd number in the table
- iii. Write the greatest number smaller than 50000 in the table

38. Calculate sums of 3-digit number whose digits are consecutive (for example, 345) between 100 to 999.

(Average)

Chapter – 4 Data Handling and Presentation

1. LEARNING OUTCOME:- Students will learn to record data, organize it in tabular form, and represent it visually using pictographs and bar graphs. They will also develop the ability to interpret data and draw conclusions.

2. Learning points :-

- Collecting and organizing data
- Drawing pictographs and bar graphs.
- Artistic and aesthetic considerations
- Infographics

3. Weightage to Objectives

Sl.NO	Objectives	No. of questions	Marks	Percentage
1	Knowledge	18	18	34 %
2	Understanding	7	10	19 %
3	Application	4	15	26 %
4	Skill	4	10	21 %
Total		33	53	100 %

4. Weightage to difficulty level

Sl.NO	difficulty level	No. of questions	Marks	Percentage
1	Easy	14	16	30%
2	Average	09	19	36 %
3	Difficult	10	18	34 %
Total		33	53	100 %

Chapter – 4 Data Handling and Presentation

I. Fill in the blanks with suitable answers.

5 × 1 = 5

1. The collection of any facts, measurements, numbers or observations that convey information about those things is called _____. (Average)
2.  The number which represents this tally marks is _____. (Average)
3. In _____ we can represent information with more descriptive artistic visual image. (Difficult)
4. The number of times the value occurs in the data is called _____. (Average)
5. _____ graph represents data through pictures. (Difficult)

II. If the statement is right put (✓) mark, if wrong put (×) mark.

6 × 1 = 6

6. Bar graph can represented by only vertical bars. (Easy)
7. 5 repeated observation can represent like this /////. (Easy)
8. Number data can be represented by a pictograph and bar graph. (Easy)
9. Pictograph is suitable for large data. (Easy)
10. Infographics are a way of presenting information more clearly using attractive visuals. (Easy)
11. Bar graphs have columns of equal widths. (Easy)

III. Define the following.

5 × 1 = 5

12. Data (Difficult)
13. Frequencies (Difficult)
14. Pictographs (Difficult)
15. Bar graphs (Difficult)
16. Infographics (Difficult)

IV. Solve the following questions.

6 × 1 = 6

17. Observe the chart of 20 students weight (in Kilogram) and write the number of students whose weight is above 50 Kg. (average)

50	41	51	44	48	41	49	42	44	46
48	52	43	45	42	49	45	43	44	62.

18.Observe the following data and write the names of students who buys the same number of books.

(Easy)

Students Name	Naveen	Leela	Sara	Rajath	Krishiv	Nanda
Number of books purchased	5	4	3	6	4	1

19.According to the table, which sweet is less liked by students.

(Easy)

Jalebi	Jamoon	Jahangeer	Rasagulla	Jalebi
Kesaribath	Jalebi	Jamoon	Jahangeer	Rasagulla

20. If  =3 plants, How many plants has to draw for 21.

(Easy)

21.If  = 5,  How much?

(Average)

22. . Represent 13 Frequency number in tally lines.

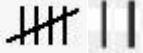
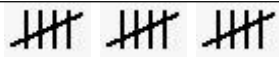
(Average)

V. Solve the following question by observing the given data.

$6 \times 2 = 12$

23.Here is the information about the vehicles used by students to come to school.

(Easy)

Vehicles Name	Number of students
Bicycle	
Car	
School Bus	
Two wheeler	

- Number of students who comes from school bus.
- From which vehicle lowest number of students come to school?

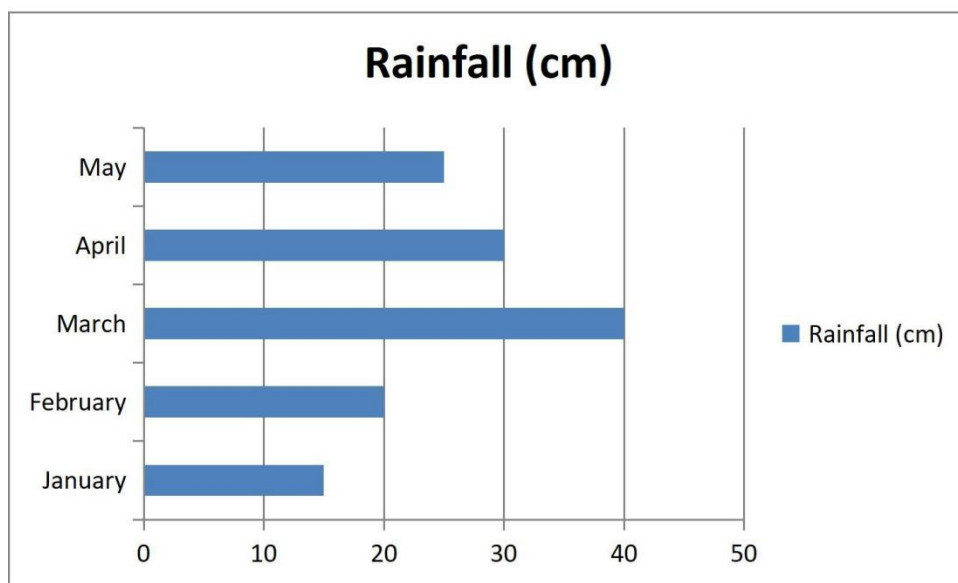
24. Scale :  = 100

(Easy)

Cow	   
Horse	          
Cat	        
Dog	  
Goat	             

- Number of students like cat
- How many students who like goat than horse?

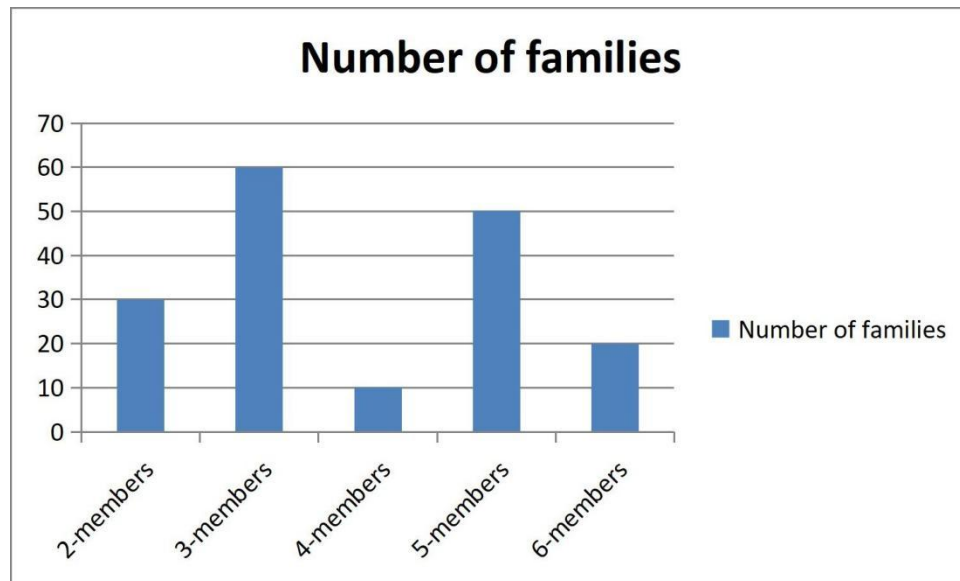
25. The amount of rainfall in a forest area is represented in the below bar graph. Observe that and answer the given questions. (Average)



- Total rainfall in 5 months.
- Maximum rainfall month.

26.Observe the given bar graph of number of each family member in a village.

(Average)



- Number of families with three members.
- In how many members family has lowest number of families.

27.Manasa, Reeta, Pavan and Dhanush bought some books for ₹ 500, ₹ 800, ₹ 400, and ₹ 300 respectively. Represent this in bar graph.

(Average)

28.Kishan planted 4000 coconut plants in the month of January, 6000 plants in February, 2000 plants in March and 3000 plants in April. Represent this information in pictograph,

(Average)

VI. Represent the given data in mentioned graph.

$2 \times 3 = 6$

29.Here is the speed of some animals. Represent the given data in bar graph.

(difficult)

Animals	Dog	Lion	Zibra	Tiger	Cheetha
Speed (Km/h	20	60	30	70	80

30.This is the information about saplings planted by shiva in his garden. Represent this in pictograph.

(difficult)

Types of fruits	Number of saplings
Clustered apple	150
Mango	100
Lemon	50
Orange	25

VII. Solve the following problems.

$2 \times 4 = 8$

31. The marks scored by students are represented in pictograph. Prepare the table and bar graph for this.

Scale : 100 Marks = 

(Average)

Students name	Marks Obtained
Savitha	    
Mamatha	      
Samanth	     
Tejas	    
Janani	     

32. The different colors liked by 6th standard students are listed here. Observe answer the following questions.

(Average)

Red	Yellow	Green	White	Purple	Blue
Black	Orange	Red	Yellow	Yellow	Green
Yellow	Yellow	Blue	Blue	Purple	White
Blue	Yellow	Blue	White	Blue	Black
White	Black	Blue	Blue	Green	White

- Prepare frequency distribution table for the above data.
- Which colour most of the student like? How many?
- Name the colour which liked by lowest number of students? How many?

VIII. Solve the problems.

$1 \times 5 = 5$

33. Here is the information about the weight (Kg) of new born babies on the particular day in a hospital. Observe and answer the following questions.

(Difficult)

2.4 2.9 2.7 2.8 2.5 3.1 2.8 2.9
2.5 3.0 2.5 2.6 2.0 2.1 2.2

- Decreasing order of these data.
- Find the maximum weight?
- Find the minimum weight?
- Find the rang? (Max – Min)
- Number of children born on that particular day?

Chapter – 5 Prime Time

1. LEARNING OUTCOME:- Identify prime numbers, understand the concept of prime factorization, multiples and apply divisibility rules.

2. Learning points :-

- Common primes and factors.
- Prime numbers and composite numbers
- Prime factorization
- Divisibility rules
- Playing with numbers

3. Weightage to Objectives

Sl.NO	Objectives	No. of questions	Marks	Percentage
1	Knowledge	13	13	17 %
2	Understanding	12	20	27%
3	Application	12	31	41 %
4	Skill	04	11	15%
Total		41	75	100 %

4. Weightage to difficulty level

Sl.NO	difficulty level	No. of questions	Marks	Percentage
1	Easy	12	12	16 %
2	Average	16	31	41 %
3	Difficult	13	32	43%
Total		41	75	100 %

Chapter – 5 Prime Time

I. Choose the correct answer from the given four alternatives.

$5 \times 1 = 5$

1. This number is not a factor of 66. (Average)

- A. 3 B. 6 C. 11 D. 4

2. This number is multiple of 14. (Average)

- A. 28 B. 44 C. 80 D. 21

3. A number that perfectly divides 1305. (Average)

- A. 13 B. 9 C. 5 D. 6

4. These number pairs are co-prime. (Easy)

- A. 15 and 39 B. 17 and 69 C. 81 and 18 D. 24 and 87

5. 48 can be expressed as a product of prime factors. (Average)

- A. $2 \times 2 \times 2 \times 2 \times 3 \times 5$ B. $3 \times 2 \times 5 \times 1$ C. $2 \times 2 \times 2 \times 2 \times 3$ D. $1 \times 2 \times 2 \times 2 \times 3$

II. Fill in the blanks with suitable answers.

$6 \times 1 = 6$

6. Each number is the factor of _____ (Easy)

7. A number that is neither prime nor composite _____ (Easy)

8. _____ is an even prime number. (Easy)

9. Number having only 1 as common factor are called _____ number. (Easy)

10. Smallest composite number is _____ (Easy)

11. The smallest prime number. (Easy)

III. 12 . Match the following.

$5 \times 1 = 5$

a .Divisible by 2 - Ends with either zero or 5 (Average)

b .Divisible by 10 - The last two digits must be divided (Average)

c .Divisible by 5 - The last 3 digits must be divided (Average)

d .Divisible by 4 - Must be end with zero (Average)

e .Divisible by 8 - Must be an even number (Average)

IV . State whether the following statements are true/false. **$5 \times 1 = 5$**

13. Every number has 1 as factor. (Easy)
14. The multiple of every number is the same number itself. (Easy)
15. A number has infinite multiples. (Easy)
16. A prime number has multiple factors more than two factors. (Easy)
17. There are total composite numbers from 1 to 20. (Easy)

V. Define the following. **$5 \times 1 = 5$**

18. Prime numbers (Difficult)
19. Composite numbers (Difficult)
20. Twin primes (Average)
21. Co-prime (Average)
22. Prime factorization (Difficult)

VI. Solve the following questions. **$5 \times 1 = 5$**

23. Which is the largest three digit number that is divisible by 5? (Difficult)
24. Express 65 as a product of prime factors. (Average)
25. Give an example for twin primes. (Average)
26. What are co-prime numbers? (Average)
27. Which is the largest three digit palindrome number that is divisible by 2? (Difficult)

