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Teachers who helped in preparation of the Question Bank

S.N.	Name, Designation	ID	School
1.	Chander Kanta Chabria PGT	19800024	R.P.V.V. Tyagraj Nagar, Lodhi Road
2.	Neelam Kapoor PGT	19790852	Sister Nivedita SKV A-Block, Defence Colony
3.	Perna Sharma TGT	19950332	RPVV, BE-Block Hari Nagar, New Delhi
4.	Kavita Kataria TGT	19985008	RPVV, BE-Block Hari Nagar, New Delhi
5.	Manpreet Kaur Grover TGT	20025132	RPVV, Tyagraj Nagar, Lodhi Road, New Delhi
6.	Syed Athar Hasan TGT	19980303	RPVV, Gandhi Nagar
7.	Anjali Arya, Asst. Teacher	19990303	GSKV, A-Block, Janakpuri
8.	Vandna Arora Asstt. Teacher	19990250	J.D.S.K.V., Pocket-II Mayur Vihar-I, Delhi - 91
9.	Sushma Sharma Asstt. Teacher	20036407	V.S.S.K.V., No.1, Kalkaji, Delhi-19.

Chapter
1

Knowing Our Numbers

Counting numbers or Natural Numbers :-

Numbers 1,2,3 are called counting or natural numbers. The smallest natural number is 1.

Whole Numbers : 0,1,2,3, are called collection of whole numbers. The smallest whole number is 0.

Successor : If 1 is added to a number we get its successor.

Example :- Successor of 93 is $93+1=94$

Predecessor : If 1 is subtracted from a number we get its predecessor.

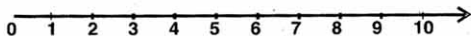
Example :- Predecessor of 101 is $101-1=100$

Rounding off the numbers to the nearest 10,100,1000 etc:-

1,2,3 and 4 are nearer to 0 than 10, so they are rounded off as 0.

6,7,8 and 9 are nearer to 10 than 0 so they are rounded off as 10.

Note :- Number 5 is Equidistant from both 0 and 10 so round it off as 10.



Questions

- Which of the following is the greatest number?
1980, 1983, 1971, 1985.
- Which of the following is the smallest number?
1856, 1937, 1872, 1928

3. Make the greatest 4 digit number using the digits 3, 2, 8, 7 only once.
4. Make the greatest 4 digit number using the digits 2, 0, 3, 5 only once.
5. Make the smallest 5 digit number using the digits 5, 2, 0, 1, 3 only once.
6. Make the greatest 4 digit number using any digit twice 0, 8, 6.
7. What is the sum of first five counting (Natural) numbers.
8. Make the greatest 4-digit number using any 4 different digits where digit 7 is at tens place.
9. Make the greatest 4-digit number using 4 different digits where digit 9 is at hundreds place.
10. Make the greatest 4-digit number using any 4 different digits where digit 1 is at thousands place.
11. Make the smallest 4-digit number using any 4 different digits where digit 7 is at tens place.
12. Make the smallest 4-digit number using any 4 different digits where digit 9 is at hundreds place.
13. Make the smallest 4-digit number using any 4 digits where digit 3 is at thousands place.
14. How many times the digit 0 appeared in ten thousand?
15. How many hundreds are there in one lakh?
16. How many lakhs are there in one crore?
17. How many thousands are there in one lakh?
18. Round off 2936 to the nearest thousand.
19. Round off 243 to the nearest hundred.
20. Round off 18 to the nearest ten.
21. Add and round off the result to the nearest hundred $203+511$.
22. Which number comes next to 99999?
23. Which number comes next to 88899?
24. Estimate the following product to the nearest thousand 98×213 .
25. Estimate the following product to the nearest thousand 52×103 .
26. Find the sum of the number 213 and the number obtained by reversing its digits.
27. What comes next:
5, 9, 13, 17, ?
28. What comes next:
2, 4, 8, 16, ?