VII. Solve the following problems. **$5 \times 2 = 10$**

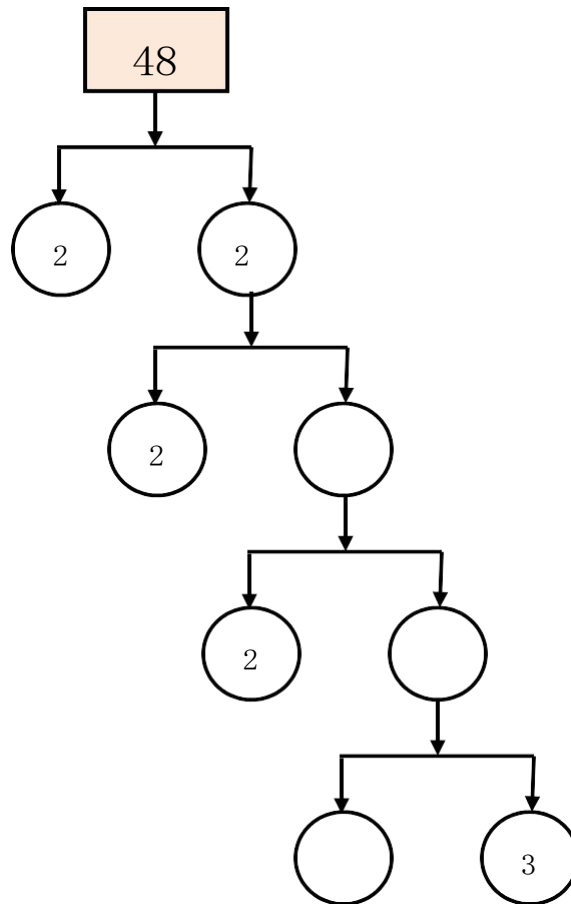
28. Express 200 as a product of prime factors. (Average)
29. Write the first 5 multiples of 2 and 3 then find the common multiples. (Difficult)
30. Find the common factors of 12 and 15. (Average)
31. Find all the multiples of 5 that lie between 100 and 200. (Average)
32. What is a perfect number? Give an example for a perfect number. (Difficult)

VIII. Solve the problems. **$3 \times 3 = 9$**

33. Check that 45 and 108 are co-prime. (Difficult)

34. Fill in the blanks in the following prime factorization tree with suitable numbers.

(Average)



$$48 = \square \times \square \times \square \times \square \times \square$$

35. Check by divisibility rule whether the following numbers are divisible by 8.

(Difficult)

a) 1408

b) 3935

IX. Solve the problems. **$5 \times 4 = 20$**

36. Follow the rules of divisibility in the table below. Check and identify if they are divided put (✓), If not divided put (×) mark. (Difficult)

	8	2	4	5	10
8560					
2024					
572					
105					

37. Fill the grid below with prime numbers only.

(Difficult)

(Rule : The product of each row is the number to the right of the row and product of each column is the number below the column)

			30
			70
			105
42	105	50	

38. Is 180 divisible by 24? Find the prime factors of both the numbers.

(Difficult)

39. Find the sum of the first 20 prime numbers.

(Average)

40. What are twin prime numbers? Give example for any five twin primes.

(Average)

X. Solve the problems. **$1 \times 5 = 5$**

41. Find the prime factors of 1,26,000.

(Difficult)

Chapter – 6 Perimeter and Area

1. LEARNING OUTCOME:- Calculate perimeter and area of different shapes, including triangles,

rectangles, and squares, and apply these concepts to solve real-life problems.

2. Learning points :-

- Defines & understands the concept of the perimeter and Area of plane figures.
- Calculate the perimeter & area of triangles, rectangles & squares.
- Differentiate between perimeter & area & understand
- Solves problems involving perimeter & area in real life scenarios.
- Estimate the area of irregular shapes.

3. Weightage to Objectives

SL.NO	Objectives	No. of questions	Marks	Percentage
1	Knowledge	11	11	23 %
2	Understanding	10	19	39 %
3	Application	04	10	20 %
4	Skill	03	09	18%
Total		28	49	100 %

4. Weightage to difficulty level

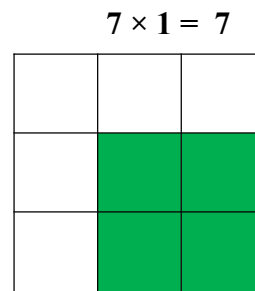
SL.NO	difficulty level	No. of questions	Marks	Percentage
1	Easy	14	20	41%
2	Average	9	14	28 %
3	Difficult	5	15	31 %
Total		28	49	100 %

Chapter – 6 Perimeter and Area

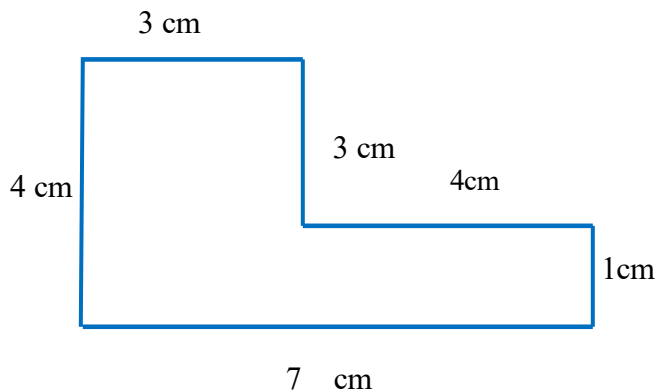
I. Choose the correct answer from the given four alternatives.

1. The perimeter of the shaded region if each square is 1 cm length. (Easy)

A. 12 cm B. 8 cm
C. 9 cm² D. 12 cm²



2. The perimeter of the given compound is (Easy)

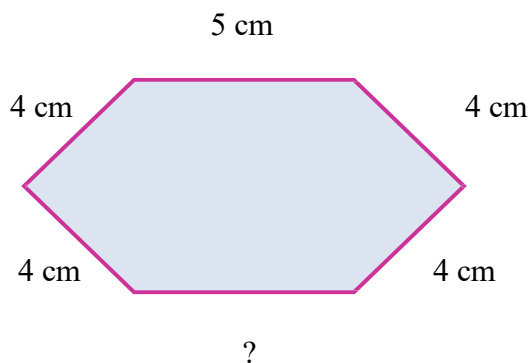


A. 22 cm B. 20 cm²
C. 10 cm D. 14 cm

3. The area of the square whose side is 10 cm (Easy)

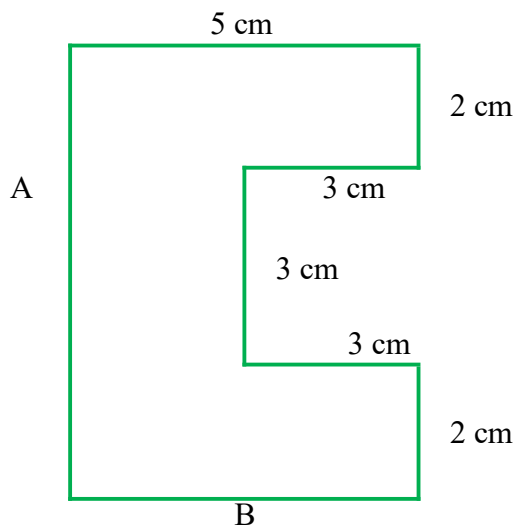
A. 100 cm² B. 10 sq cm
C. 40 sq cm D. 50 sq cm

4. The perimeter of the given shape is 24 cm. Then the measurement of the missing side. (Easy)



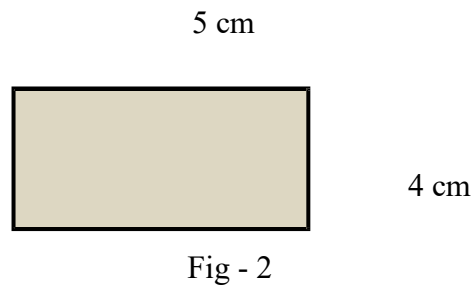
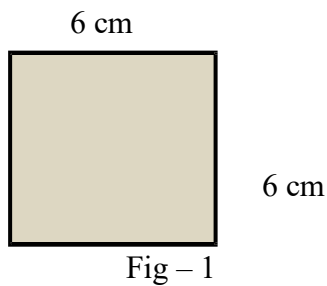
A. 3 cm B. 4 cm
C. 6 cm D. 5 cm

5. Manu draws the picture and tried to write the measurement of each side. But she cannot for the sides A and B side. Can you help her by finding it? (Easy)



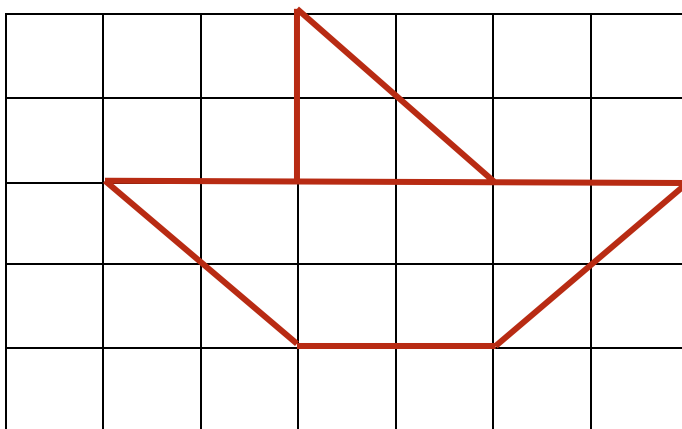
- A. 7 cm and 5 cm B. 13 cm and 6 cm
C. 10 cm and 6 cm D. 6 cm and 13 cm

6. The figure that has smaller perimeter. (Easy)



- A. Fig -1 B. Fig - 2
C. Both are equal D. Both are not equal

7. If each square represents 1 cm^2 , find the area of the figure by counting squares. (Average)



- A. 10 cm^2 B. 6 cm^2 C. 8 cm^2 D. 12 cm

II. Fill up the blanks with suitable answers.**5 × 1 = 5**

8. _____ is the perimeter of right angled triangle whose sides are 4 cm, 5 cm and hypotenuse is 6 cm. (Easy)
9. The area of the square plot of side 7 m is _____. (Easy)
10. If the perimeter of a square is 64 cm. Then its area is _____. (Average)
11. Two sides of the triangle are 14 cm and 16 cm. It's perimeter is 36 cm. Then the third side is _____ (Average)
12. The length of the rectangular field is 12 cm and breadth is 8 cm. The perimeter of the it is _____ (Easy)

III. 13. Match the following.**5 × 1 = 5**

- | | | | |
|------------------------------|---|---|--------|
| a.Perimeter of the rectangle | - | 4 × length | (Easy) |
| b.Perimeter of the square | - | length × breadth | (Easy) |
| c. Area of the rectangle | - | $\frac{1}{2} \times \text{base} \times \text{height}$ | (Easy) |
| d .Area of the square | - | 2 (length + breadth) | (Easy) |
| e.Area of the triangle | - | length × length | (Easy) |

IV. Define the following.**2 × 1 = 2**

- 14.Define Perimeter. (Average)
- 15.Define Area. (Average)

V. Write the following formulae.**2 × 1 = 2**

- 16.Write the formula to find the area of square. (Easy)
- 17.Write the formula to find the area of rectangle. (Easy)

VI. Solve the following sums.**7 × 2 = 14**

- 18.Find the perimeter and area of the square whose side is 3 cm? (Easy)
- 19.Find the perimeter and area of the rectangle whose length is 2 cm and breadth is 1 cm? (Easy)
- 20.If the area of a rectangle is 30 cm² and length is 6 cm. Find the breadth? (Average)
- 21.A man is running around a square field of side 13 cm. How much does he cover? (Difficult)
- 22.The area of a rectangular garden of 50 m length is 300 sq m. Find the width of the garden?(Difficult)
- 23.If the area of a square is 64 sq cm. Find the length of each side. (Average)
- 24.Two sides of the triangle are 12 cm and 14 cm. If the perimeter of it is 36cm. Find the third side? (Average)

VII Solve the following problems.

$2 \times 3 = 6$

25. Read the table and write the missing measurements.

(Average)

Length	Breadth	Area of the rectangle
15 cm	10 cm	
11m		110 sq cm
	20 cm	1000 sq cm

26. A piece of wire is 32 cm long. What will be the length of each side, if it is used for a square?

(Difficult)

VIII Solve the following problems.

$2 \times 4 = 8$

27. What would be the cost of fencing of the rectangular park whose length is 120m and breadth is 130m, if the fence cost ₹ 30 per meter?

(Difficult)

28. Manu has a rectangular field having a length 150m and breadth 200m. She wants to fence with wire of 2 rounds. What is the total length of wire needed?

(Difficult)

Chapter – 7 Fractions

1. LEARNING OUTCOME:- Recognizing different types of fractions, representing them on a number line, finding equivalent and lowest terms, comparing fractions, and performing addition and subtraction operations on them.

2. Learning points :-

- Defines a fraction
- Identify numerator & denominator in a fraction
- Represents fraction on number line.
- Identify equivalent fractions.
- Express fraction in their simplest form.
- Ascending & descending order of fraction.
- Addition & subtraction in daily life situations on fractions.

3. Weightage to Objectives

Sl.NO	Objectives	No. of questions	Marks	Percentage
1	Knowledge	11	11	16%
2	Understanding	15	23	33 %
3	Application	18	28	41%
4	Skill	3	7	10%
10		47	69	100 %

4. Weightage to difficulty level

Sl.NO	difficulty level	No. of questions	Marks	Percentage
1	Easy	31	40	58 %
2	Average	13	18	26 %
3	Difficult	03	11	16 %
Total		47	69	100%

Chapter -7 Fractions

I. Choose the correct answer from the given four alternatives.

$5 \times 1 = 5$

(Average)

1. The smaller fraction among these.

- A. $\frac{5}{4}$ B. $\frac{5}{3}$ C. $\frac{5}{6}$ D. $\frac{5}{2}$

2. The mixed fraction of $\frac{16}{9}$.

(Easy)

- A. $2\frac{7}{9}$ B. $1\frac{5}{9}$ C. $1\frac{7}{9}$ D. $2\frac{5}{9}$

3. The fraction that represents an hour is 45 minutes.

(Easy)

- A. None of these B. $\frac{3}{4}$ C. $\frac{1}{4}$ D. $\frac{1}{2}$

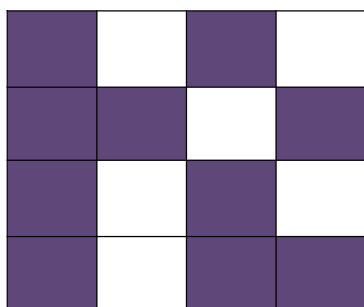
4. $\frac{17}{101}$ $\frac{12}{101}$

(Easy)

- A. $>$ B. $<$ C. $=$ D. None of these.

5. The fraction representing the shade region in the given square.

(Easy)



- A. $\frac{4}{16}$ B. $\frac{9}{16}$ C. $\frac{5}{16}$ D. $\frac{10}{16}$

II. State true or false.

$7 \times 1 = 7$

6. In $\frac{3}{7}$, 3 is the part of whole

(Easy)

7. On a number line $\frac{2}{7}$ is to the right of zero

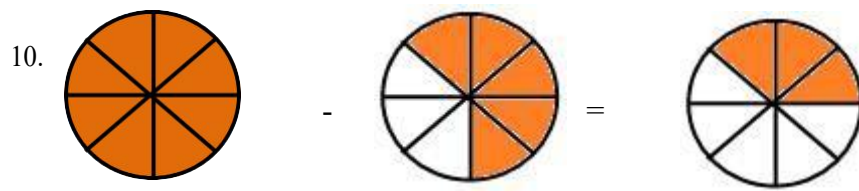
(Easy)

8. $\frac{2}{5}$ is smaller than $\frac{1}{5}$

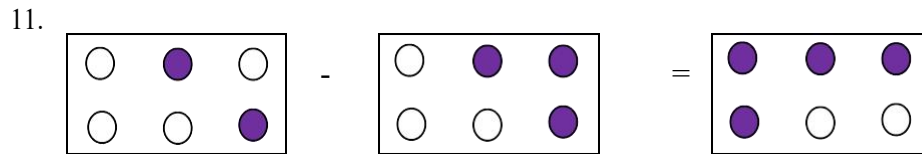
(Easy)

9. $\frac{28}{45}$ and $\frac{3}{5}$ represent equivalent fractions.

(Average)



(Average)



(Average)

(Average)



III. Define the following.

$$5 \times 1 = 5$$

13. Fraction

(Easy)

14. Proper Fraction

(Easy)

15. Improper Fraction

(Easy)

16. Mixed Fraction

(Easy)

17. Equivalent Fraction

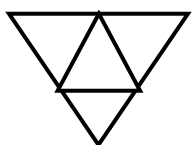
(Easy)

IV. Shade the parts of the figures according to the given fraction.

(Easy)

$$4 \times 1 = 4$$

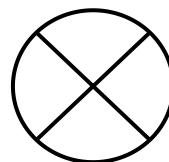
18. $\frac{1}{4}$



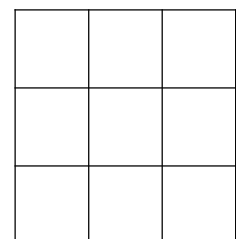
19. $\frac{1}{3}$



20. $\frac{3}{4}$



21. $\frac{4}{9}$



V. Write the following fractions as mixed fraction.

$3 \times 1 = 3$

(Easy)

22. $\frac{8}{3}$

23. $\frac{12}{7}$

24. $\frac{25}{9}$

VI. Express the following mixed fractions as improper fractions.

$4 \times 1 = 4$

(Easy)

25. $1\frac{3}{5}$

26. $6\frac{1}{8}$

27. $3\frac{1}{7}$

28. $1\frac{1}{4}$

-

-

VII. Answer the following questions.

$3 \times 1 = 3$

29. Five balls together weing1 kg. If they are roughly the same weight, then what is the weigh of each ball? (Average)

30. The correct number in the given box $\frac{42}{84} = \frac{6}{\boxed{}}$ (Average)

31. Identify the proper and improper fractions $\frac{6}{5}, \frac{2}{7}, \frac{1}{2}, \frac{3}{4}, \frac{11}{5}$ (Easy)

VIII. Insert ‘ > or < ‘ to make each of the following true.

$3 \times 1 = 3$

32. $\frac{6}{7} \boxed{} \frac{5}{7}$

33. $\frac{10}{21} \boxed{} \frac{10}{12}$

34.. $\frac{3}{7} \boxed{} \frac{3}{8}$

(Easy)

(Average)

(Average)

IX. Solve the following problems.

$6 \times 2 = 12$

35 .Figure out the number of whole units in each of the following factors.

(Easy)

a) $\frac{9}{5}$

b) $\frac{7}{3}$

36. Check whether the fractions $\frac{5}{12}$ and $\frac{30}{84}$ are equivalent or not.

(Average)

37. Add the following fraction by using Brahmagupta’s method.

(Average)

a) $\frac{1}{3}$ and $\frac{3}{5}$

b) $\frac{5}{6}$ and $\frac{1}{2}$

38. Subtract the following fraction by using Brahmagupta’s method.

(Average)

a) $\frac{3}{5} - \frac{1}{2}$

b) $\frac{2}{3} - \frac{1}{7}$

39. Represent $3\frac{2}{5}$ on number line.

(Easy)

40. Write two equivalent fractions for $\frac{1}{3}$

(Easy)

X. Solve the problems.

$5 \times 3 = 15$

41. Reduce the fraction $\frac{40}{80}$ to its lowest term.

(Easy)

42. Arrange $\frac{5}{6}, \frac{1}{2}, \frac{2}{3}$, and $\frac{8}{9}$ in ascending order.

(Easy)

43. Add the following fraction using Brahmagupta's method.

(Average)

$$\frac{3}{4} + \frac{1}{3} + \frac{2}{5}$$

44. Rahul takes $\frac{11}{7}$ hours to finish his homework. While Naman takes $\frac{15}{8}$, who takes more time and by how much?

(Difficult)

45. On number line, draw lines of lengths $\frac{1}{10}$, $\frac{3}{10}$ and $\frac{5}{11}$

(Easy)

XI. Solve the problems.

$$2 \times 4 = 8$$

46. Keshav painted $\frac{2}{3}$ of the wall space in his room. His father Dharam helped and painted $\frac{1}{5}$ of the wall space. How much did they paint together? What part of the whole space is left unpainted?

(Difficult)

47. Three pizzas are shared equally by four children. Show the division in the picture and write a fraction for how much each child gets. Also, write the corresponding division facts, addition facts and multiplication facts.

(Difficult)



Chapter-8 Playing with constructions

1. LEARNING OUTCOME:- Develop students understanding of basic geometric constructions, spatial reasoning, and problem-solving skills.

2. Learning points :-

- Understanding geometric tools & usage correctly
- Understands to set the radius & draw circles & arcs
- Construction of square rectangle & other geometric figures.
- Analysis problems & chooses the appropriate construction methods to solve them
- Connecting geometric constructions to real life situations

3. Weightage to Objectives

Sl.NO	Objectives	No. of questions	Marks	Percentage
1	Knowledge	09	10	17%
2	Understandin	09	16	28 %
3	Application	03	04	07 %
4	Skill	10	28	48%
Total		31	58	100 %

4. Weightage to difficulty level

Sl.NO	difficulty level	No. of questions	Marks	Percentage
1	Easy	22	33	54 %
2	Average	06	15	25 %
3	Difficult	03	10	21 %
Total		31	58	100%

Chapter-8

Playing with constructions

I. Choose the correct answer from the given four alternatives.

$5 \times 1 = 5$

1. Number of equal sides in a square. (Easy)
A. 4 B. 2 C. 3 D. 5
2. All the points on a circle are at the same distance from its (Easy)
A. radius B. center C. diameter D. circumference
3. Let AB be a line of length 7cm and M is the midpoint of AB. What is the distance of M from A? (Easy)
A. 7cm B. 14cm C. 49cm D. 3.5cm
4. A rectangle ABCD can also be written as (Easy)
A. ACDB B. DABC C. CABA D. BDCA
5. The measure of each angle in a square is (Easy)
A. 45° B. 60° C. 90° D. 120°

II. Fill up the blanks with suitable answers.

$5 \times 1 = 5$

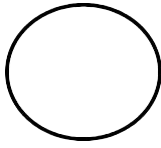
(Easy)

6. To draw a circle, we use a _____ to keep the radius fixed.
7. A rectangle has two pair of opposite sides, those are called _____ and _____
8. To draw a perpendicular line through a point on a line segment, you would typically use a _____
9. The sum of all angles in a rectangle is _____ degree
10. The distance from the centre of a circle to any point on its circumference is called _____

III. 11. Match the following. (Easy)

$$6 \times 1 = 6$$

a-



Ruler

b-



Rhombus

c



Square

d-



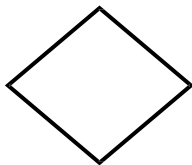
Rectangle

e-



compass

f. -



Circle

IV. State true or false. (Easy)

$$5 \times 1 = 5$$

- 12.The diagonals of a rectangle are always equal.
- 13.All the sides of a rectangle are of equal length.
- 14.A rotated square is still a square as long as all sides remain equal and angle remain 90°
- 15.The point where the two diagonals of rectangle divides the diagonals into equal parts.
- 16..A square have 3 diagonals.

V. Solve the following .

$$10 \times 2 = 20$$

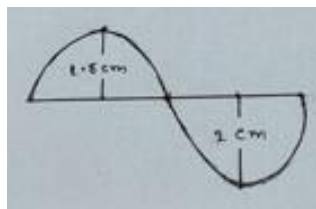
- 17.Draw a three circle with common centre and radius 3cm, 4cm and 5cm. (Easy)
- 18.Name the main tools used for construction in geometry? (Easy)
- 19.How many right angles does a rectangle have? (Easy)
- 20.What is the shape of the curve obtained when all points are at equal distance from a centre? (Easy)
- 21.Write any one similar property for both squares and rectangles? (Easy)
- 22. Draw a square with a side length of 5cm using a compass and ruler. (Easy)

23. Construct a rectangle ABCD in which side AB = 3cm and diagonals AC = 5cm.

(Average)

24. Construct a figure of the form given below

(Average)



25. Give the length of the sides of a rectangle that cannot be divided into

(Difficult)

i. Two identical squares

ii. Three identical squares

26. Construct a rectangle one of whose sides is 3cm and the diagonal is of length 7cm.

(Average)

VI Solve the following sums.

$$3 \times 3 = 9$$

27. Construct a rectangle with sides of 4cm and 6cm verify if the diagonals are equal.

(Average)

28. Construct a 4 sided figure where all sides are equal, but it is not a square. What is the shape called?

(Average)

29. Construct a rectangle having adjacent sides of 6cm and 4cm and find its area.

(Average)

VII Solve the following sums.

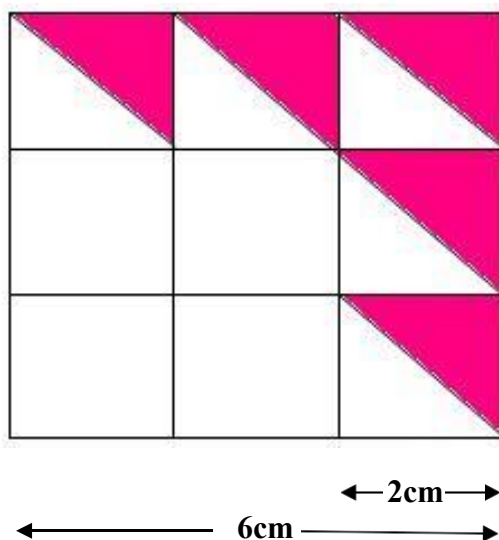
$$4 \times 2 = 8$$

30. Draw a diagram of “falling squares” taking three squares of sides 2cm, 4cm and 5cm. So that one diagram of each square are on the same line.

(Difficult)

31. Draw a diagram show as below. The side of outer square is 6cm and side of each small square is 2cm.

(Difficult)



Chapter - 9 Symmetry

1. **LEARNING OUTCOME:-** Understanding line symmetry, reflection symmetry, and rotational symmetry.