29. What comes next:
5, 10, 15, 20, ?
30. What comes next:
10, 100, 1000, 10000, ?
31. How many times the digit 9 appeared in 100000-1?
32. How many centimetres make a kilometre?
- ~~33. How many milligrams make one gram?~~
34. Make the greatest 4-digit number using any one digit twice.
3, 8, 9
35. Make the greatest 5-digit number using any two digits twice.
2, 3, 5
36. Make the greatest 4-digit number using any one digit thrice.
2, 8
37. Make the smallest 5-digit number using any two digits twice.
5, 1, 6
38. Make the smallest 4-digit number using any one digit thrice.
2, 1
39. Make the smallest 4-digit number using any one digit twice.
5, 2, 8
40. Make the smallest 3-digit number using any one digit twice.
8, 0
41. Starting from the greatest 3-digit number what are the next three numbers in ascending order?
42. Starting from the greatest 4-digit number what are the previous three numbers in descending order?
43. Starting from the smallest 4-digit number what are the next three numbers in ascending order?
44. Starting from the smallest 3-digit number what are the previous three numbers in descending order?
45. How many millions are there in one billion?
46. How many ten thousands are there in one lakh?
47. How many hundreds are there in one lakh?
48. How many lakhs are there in one million?

49. How many lakhs are there in one crore?
50. How many hundreds are there in one thousand?

Test Yourself

1. Without repetition make the greatest 4-digit number using the digit 4,3,2,9
2. Make the greatest 4-digit number using any one digit twice 3,8,2
3. Make the smallest 4-digit number using 4 different digits where digit 5 is at hundreds place.
4. How many times the digit 0 appeared in one lakh?
5. Estimate the following product to the nearest thousand 98×103
6. Find the sum of 632 and the number obtained by reversing its digit.
7. What comes next : 7, 16, 25, 34, ?
8. Starting from the smallest 5-digit number what are the previous three numbers in descending order?
9. What is the successor of the greatest 3-digit number?
10. What is the predecessor of the smallest 4-digit number?

Answers

- | | | |
|------------------|--------------------|-------------------|
| 1. 1985 | 26. 525 | |
| 2. 1856 | 27. 21 | 1. 9432 |
| 3. 8732 | 28. 32 | 2. 8832 |
| 4. 5320 | 29. 25 | 3. 1502 |
| 5. 10235 | 30. 100000 | 4. 5 times |
| 6. 8860 | 31. 5 times | 5. 10000 |
| 7. 15 | 32. One lakh cms | 6. 868 |
| 8. 9876 | 33. 1000 mg | 7. 43 |
| 9. 8976 | 34. 9983 | 8. 9999,9998,9997 |
| 10. 1987 | 35. 55332 | 9. 1000 |
| 11. 1072 | 36. 8882 | 10. 999 |
| 12. 1902 | 37. 11556 | |
| 13. 3012 | 38. 1112 | |
| 14. 4 times | 39. 2258 | |
| 15. One thousand | 40. 808 | |
| 16. Hundred | 41. 1000,1001,1002 | |
| 17. One hundred | 42. 9998,9997,9996 | |
| 18. 3000 | 43. 1001,1002,1003 | |
| 19. 200 | 44. 99,98,97 | |
| 20. 20 | 45. 1000 | |
| 21. 700 | 46. 10 | |
| 22. 100000 | 47. 1000 | |
| 23. 889000 | 48. 10 | |
| 24. 20000 | 49. 100 | |
| 25. 5000 | 50. 10 | |