2. **Learning points :-**

- Define symmetry
- Shapes having lines of symmetry.
- Rotational symmetry.
- Symmetry of circles

3. **Weightage to Objectives**

Sl.NO	Objectives	No. of questions	Marks	Percentage
1	Knowledge	21	24	16%
2	Understanding	28	47	36%
3	Application	12	30	24%
4	Skill	13	30	24%
Total		74	131	100%

4. **Weightage to difficulty level**

Sl.NO	difficulty level	No. of questions	Marks	Percentage
1	Easy	21	35	27%
2	Average	42	71	54%
3	Difficult	11	25	19%
Total		74	131	100%

Chapter - 9 Symmetry

I. Choose the correct answer from the given four alternatives.

$7 \times 1 = 7$

1. Number of lines of symmetry in rhombus.

(Average)

- A. 1 B. 2 C. 3 D. 4

2. The number of lines of symmetry for the letter



(Easy)

- A. 1 B. Infinite C. 4 D. 6

3.  The line of symmetry of the figure is

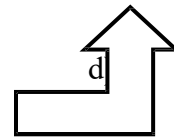
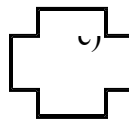
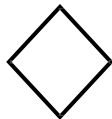
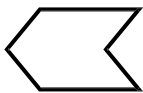
(Easy)

- A. Vertical B. Horizontal C. Both D. None

4. In the following figure which figure has more than one lines of symmetry.

(Average)

a)



- A. a and b B. a , b and c C. a , b , c and d D. b and c

5. The number of lines of symmetry in a regular hexagon

(Average)

- A. 3 B. 6 C. 4 D. 12

6. The figure with diagonals as its lines of symmetry.

(Average)

- A. square B. parallelogram C. rectangle D. regular pentagon

7. Among these which shape has 90° angle of rotation.

(Easy)

- A. Rectangle B. Square C. Equilateral triangle D. parallelogram

II. Fill in the blanks.

$18 \times 1 = 18$

8. A line that cuts a figure into two parts that exactly over lap when folded along that line is called

(Easy)

9. The number of symmetrical lines in square _____

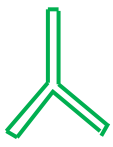
(Easy)

10. The symmetrical lines of rhombus are their _____

(Average)

11. The triangle that as 3 symmetrical lines _____

(Easy)

12. The number of symmetrical lines in letter 'O' _____ (Average)
13. The number of lines of symmetry in a regular hexagon is _____ (Average)
14. If the smallest angle of symmetry of a figure is a natural number in degrees, then it is a factor of.... (Average)
15. A quadrilateral which has rotational symmetry but no reflection symmetry is _____ (Average)
16. If a figure has minimum 60° of angle of rotational symmetry then it has _____ number of rotational symmetric angles will be there. (Average)
17. The number of angles of symmetry of the figure is _____ (Difficult)
- 
18. The number of lines of symmetry in letter 'N' are _____ (Easy)
19. _____ line divides a figure into exactly two halves (Average)
20. The  angle of rotation in this figure is _____ (Average)
21. **B** And **X** In these two letters _____ letter has two order of rotational symmetry are there. (Easy)
22. The angle of rotational symmetry of a regular pentagon is _____ (Easy)
23.  The order of rotational symmetry of the figure is _____ (Difficult)
24. A rectangle will look exactly the same as the original rectangle if you rotate it _____ degrees around the centre. (Average)
25. The angle of rotational symmetry of letter **H** is _____ (Easy)

III. 26. Match the shapes to its number of lines of symmetry.

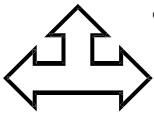
$5 \times 1 = 5$

- | | | | |
|-----------------------|---|------------------------|-----------|
| a .Square | - | Zero lines of symmetry | (Average) |
| b .Parallelogram | - | six lines of symmetry | (Average) |
| c. Isosceles triangle | - | Four lines of symmetry | (average) |
| d Rectangle | - | one lines of symmetry | (Average) |
| e Hexagon | - | Two lines of symmetry | (Average) |

IV. Say true or false.

$9 \times 1 = 9$

27. A side of any shape divides the figure into equal parts. (Easy)
28. A circle has only one line of symmetry. (Easy)
29. Every figure will have 360° as an angle of symmetry. (Easy)

30. The order of rotational symmetry in a butterfly is 1. (Average)
31. The order of rotational symmetry in a letter 'Z' is 1. (Easy)
32. The angle of rotational symmetry of a rectangle is 90° . (Easy)
33.  This figure has more than one angle of symmetry. (Difficult)
34. The order of rotational symmetry of an isosceles triangle is two. (Average)
35. The angle of rotational symmetry of a regular octagon is _____. (Average)

V. Define the following.

$4 \times 1 = 4$

36. Symmetrical figures (Average)
37. Line (axis) of symmetry (Easy)
38. Centre of rotation (Easy)
39. Angle of symmetry (Average)

VI. Answer the following questions.

$6 \times 1 = 6$

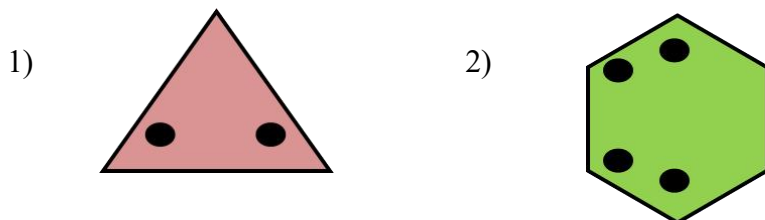
40. How many lines of symmetry does a kite have? (Easy)
41. Name any geometric figure which has no line of symmetry. (Easy)
42. Which figure is symmetrical about its diameters? (Average)
43. How many lines of symmetry does the letter "M" have? (Easy)
44. What is the order of rotational symmetry of a semicircle? (Average)
45. Name any figure which has rotational symmetry but does not have a line of symmetry. (Average)

VII. Solve the below problems.

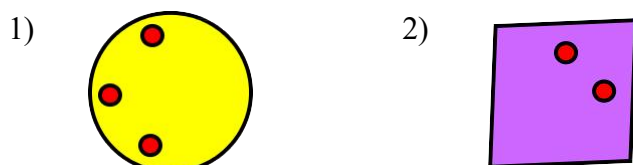
$15 \times 2 = 30$

46. What is the line of symmetry? (Easy)
47. Write the number of the lines of symmetry for the following figures. (Easy)
- 1). Square 2). Rhombus

48. Draw the lines of symmetry for the following figure. (Average)



49. Draw lines of symmetry for the given figures and mark the missing holes. (Difficult)



50. Write any four letters of English alphabet which do not have the lines of symmetry. (Easy)
51. Write any four letters in English alphabet which have horizontal lines of symmetry. (Average)
52. Write any four letters in English alphabet which have vertical lines of symmetry. (Average)
53. Write the number of lines of symmetry for the following letters. (Easy)

a) **I** b) **M**

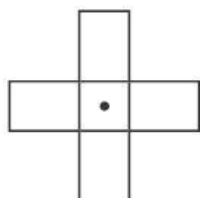
54. Draw the rough figures for the following. (Difficult)
- a) The triangle which has minimum two lines of symmetry and two order of rotational symmetry.
- b) The quadrilateral which has rotational symmetry but not has reflection symmetry.

55. Write the order of rotational for the following figures. (Average)
- 1). Rhombus 2). Equilateral triangle.

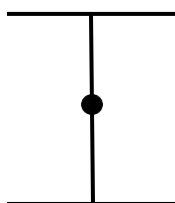
56. Write the angle of symmetry and order for the following figures. (Average)
- 1). Parallelogram 2). Regular pentagon

57. Write the angle of symmetry for the following figures. (Difficult)

a)



b)

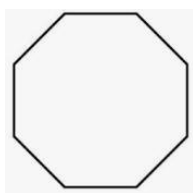


58. Find the order of rotational symmetry of the following shape with given angle of rotation. (Average)
- c) 90° b) 120°

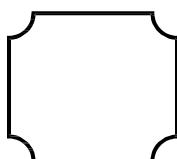
59. Find the angle of rotation of the following shape with given order of rotational symmetry. (Average)
- d) 3 b) 5

60. Write the number of lines of symmetry and order of rotation of the following figures. (Average)

1)



2)



VIII Solve the following problems.

$$4 \times 3 = 12$$

61. Draw and name any two shapes that have only one line of symmetry. (Difficult)

62. How many lines of symmetry does a rectangle have? Draw the line of symmetry. (Average)

63. Draw a line of symmetry for the following shapes (Average)

- e) An equilateral triangle b) A rectangle c) A square

64. State whether the following letters have a line of symmetry. If yes draw it. (Average)

- f) B b) E c) N

IX Solve the problems.

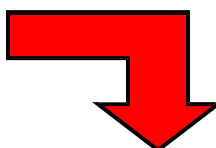
65 a)



b)



c)



$$10 \times 4 = 40$$

d)



Identify the following properties among the given figures.

(Difficult)

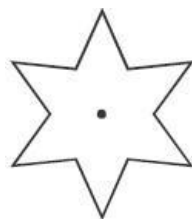
- i. Lines symmetry
- ii. Both lines of symmetry and rotational symmetry.
- iii. Only rotational symmetry.
- iv. Neither line of symmetry nor rotational symmetry.

66. Write the letters of English alphabet which have two or more than two lines of symmetry. (Average)

67. According to the figure,

(Average)

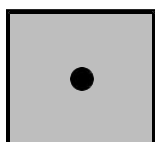
- i. The number of lines of symmetry
- ii. Angle of rotational symmetry.
- iii. Order of rotational symmetry.



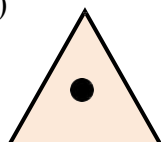
68. Write the angle of rotational symmetry of the figure.

(Difficult)

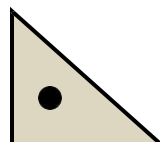
g)



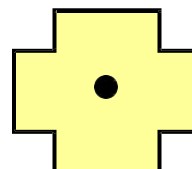
b)



c)



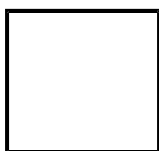
d)



69. Write any four letters of English alphabet which have horizontal lines of symmetry and draw line of symmetry for each letter. (Average)

70. Draw all possible lines of symmetry for the following figures.

(Easy)



71. Write the number of lines of symmetry for the following letters.

(Average)

h)

A

b)

U

c)

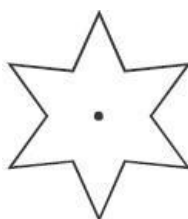
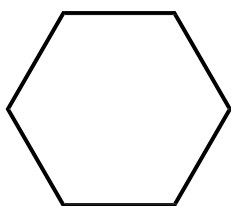
P

d)

O

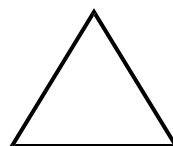
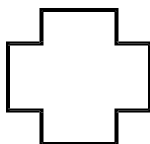
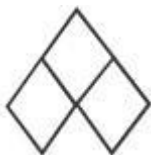
72. Draw the lines of symmetry for the following figures.

(Average)



73. Draw the lines of symmetry for the following figures.

(Easy)



74. Write the name of any four shapes which have more than two order of rotational symmetry. (Difficult)

Chapter-10 The Other Side of Zero

1. **LEARNING OUTCOME:-** Visualize integers on a number line, compare them, and perform basic addition and subtraction operations.
2. **Learning points :-**
 - Understanding negative numbers.
 - Representing negative & positive numbers on number line & understand the relation between them
 - Comparing negative & positive numbers understanding which is greater & smaller.
 - Understands the value of absolute Zero
 - Understands integers in real-life situations
3. **Weightage to Objectives**

Sl.NO	Objectives	No. of questions	Marks	Percentage
1	Knowledge	14	14	29 %
2	Understanding	13	20	42 %
3	Application	07	11	23 %
4	Skill	02	03	6 %
Total		36	48	100 %

4. **Weightage to difficulty level**

Sl.NO	difficulty level	No. of questions	Marks	Percentage
1	Easy	24	28	58 %
2	Average	09	13	27 %
3	Difficult	3	7	15 %
Total		36	48	100 %

Chapter-10 The Other Side of Zero

I. Choose the correct answer from the given four alternatives

$$10 \times 1 = 10$$

1. $(-11) + (-15)$ _____ $11 + 15$ (Average)
A. $<$ B. $>$ C. $=$ D.
2. On a number line, the farthest number to the left (Easy)
A. -12 B. -5 C. 0 D. 10
3. The numbers less than zero are called (Easy)
A. Positive numbers B. Decimals C. Whole numbers D. Negative numbers
4. The following statement is correct about negative numbers. (Average)
A. They are always smaller than positive numbers.
B. They are always greater than positive numbers.
C. They are equal to positive numbers.
D. They are the same as fractions.
5. The number, neither positive nor negative is (Easy)
A. -1 B. 0 C. 1 D. 100
6. What is the inverse of +7?(Easy)
A. +7 B. -7 C. 0 D. 1
7. In Bela's Building of Fun, the floor represents the ground level (Easy)
A. +1 B. -1 C. 0 D. +2
8. If the temperature is -5°C and it drops by 3°C , then the new temperature (Easy)
A. -8°C B. -2°C C. 3°C D. 8°C
9. The sum of $(-4) + (+6)$ (Easy)
A. -10 B. -2 C. 2 D. 10
10. If you are at floor +3 and press the “-” button 5 times, then you will be at (Easy)
A. +8 B. -2 C. 0 D. -3

II. Fill in the blanks.

$$9 \times 1 = 9$$

11. On the number line, (-15) is to the _____ of zero. (Easy)
12. On the number line, 10 is to the _____ of zero. (Easy)
13. The additive inverse of (-1) is _____ (Easy)
14. $(-11) + (-2) + (-1) =$ _____ (Average)
15. An integer with positive sign (+) is always greater than _____ (Easy)
16. The integer 5 units to the right of zero on the number line is _____ (Easy)

17. Number of integers lying between (-2) and 2 is _____ (Easy)
18. Number of whole numbers lying between -7 and 6 is _____ (Easy)
19. The additive inverse of a negative integer is always _____ (Easy)

III. 20.Match the following.

$5 \times 1 = 5$ (Easy)

- a.The additive inverse of +2 - 0
- b.The greatest negative integer-----2
- c.The smallest positive integer - 2
- d.The smallest integer greater than
every negative integer - 1
- e.Sum of predecessor and successor of (-1)----- 1

IV. True / False.

$6 \times 1 = 6$

- 21.The smallest natural number is zero. (Easy)
- 22.Zero is not an integer as it is neither positive nor negative. (Easy)
- 23.The sum of two negative integers is always smaller than both the integers. (Easy)
- 24.Since $5 > 3$, therefore, $-5 > -3$. (Average)
- 25.Every positive integer is greater than every negative integer. (Easy)
- 26.The sum of any two negative integers is always smaller than both the integers. (Average)

V. Solve the following.

$4 \times 1 = 4$

- 27.Write 5 integers which are less than (-100) but greater than (-150). (Average)
- 28.What is the smallest negative integer? (easy)
- 29.If profit is positive, how would you represent a profit of ₹ 50 and a loss of ₹ 30? (Average)
- 30.Subtract (-8) from +3 using a number line. (Easy)

VI. Solve the following problems.

$4 \times 2 = 8$

- 31.If depth is considered as positive, express the following as depth (Difficult)
- a) 25 m deep
- b) 45 m height
- 32.Indicate the integer on the number line which is (Difficult)
- c) 4 less than -1
- d) 5 more than -2
- 33.Check whether following are true. (average)
- i. $3 + (0 + 9) = (3 + 0) + 9$
- ii. $34 + \{90 + (-11)\} = (34 + 90) + (-11)$

34. Complete the grid to make the required border sum.

(Average)

-3		2
		0
-1		

Border sum is 0

	-5	
-4		
	-7	-3

Border sum is -12

VII. Solve the following problems.

$2 \times 3 = 6$

35. Evaluate the following

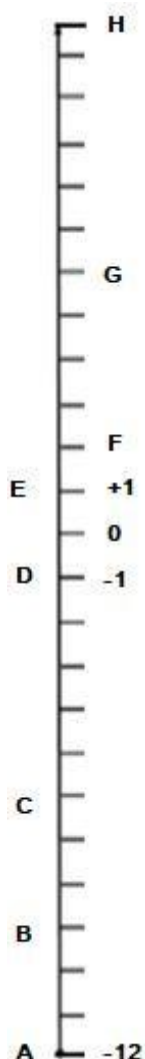
(Average)

i. $79 - 68 + 28 - (-32)$

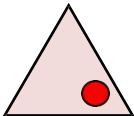
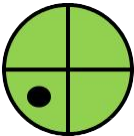
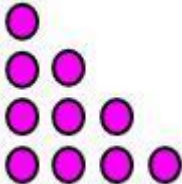
ii. $153 + 218 - \{29 - (367)\}$

36. If floor A = -12, floor D = -1 and floor E = +1 in the building shown on the right as a line, find the numbers of floors B, C, F, G and H.

(Difficult)

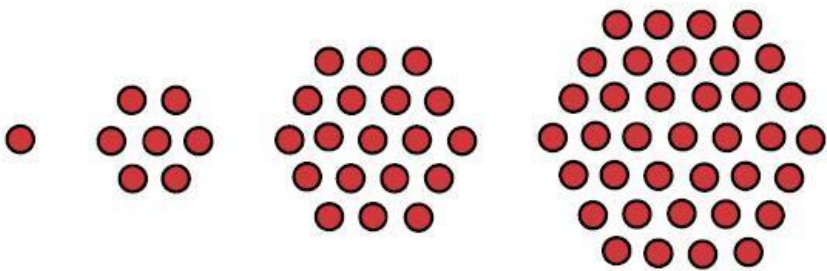


6th standard Mathematics - Answers

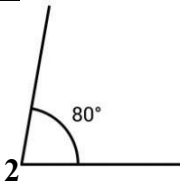
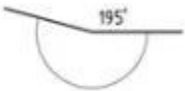
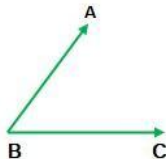
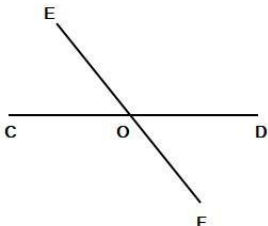
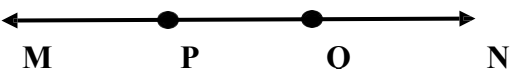
Question Numbers	Answers
Chapter – 1 - Patterns in Mathematics	
I. 1	C. 45
2	A. 80, 160
3	B. 25
4	C. 11111
5	A. E5
6	D. 34
7	D. 
8	B. 
9	C. EF
10	C. ek
11	B. 
12	C. 
13	C. 42
II. 14	Triangular numbers
15	Square numbers

16	125
17	
18	i
19	49
20	9
21	6
22	Geometery
23	square
III. 24	True
25	True
26	False
27	True
28	False
29	True
30	False
31	True
IV. 32	A list of numbers arranged in a specific order according to a pattern/rule is called number sequence
33	A list of shapes arranged in a specific order according to a pattern/rule is called sequence of shapes
34	A number that can be represented by triangle of dots is called triangular number.
35	An integer that can be obtained by multiplying a number by itself is called square number.
36	An integer that can be obtained by multiplying a number by 3 times is called cube number
V. 37	Ordered list of numbers that follows specific rule is called number pattern
38	15

	39	2 is added to the previous number
	40	85
	41	Previous number is multiplied by 2 to get the number
	42	Previous number is multiplied by 3 to get the number
VI.	43	I 10 , K 12
	44	5, 11
	45	red , blue
	46	To get next number multiplay sequence number by 2 OR Twice the given number to get next number.
	47	Multiples of 9
	48	Next sequence number is 16 Because, add the next natural number to the given number (Example : 1, 1+1=2, 2+2=4, 4+3=7, 7+4=11, 11+5=16)
	49	Next shape of the sequence 
	50	Each number is the sum of the two preceding ones.
VII.	51	Add 5 to each number. (multiples of 5) Next four numbers of the sequence are 50, 55, 60, 65
	52	These are called virahanka numberes. Rule : Each number is the sum of the two preceding ones. 1, 3, 5, 8, 13, 21.... Eg : 1, 1+2=3, 2+3=5, 3+5=8, 5+8=13, 8+13=21.....
VIII.	53	Next line of the sequence = 1 2 3 4 3 2 1 Rule : $1^2 = 1$ $11^2 = 121$ $111^2 = 12321$ $1111^2 = 1234321....$
	54	Fourth number of the sequence =  4 Tenth number of the sequence =  10 Rule : Write the next natural number after triangle shape.

IX. 55	Pictorial representation of hexagonal numbers.S  1 7 19 37 Rule : Increase the number by adding the multiples of 6 to each number. Eg : 1, 1+6=7, 7+12=19, 19+18=37 Next two numbers are = 37+24=61 and 61+30=91
56	a) Add 3 to the previous number to get the next number in the sequence b) 15, 18, 21 c) To get the missing number add 3 to the previous number.
Chapter – 2- Lines and Angles	
I. 1	C. 
2	B. 360°
3	A. 
4	D. 4
5	D. angle
II. 6	Angle bisector
7	two
8	degree
9	point
III. 10a	Right angle
b	Reflex angle
c	Complete angle
d	Obtuse angle
e	Straight angle

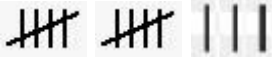
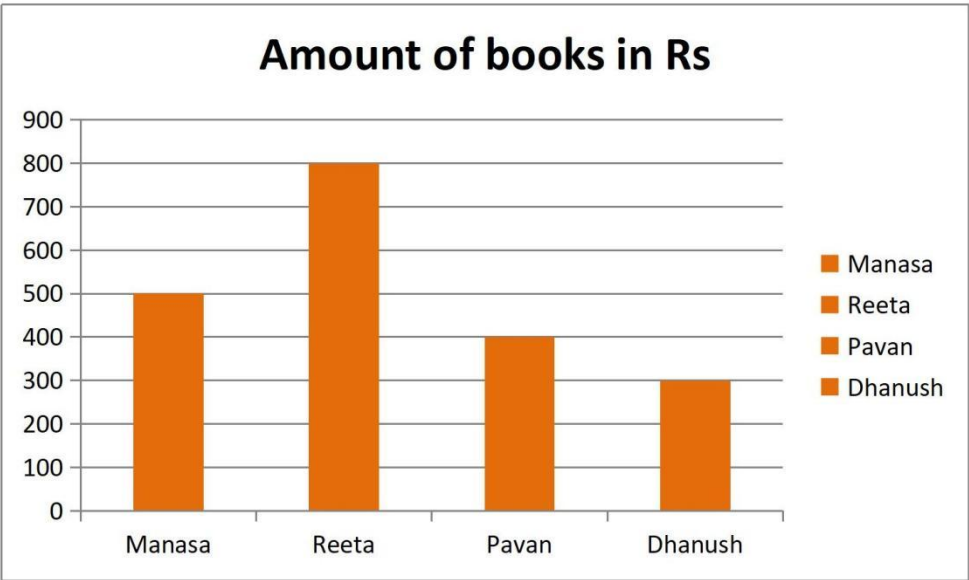
f	Acute angle
IV. 11	True
12	False
13	False
14	True
15	True
V. 16	A figure that determines a precise location but has no length, breadth or height.
17	Shortest path between two points.
18	A line is obtained when a line segment is extended on both sides indefinitely.
19	A portion of a line starting at a point and going in one direction
20	An angle can be visualized as two rays starting from a common starting point.
21	Angle which measures 90°
22	More than 0° and less than 90°.
23	More than 90° and less than 180°.
24	Angle which measures 180°.
25	More than 180° and less than 360°.
VI. 26	240°
27	180°
28	130°
29	60°
30	90°
VII. 31	

32	
33	
VIII. 34	$\angle TQR = 90^\circ = \text{right angle}$ $\angle SQR = 120^\circ = \text{obtuse angle}$ $\angle PQR = 180^\circ = \text{straight angle}$
35	i. 
	ii. 
	iii. 
IX. 36	i. P, O, R, Q, T, S ii. $\angle POR$, $\angle POS$, $\angle SOQ$, $\angle ROQ$ iii. $\angle OS$, $\angle PO$, $\angle OR$, $\angle OQ$ iv. $\angle PQ$, $\angle RS$, $\angle OT$
37	$\angle AOC = 60^\circ \quad \therefore \angle AOB = 180^\circ$ $\angle COD = 30^\circ \quad \therefore \angle COB = 120^\circ - 90^\circ$
Chapter – 3 - Number play	
I. 1	B. 33310
2	C. 25452
3	B. 101

4	C. 6174
5	B. They read the same forwards and backwards
6	B. 21
7	D. Equal intervals
8	B. 4774
9	C. 20
10	B. 10
II. 11	96000
12	0
13	Finding exact values
14	29
15	32
III. 16	False
17	True
18	False
19	True
20	False
21	False
22	True
23	True
24	False
25	False
IV. 26	The numbers read the same from left to right and from right to left are called palindrome numbers.
27	6174

28	97421										
29	1001										
30	<table><tr><td>9780</td><td>9882</td><td>5662</td><td>1290</td><td>7662</td><td>8192</td></tr></table>	9780	9882	5662	1290	7662	8192				
9780	9882	5662	1290	7662	8192						
31	Since, 11 is an odd number we multiply 11 by 3 and then add 1 to it. $(11 \times 3) + 1$ $= 33 + 1$ $= 34$										
32	Largest number = 8641 Smallest number = 1468 Differences = $8641 - 1468 = 7173$										
V. 33	<table><tr><td>596</td><td>451</td><td>265</td><td>104</td><td>105</td><td>106</td><td>107</td><td>109</td><td>108</td><td>210</td></tr></table>	596	451	265	104	105	106	107	109	108	210
596	451	265	104	105	106	107	109	108	210		
34	<table><tr><td>6543</td><td>6872</td><td>5632</td><td>4890</td><td>5555</td><td>4123</td><td>6452</td><td>7641</td><td>8653</td><td>9542</td></tr></table>	6543	6872	5632	4890	5555	4123	6452	7641	8653	9542
6543	6872	5632	4890	5555	4123	6452	7641	8653	9542		
VI. 35	i. Left = 111 ii. Middle = 123 iii. Right = 234										
36	75700 76700 77700 78700 79700 80700 81700 82700 83700 84700										

VII.	37	<table><tr><td>84310</td><td>84301</td><td>34106</td><td>34810</td></tr><tr><td>48103</td><td>13408</td><td>40318</td><td>18304</td></tr><tr><td>13840</td><td>10348</td><td>40183</td><td>18403</td></tr><tr><td>10483</td><td>10843</td><td>10438</td><td>81340</td></tr></table>				84310	84301	34106	34810	48103	13408	40318	18304	13840	10348	40183	18403	10483	10843	10438	81340
		84310	84301	34106	34810																
		48103	13408	40318	18304																
		13840	10348	40183	18403																
		10483	10843	10438	81340																
i. 84310																					
ii. 10483																					
iii. 48103																					
	38	3-digit number whose digits are consecutive (for example, 345) between 100 to 999 are = 123 + 234 + 345 + 456 + 678 + 789 = 2625																			
Chapter – 4 - Data Handling and Presentation																					
I.	1	Data																			
	2	7																			
	3	Bar graph																			
	4	Frequency																			
	5	Pictograph																			
II.	6	False																			
	7	False																			
	8	True																			
	9	False																			
	10	True																			
	11	True																			
III.	12	Facts, numbers, measures, observations and other descriptions of things that convey information about those things is called data.																			
	13	Frequencies are the counts of the occurrences of values, measures or observations.																			

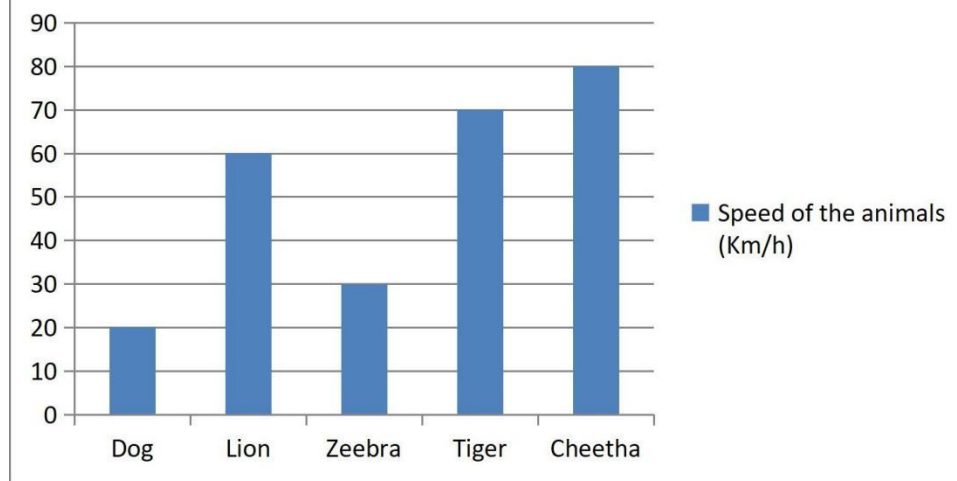
14	Pictograph represents data in the form of pictures or objects or parts of objects.										
15	Bar graphs have bars of uniform width, length or height that indicates the total frequency of occurrence.										
16	When data visualizations are further beautified with more extensive artistic and visual imagery they are called infographics.										
IV. 17	3										
18	Nanda and Krishiv										
19	Kesaribath										
20	7										
21	30										
22											
V. 23	• 15 • Two wheeler										
24	• 900 • 300										
25	• 130 cm • March										
26	• 60 • 4 member										
27	Amount of books in Rs  <table border="1"> <thead> <tr> <th>Name</th> <th>Amount (Rs)</th> </tr> </thead> <tbody> <tr> <td>Manasa</td> <td>500</td> </tr> <tr> <td>Reeta</td> <td>800</td> </tr> <tr> <td>Pavan</td> <td>400</td> </tr> <tr> <td>Dhanush</td> <td>300</td> </tr> </tbody> </table>	Name	Amount (Rs)	Manasa	500	Reeta	800	Pavan	400	Dhanush	300
Name	Amount (Rs)										
Manasa	500										
Reeta	800										
Pavan	400										
Dhanush	300										

Scale :  = 1000 plants

Months Name	Coconut Plants
January	
February	
March	
April	

28

Speed of the animals (Km/h)



VI. 29

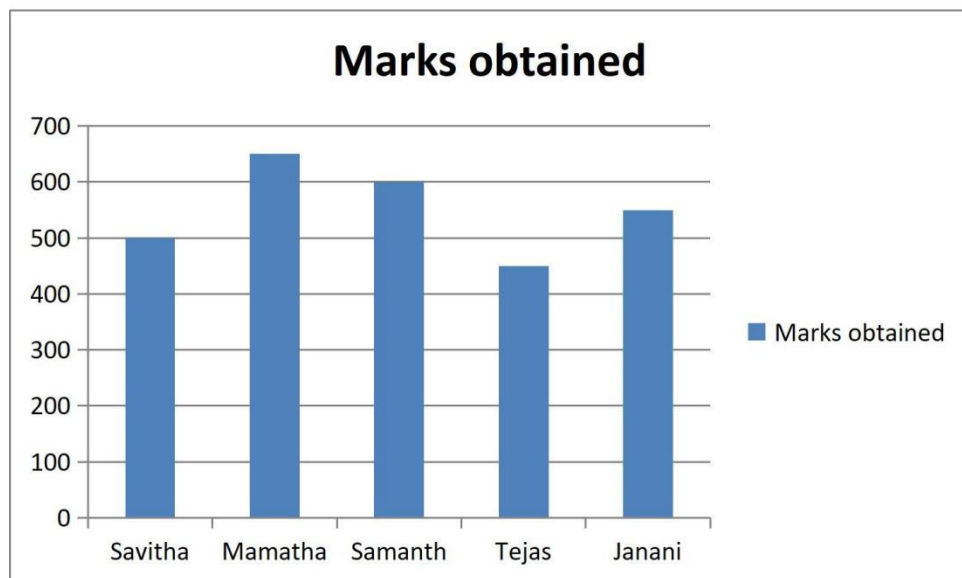
Scale :  = 25 Fruits

30

Types of fruits	Number of plants
Custard Apple	     
Mango	   
Lemon	 
Orange	

Students Name	Marks scored
Savitha	500
Mamatha	650
Samanth	600
Tejas	450
Janani	550

VII. 31.



32

Colours	Tally mark	Frequency
Red		2
Yellow		5
Green		4
White		5
Purple		2
Blue		8
black		3
Orange		1

- i. Blue
- ii. Orange

VIII. 33

- i. 3.1, 3.0, 2.9, 2.9, 2.8, 2.8, 2.7, 2.6, 2.5, 2.5, 2.5,
2.4, 2.2, 2.1, 2.0
- ii. 3.1
- iii. 2.0
- iv. $3.1 - 2.0 = 1.1$
- v. 15

Chapter – 5 - Prime Time

I. 1.

D. 4

2

A. 28

3	C.5
4	A. 15 and 39
5	C. $2 \times 2 \times 2 \times 2 \times 3$
II. 6	Same number
7	1
8	2
9	Co-prime numbers
10	4
11	2
III. 12a	Must be an even number
b	Must be end with zero
c	Must be end with zero or 5
d	The last 2 digits must be divided
e	The last 3 digits must be divided
IV. 13	True
14	True
15	True
16	False
17	True
V. 18	Numbers that have only two factors.
19	Numbers that have more than two factors.
20	Pairs of primes having difference of 2.
21	Numbers that don't have any common factor other than 1.
22	Every number greater than 1 can be written as a product of prime numbers, this is called prime factorization.

VI.	23	995
	24	$65 = 1 \times 5 \times 13$
	25	(13 , 9)
	26	The two numbers have 1 as common factor are called co-prime numbera.
	27	989
VII.	28	$200 = 1 \times 2 \times 2 \times 2 \times 5 \times 5$
	29	Multiples of 2 = 2, 4, 6, 8, 10 Multiples of 3 = 3, 6, 9, 12, 15 Common multiples of 2 and 3 = 6
	30	Factors of 12 = 1, 2, 3, 4, 6, 12 Factors of 15 = 1, 3, 5, 15 Common factors of 12 and 15 = 1, 3
	31	105, 110, 115, 120, 125, 130, 135, 140, 145, 150, 155, 160, 165, 170, 175, 180, 185, 190, 195
	32	A number of which the sum of all its factors is equal to twice the number is called a perfect number. Example : 6 is a perfect number Its factors are 1, 2, 3 and 6. Their sum is 12, which is twice the number 6.
VIII.	33	Factors of 45 = 1, 3, 5, 9, 15, 45 Factors of 108 = 1, 2, 3, 4, 6, 9, 12, 18, 36, 54, 108 45 and 108 have common factors. So, These are not co-prime numbers.
	34	12, 6, 2 $48 = \square \times \square \times \square \times \square \times \square$
	35	a) 1408 = Divisible by 8 $\therefore 408 \div 8 = 51$ b) 3935 = Not divisible by 8 $\therefore 935$ Not divisible by 8.

IX. 36			8	2	4	5	10																						
		8560	✓	✓	✓	✓	✓																						
		2024	✓	✓	✓	×	×																						
		572	×	✓	✓	×	×																						
		105	×	×	×	✓	×																						
37	<table><tr><td>2</td><td>3</td><td>5</td><td>30</td></tr><tr><td>7</td><td>5</td><td>2</td><td>70</td></tr><tr><td>3</td><td>7</td><td>5</td><td>105</td></tr><tr><td>42</td><td>105</td><td>50</td><td></td></tr></table>							2	3	5	30	7	5	2	70	3	7	5	105	42	105	50							
2	3	5	30																										
7	5	2	70																										
3	7	5	105																										
42	105	50																											
38	$24 = 2 \times 2 \times 2 \times 3$ $180 = 2 \times 2 \times 3 \times 3 \times 5$ ∴ All prime factors of 24 are not included in the prime factorization of 180. 180 is not divisible by 24																												
39	The sum of first 20 prime numbers. $2 + 3 + 5 + 7 + 11 + 13 + 17 + 19 + 23 + 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59 + 61 + 67 + 71 = 639$																												
40	Twin primes are pairs of primes having a difference of 2. Example : (3, 5), (5, 7), (11, 13), (17, 19), (41, 43)																												
X. 41	<table><tr><td>2</td><td>1 2 6 0 0 0</td></tr><tr><td>2</td><td>0 6 3 0 0 0</td></tr><tr><td>2</td><td>0 3 1 5 0 0</td></tr><tr><td>2</td><td>1 5 7 5 0</td></tr><tr><td>5</td><td>0 7 8 7 5</td></tr><tr><td>5</td><td>1 5 7 5</td></tr><tr><td>5</td><td>0 3 1 5</td></tr><tr><td>3</td><td>0 6 3</td></tr><tr><td>3</td><td>2 1</td></tr><tr><td>7</td><td>7</td></tr><tr><td></td><td>1</td></tr></table> $1,26,000 = 2 \times 2 \times 2 \times 2 \times 5 \times 5 \times 5 \times 3 \times 3 \times 7 \times 1$							2	1 2 6 0 0 0	2	0 6 3 0 0 0	2	0 3 1 5 0 0	2	1 5 7 5 0	5	0 7 8 7 5	5	1 5 7 5	5	0 3 1 5	3	0 6 3	3	2 1	7	7		1
2	1 2 6 0 0 0																												
2	0 6 3 0 0 0																												
2	0 3 1 5 0 0																												
2	1 5 7 5 0																												
5	0 7 8 7 5																												
5	1 5 7 5																												
5	0 3 1 5																												
3	0 6 3																												
3	2 1																												
7	7																												
	1																												

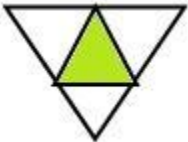
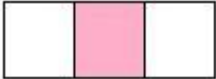
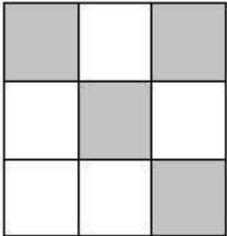
70

Chapter – 6 - Perimeter and Area

I.	1	B. 8 cm
	2	D. 2 2 cm
	3	A. 100 cm²
	4	A. 3 cm
	5	A. 7cm & 5cm
	6	B. -2
	7	A. 10 cm²
II.	8	15 cm
	9	49 m²
	10	265 m²
	11	6 cm
	12	40 Cm
III.	13a	2 (length + breadth)
	b	4 × length
	c	length × breadth
	d	length × length
	e	$\frac{1}{2} \times \text{base} \times \text{height}$
IV.	14	Perimeter is the sum of the lengths of all the sides of a shape
	15	The area of a closed figure is the measure of the region enclosed by the figure
V.	16	length × length
	17	length × breadth
VI.	18	length = 3 cm Perimeter of the square = 4 × length = 4 × 3 cm = 12 cm Area of the square = length × length = 3 cm × 3 cm = 9 cm²

19	length = 1 cm			
	breadth = 2 cm Perimeter of rectangle = 2 (length + breadth) Area of the rectangle = length × breadth $= 2 (1 \text{ cm} + 2 \text{ cm}) \qquad \qquad \qquad = 1 \text{ cm} \times 2 \text{ cm}$ $= 2 (3) \qquad \qquad \qquad = 2 \text{ cm}^2$ $= 6 \text{ cm}$			
20	Area of the rectangle = 30 cm^2 length = 6 cm breadth = ? Area of the rectangle = length × breadth $30 \text{ cm}^2 = 6 \text{ cm} \times \text{breadth}$ breadth = $30 \text{ cm}^2 \div 6 \text{ cm}$ breadth = 5 cm			
21	Length of the field = 13 cm Perimeter of the square = $4 \times \text{length}$ $= 4 \times 13 \text{ cm}$ $= 52 \text{ cm}$			
22	Length of the rectangular garden = 50 m Area = 300 sq m breadth = ? Area of the rectangle = length × breadth $300 \text{ sq m} = 50 \text{ m} \times \text{breadth}$ $\therefore \text{breadth} = 300 \text{ sq m} \div 50 \text{ m}$ $\therefore \text{breadth} = 6 \text{ m}$			
23	Area of the square = 64 sq cm Length of the side = ? Area of the square = length × length $64 \text{ sq cm} = (\text{length})^2$ length = 8 cm			
24	Measurement of sides = 12 cm and 14 cm Perimeter of the triangle = 36 cm Perimeter of the triangle = 12 cm + 14 cm + 3 rd side $36 \text{ cm} = 26 \text{ cm} + 3^{\text{rd}} \text{ side}$ $3^{\text{rd}} \text{ side} = 36 \text{ cm} - 26 \text{ cm}$ $3^{\text{rd}} \text{ side} = 10 \text{ cm}$			
VII. 25		Length	Breadth	Area of the rectangle
		15 cm	10 cm	150 sq cm
		10 m	11 m	110 sq cm
		50 cm	20 cm	1000 sq cm

	26	Length of the wire = 32 cm Perimeter of the square = $4 \times \text{length}$ Length of the side = ? $32 \text{ cm} = 4 \times \text{length}$ $\text{length} = 32 \text{ cm} \div 4$ Length of the side = 8 cm
VIII.	27	Length of the rectangular garden = 120 m Breadth of the rectangular garden = 130 m Cost of 1 meter wire = ₹ 30 Perimeter of the rectangle = $2 (\text{length} + \text{breadth})$ $= 2 (120 \text{ m} + 130 \text{ m})$ $= 2 (250 \text{ m})$ $= 500 \text{ m}$ Total cost = $500 \text{ m} \times ₹ 30$ $= ₹ 15000$
	28	Length of the field = 150 m Breadth of the field = 200 m Perimeter = $2 (\text{length} + \text{breadth})$ $= 2 (150 \text{ m} + 200 \text{ m})$ $= 2 (350 \text{ m})$ $= 700 \text{ m}$ Length of the 2 round of wire = $700 \text{ m} \times 2$ $= 1400 \text{ m}$
Chapter -7- Fractions		
I.	1	C. $\frac{5}{6}$
	2	C. $1\frac{7}{9}$
	3	B. $\frac{3}{4}$
	4	A. $>$
	5	D. $\frac{10}{16}$
II.	6	True
	7	False
	8	False
	9	False
	10	True
	11	False
	12	True
III.	13	A fraction is a number that represent equal part of a whole .

	14	A fraction where the numerator is smaller than the denominator.
	15	A fraction where the numerator is greater than the denominator.
	16	Combines a whole number and a proper fraction.
	17	Fraction that have the same value even though they may look different with different numerator & denominators.
IV.	18	
	19	
	20	
	21	
V.	22	$2\frac{2}{3}$
	23	$1\frac{5}{7}$
	24	$2\frac{7}{9}$
VI.	25	$\frac{8}{5}$
	26	$\frac{49}{8}$
	27	$\frac{22}{7}$
	28	$\frac{5}{4}$
VII.	29	$\frac{1}{5}$
	30	12

31	Proper fractions = $\frac{2}{7}$, $\frac{1}{2}$, $\frac{3}{4}$ Improper fractions = $\frac{6}{5}$, $\frac{11}{5}$
VIII. 32	>
33	<
34	>
IX. 35	a) 1 b) 2
36	$\frac{5}{12}$ $\frac{5}{12}$ and $\frac{30}{84}$ (12 and 84 common denominator = 84) $\frac{5}{12} = \frac{5 \times 7}{12 \times 7} = \frac{35}{84}$ $\frac{30}{84} = \frac{30 \times 1}{84 \times 1} = \frac{30}{84}$ $\frac{35}{84} \neq \frac{30}{84}$ These are not equivalent fractions

37

a) $\frac{1}{3} + \frac{3}{5}$ (3 and 5 LCM = 15)

$$\frac{1}{3} = \frac{1 \times 5}{3 \times 5} = \frac{5}{15}$$

$$\frac{3}{5} = \frac{3 \times 3}{5 \times 3} = \frac{9}{15}$$

$$\frac{1}{3} + \frac{3}{5} = \frac{5}{15} + \frac{9}{15} = \frac{14}{15}$$

b) $\frac{5}{6} + \frac{1}{2}$ (6 and 2 LCM = 6)

$$\frac{5}{6} = \frac{5 \times 1}{6 \times 1} = \frac{5}{6}$$

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

$$\frac{5}{6} + \frac{1}{2} = \frac{5}{6} + \frac{3}{6} = \frac{8}{6}$$

38

a) $\frac{3}{5} - \frac{1}{2}$ (5 and 2 LCM = 10)

$$\frac{3}{5} = \frac{3 \times 2}{5 \times 2} = \frac{6}{10}$$

$$\frac{1}{2} = \frac{1 \times 5}{2 \times 5} = \frac{5}{10}$$

$$\frac{3}{5} - \frac{1}{2} = \frac{6}{10} - \frac{5}{10} = \frac{1}{10}$$

b) $\frac{2}{3} - \frac{1}{7}$ (3 and 7 LCM = 21)

$$\frac{2}{3} = \frac{2 \times 7}{3 \times 7} = \frac{14}{21}$$

$$\frac{1}{7} = \frac{1 \times 3}{7 \times 3} = \frac{3}{21}$$

$$\frac{2}{3} - \frac{1}{7} = \frac{14}{21} - \frac{3}{21} = \frac{11}{21}$$

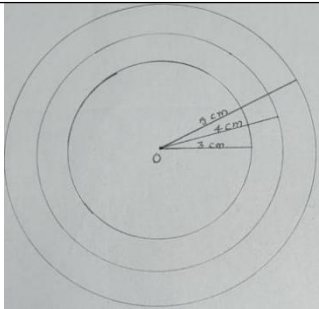
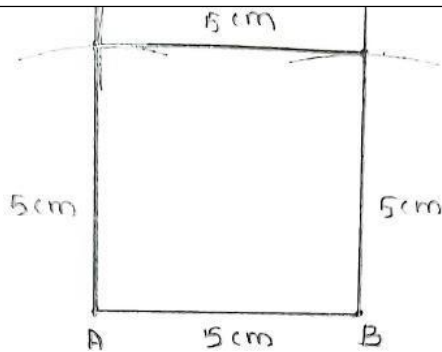
39	
40	$\frac{1}{3} = \frac{3}{9} = \frac{4}{12}$
X. 41	$\frac{40}{80} \div \frac{10}{10} = \frac{4}{8} \div \frac{4}{4} = \frac{1}{2}$
42	$\frac{5}{6}, \frac{1}{2}, \frac{2}{3}, \text{ and } \frac{8}{9}$ $\frac{5}{6}, \frac{1}{2}, \frac{2}{3}, \frac{8}{9} \quad (6, 2, 3, 9 \text{ LCM} = 18)$ $\frac{5 \times 3}{6 \times 3}, \frac{1 \times 9}{2 \times 9}, \frac{2 \times 6}{3 \times 6}, \frac{8 \times 2}{9 \times 2}$ $\frac{15}{18}, \frac{9}{18}, \frac{12}{18}, \frac{16}{18}$ Increasing order = $\frac{1}{2}, \frac{2}{3}, \frac{5}{6}, \frac{8}{9}$
43	$\frac{3}{4} + \frac{1}{3} + \frac{2}{5} \quad (4, 3, 5 \text{ LCM} = 60)$ $\frac{3 \times 15}{4 \times 15} + \frac{1 \times 20}{3 \times 20} + \frac{2 \times 12}{5 \times 12}$ $\frac{45}{60} + \frac{20}{60} + \frac{24}{60} = \frac{99}{60} \div \frac{3}{3} = \frac{33}{20} = 1 \frac{13}{20}$
44	Time taken by Rahul = $\frac{11}{7}$ Time taken by Naman = $\frac{15}{8}$ $\frac{11}{7}$ and $\frac{15}{8} \quad (7 \text{ and } 8 \text{ LCM} = 56)$ $\frac{11 \times 8}{7 \times 8} = \frac{88}{56}$ and $\frac{15 \times 7}{8 \times 7} = \frac{105}{56}$ $\frac{88}{56} < \frac{105}{56} = \frac{11}{7} < \frac{15}{8}$ $\therefore$ Naman took more time by $\frac{17}{56}$ hours
45	

XI. 46	Part painted by Krishiv = $\frac{2}{3}$ Part painted by his father = $\frac{1}{5}$ Remaining part = $1 - \frac{2}{3} + \frac{1}{5}$ (1, 3, 5 LCM = 15) $= 1 \times \frac{15}{15} - \frac{2 \times 5}{3 \times 5} + \frac{1 \times 3}{5 \times 3}$ $= \frac{15}{15} - \frac{10}{15} + \frac{3}{15}$ $= \frac{15}{15} - \frac{10}{15}$ Part remaining unpainted = $\frac{2}{15}$
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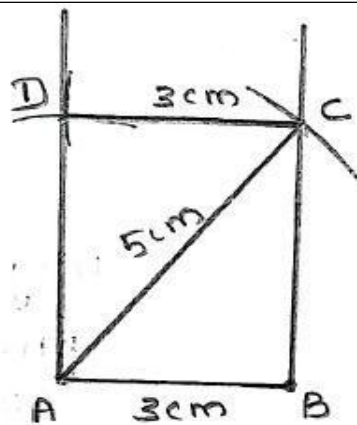
47	If three pizzas are shared equally to four children. How much will each get.  $\frac{3}{4}$ Division fact = $3 \div 4 = \frac{3}{4}$ Addition fact = $3 = \frac{3}{4} + \frac{3}{4} + \frac{3}{4} + \frac{3}{4}$ Multiplication fact = $3 = 4 \times \frac{3}{4}$
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Chapter-8- Playing with constructions

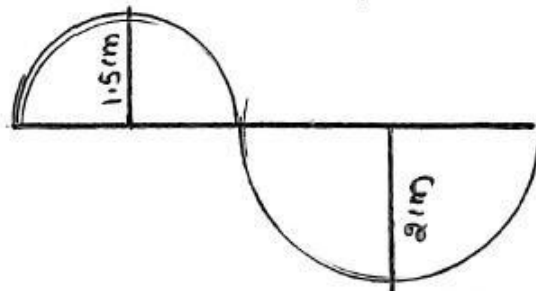
I. 1	A. 4
2	B. center
3	D. 3.5 cm
4	B. DABC
5	C. 90°
II. 6	Compass
7	Length × Breadth
8	Compass
9	360°
10	Radius

III.	11a	Circle
	b	Compass
	c	Scale
	d	Square
	e	Rectangle
	f	Rhombus
IV.	12	False
	13	False
	14	True
	15	True
	16	True
V.	17	
	18	Scale Compass Protractor Divider
	19	Number of right angles in rectangle = 4
	20	A circle is a two dimensional shape formed by a curved line are equidistant from a central point
	21	Each angle will be 90°
	22	

23



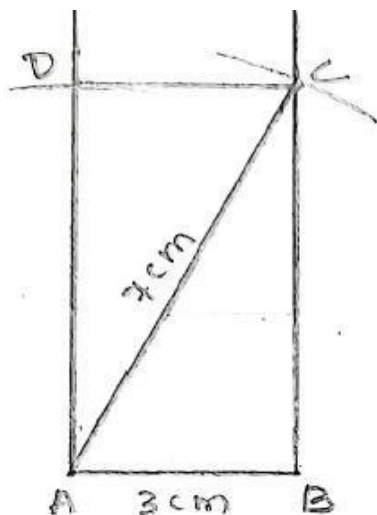
24



25

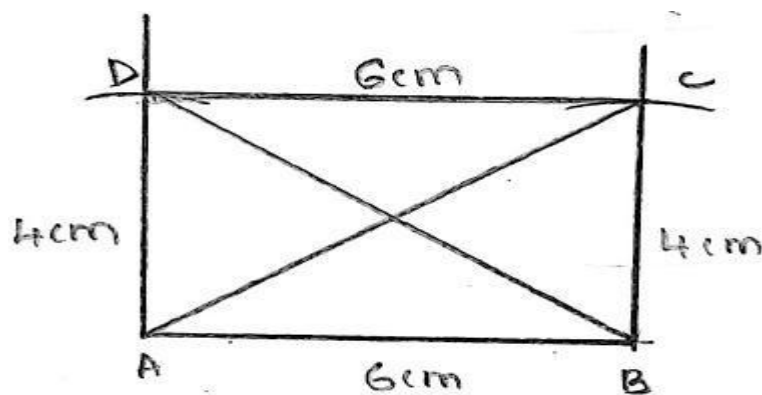
- 1) 4 cm , 10 cm
- 2) 3 cm , 7 cm

26



VI

27

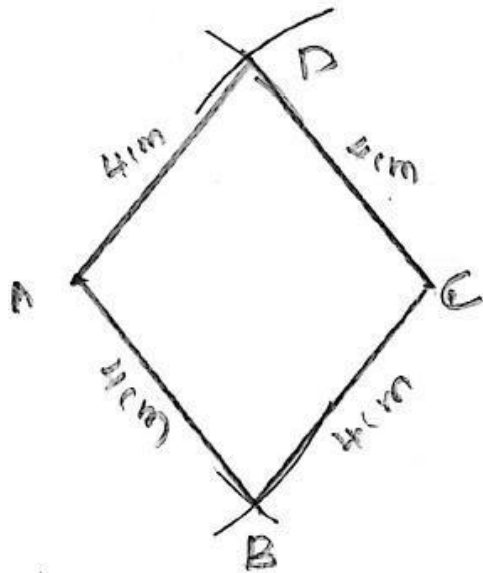


Diagonal = AC = 7 cm

Diagonal = BD = 7 cm

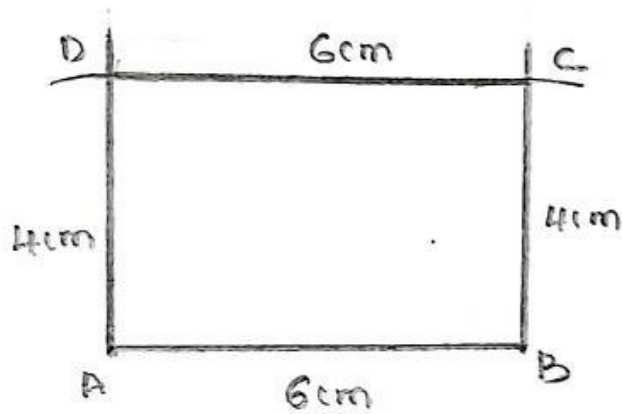
$\therefore AC = BD$

28



Name of the shape is Rhombus

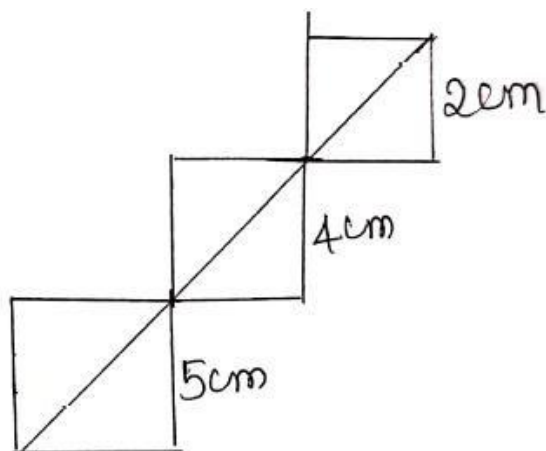
29



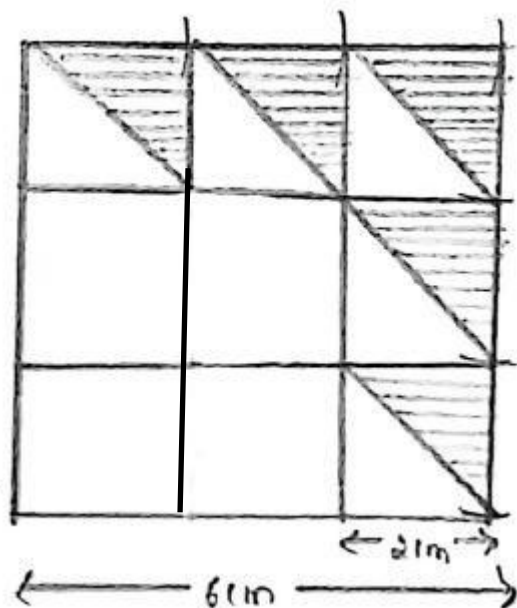
Area of the rectangle = length $\times$ breadth
 $= 6 \text{ cm} \times 4 \text{ cm}$
 $= 24 \text{ cm}^2$

VII.

30



31

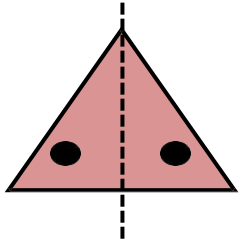
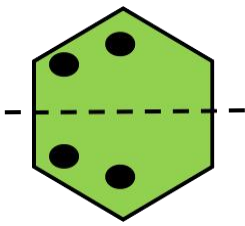
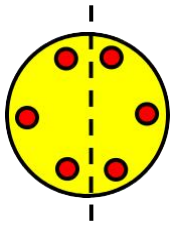
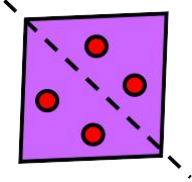
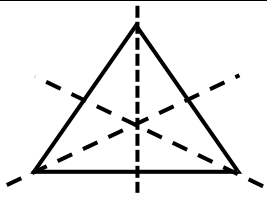


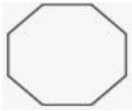
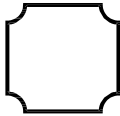
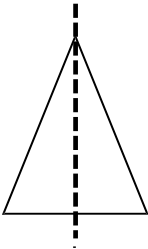
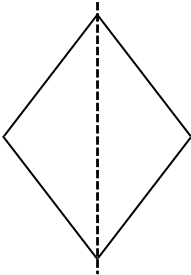
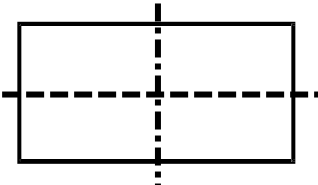
Chapter – 9- Symmetry

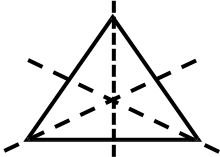
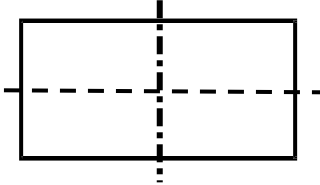
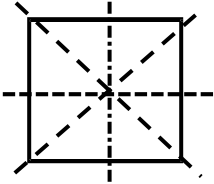
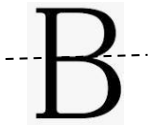
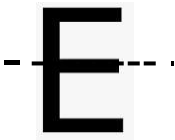
I.	1	B. 2
	2	A. 1
	3	A. Vertically
	4	D. b and c
	5	B. 6
	6	A. square
	7	B. square
II.	8	Lines of symmetry
	9	4
	10	Diagonals
	11	Equilateral triangle
	12	Infinite
	13	6
	14	360°
	15	Parallelogram

16	6
17	3
18	Zero
19	Symmetric axis
20	120°
21	X
22	72°
23	5
24	180°
25	180°
III. 26a	Four
b	Zero
c	One
d	Two
e	Six
IV. 27	True
28	False
29	True

	30	True
	31	False
	32	False
	33	False
	34	False
	35	True
V.	36	Symmetrical figures -When a figure is made up of parts that repeat in a definite pattern such figures are called symmetrical figures
	37	Line (axis) of symmetry- A line that cuts a plane figure into two parts that exactly overlap when folded along the line that line is called line of symmetry.
	38	Centre of rotation-When a figure looks exactly the same when it is rotated by an angle about fixed point then the fixed point is called centre of rotation.
	39	Angle of symmetry-When a figure looks exactly the same when it is rotates by an angle about fixed point such an angle is called angle of symmetry.
VII.	40	A kite has one line of symmetry
	41	Scalene triangle has no line of symmetry
	42	Circle is symmetrical about its diameter
	43	Letter “ M ”has one line of symmetry
	44	The order of rotational symmetry is 1
	45	Parallelogram has rotational symmetry but does not have line of symmetry

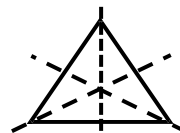
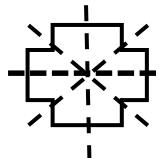
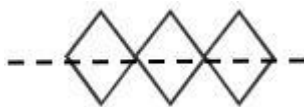
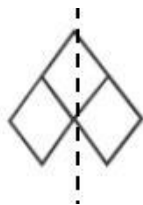
VIII. 46	A line that cuts a figure into two parts that exactly over lap when folded along that line is called lines of symmetry	
47	1). Square - Number of lines of symmetry = 4 2). Rhombus – Number of lines of symmetry = 2	
48	1) 	2) 
49	1) 	2) 
50	F, G, J, L	
51	B, C, D, E, H, I, K, O, X (any 4)	
52	A, H, I, M, O, T, U, V, W, X (any 4)	
53	a) I = 2 b) M = 1	
54	a)  b) parallelogram 	
55	1). Rhombus - order of rotational symmetry = 2 2). Equilateral triangle - order of rotational symmetry = 3	
56	1) Parallelogram - angle of rotational symmetry = 180° 2) Regular pentagon - angle of rotational symmetry = 72°	
57	a) angle of rotational symmetry = $360 \div 4 = 90^{\circ}$ b) angle of rotational symmetry = $360 \div 2 = 180^{\circ}$	

58	a) Angle of rotation of a shape = 90^0 $\therefore$ The order of rotational symmetry = $360^0 \div 90^0 = 4$ b) Angle of rotation of a shape = 120^0 $\therefore$ The order of rotational symmetry = $360^0 \div 120^0 = 3$
59	a) The order of rotational symmetry of a figure = 3 $\therefore$ The angle of rotation of the figure = $360^0 \div 3 = 120^0$ b) The order of rotational symmetry of a figure = 5 $\therefore$ The angle of rotation of the figure = $360^0 \div 5 = 72^0$
60	1) Number of lines of symmetry = 8 Order of rotational symmetry = 8  2) Number of lines of symmetry = 4 Order of rotational symmetry = 4 
VIII. 61	a)  b) 
62	

63	a)  b)  c) 
64	a)  Yes b)  Yes c) N - No lines of symmetry
IX. 65	i. a , b ii. a iii. d iv. c
66	H, I, O, X

67	i. 6 ii. 60° iii. 6
68	a) 90° b) 60° c) 360° d) 180°
69	
70	
71	a)  - Number of lines of symmetry = 1 b)  - Number of lines of symmetry = 1 c)  - Number of lines of symmetry = 0 d)  - Number of lines of symmetry = Infinite
72	

73



74

Names of 4 shapes of more than two order of rotational symmetry are,

- i. Square
- ii. Equilateral triangle
- iii. Pentagon
- iv. Hexagon
- v. Circle

Chapter-10- The Other Side of Zero

I. 1

A. <

2

A. -12

3

D. Negative numbers

4

A. Always less than positive numbers.

5

B. 0

6

B. -7

7

C. 0

8

A. -8^0 C

9

C. 2

10

B. -2

II. 11

Left

12

Right

13

+1

14

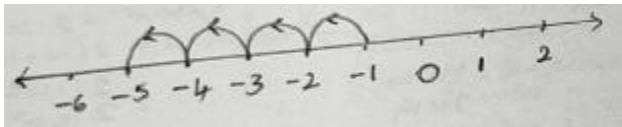
- 14

15

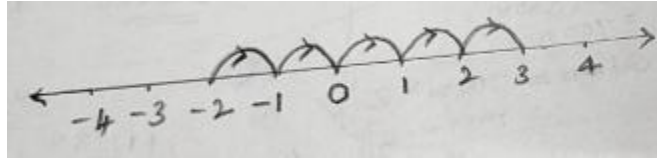
0

16

+5

	17	3
	18	5
	19	Positive integer
III.	20a	(-2)
	b	(-1)
	c	1
	d	0
	e	(-4)
IV.	21	False
	22	True
	23	True
	24	False
	25	True
	26	True
V.	27	-101, -102, -103, -148, -149
	28	∞
	29	Profit = +50 Loss = -30
	30	
VI.	31	c) (+25 m) deep d) (-45 m) height
	32	c) 4 less than -1 

d) 5 more than -2



33

i. $3 + (0 + 9) = (3 + 0) + 9$

$$3 + 9 = 3 + 9$$

$$12 = 12 \quad \text{This statement is true.}$$

ii. $34 + \{90 + (-11)\} = (34 + 90) + (-11)$

$$34 + \{90 - 11\} = 124 - 11$$

$$34 + 79 = 113$$

$$113 = 113 \quad \text{This statement is true.}$$

34

-3	1	2
4		0
-1	3	-2

Bordersum is= 0

-6	-5	-1
-4		-8
-2	-7	-3

Bordersum is=12

VII. 35

1) $79 - 68 + 28 - (-32)$

$$= 79 - 68 + 28 + 32$$

$$= 79 + 28 + 32 - 68$$

$$= 139 - 68$$

$$= 71$$

2) $153 + 218 - \{29 - (367)\}$

$$= 153 + 218 - \{29 - 367\}$$

$$= 153 + 218 - \{-338\}$$

	$= 153 + 218 + 338$ $= 709$
36	$B = (-9)$ $C = (-6)$ $F = (+2)$ $G = (+6)$ $H = (+12)$
92	