Test yourself

Chapter
2

Whole Numbers

1. What is the sum of the greatest 3-digit number and the smallest 3 digit numbers?
2. How many whole numbers are there between 81 and 101?
3. What is the smallest and the greatest number using all the digits 0,1,3,5?
4. What is the smallest whole number?
5. How many three digit numbers are there in all?
6. What is the product of the place value and the face value of 3 in 68324?
7. What is the successor and the predecessor of 1000?
8. What do you get on multiplying the smallest whole number by any natural number?
9. What do you get on multiplying the greatest 3-digit number and the smallest 2-digit number?
10. What will be the product of $725 \times 4 \times 25$?
11. What is the difference between the smallest 7-digit number and the largest 6-digit number?
12. Ankit buys 10 note books and 10 pencils. If the cost of one note book is Rs.5 and one pencil is Re.1. How much money does he spend?
13. Replace \square with suitable digit :-

$$\begin{array}{r}
 3941 \\
 - \square\square78 \\
 \hline
 18\square\square
 \end{array}$$

14. If the sum of each row, column and the diagonal is same, complete the magic square.

	1	9
3	8	
	15	2

15. (a) How many odd numbers lie between 100 and 200?
(b) What is the greatest prime number less than 100?
16. What are three consecutive odd numbers preceding 8500?
17. (a) Which is the smallest 5-digit number ending in 6?
(b) What is the greatest number of five digits which begins with 2 and ends with 5?
(c) What is the smallest number of five digits which begins with 2 and ends with 5?
18. How many times 7 occurs in units place if we write natural numbers between 6 and 79?
19. (a) What are the possible three digit numbers using digits 0,2,3 without repeating the digits?
(b) What is the smallest and the greatest three digit numbers which can be formed with digits 0, 2, 3 ?
20. Which are the three consecutive natural numbers next to 799?
21. (a) What is the sum of the smallest two digit natural number and the largest three digit natural number?
(b) What is the smallest even number which is prime also?
22. What is the product of the smallest odd number and the largest two digit even number?
23. What is the sum of all odd numbers between 1 and 10?
24. Next two odd numbers after 73899 are and
25. $560+(100+10) = \dots\dots\dots$
26. 4000 more than 19314 is
27. 1079 less than 13079 =
28. Predecessor of 3400 is
29. Predecessor of the smallest 5-digit number ending in 6 is
30. Product of all even numbers between 3 and 7 is
31. What must be added to 99999 to get 100000?
32. Swati is 12 years old. Her teacher is 24 years older than her. How old is her teacher?

33. I am a number between 45 and 50. You can divide me by 4. What number am I?
34. The successor and predecessor of the number 1999 are and
35. $(9-8)+(7-6)+(5-4)+(3-2)+1=$
36. The predecessor of one lakh is
37. $8870 \times 461 - 8870 \times 361 =$
38. (a) Which least number should be subtracted from 1000 so that 30 divides the difference exactly?
- (b) Which least number should be added to 1000 so that the sum must be divisible by 30?
39. (a) How many two digit numbers can be formed using the digits 0,1,2,3,4,5,6,7,8,9 if repetition of digit is allowed?
- (b) What is the smallest and the largest two digit numbers formed with the given digits?
40. How many two digit numbers can you construct using digits 0,1,2,3,4,5,6,7,8,9 if repetition of digit is not allowed?
41. How many 2-digit numbers you can form using digits 0,1,2,3 without repeating the digits? What are the greatest and the smallest of these numbers?
42. What should be added to (40×30) so that the sum is $(12500 \div 10)$?
43. What do you get on dividing the largest 4-digit number by 3?
44. I am a number between 130 and 140. I occur in the table of 17. What number am I?
45. State the place value of 3 in the numbers given below :-
- (i) 6,84,34,782 [Thirty thousand] Example
- (ii) 3,00,58,742
- (iii) 54,23,804
- (iv) 7,34,42,716
- (v) 23,64,516
46. Using the digits 1 to 7 without repetition :-
- a) What is the greatest 7-digit number ?
- b) What is the smallest 7-digit number ?
47. How many whole numbers are there upto 100?
- a) What is the greatest 7-digit number?
- b) What is the smallest 7-digit number?
48. Which whole number is not a natural number?

49. Sum of place values of two 6's in 264368 is
50. (a) Which least number should be added to 207 to make it exactly divisible by 25?
 (b) Which least number should be subtracted from 207 to make it exactly divisible by 25?

Answers

- | | | | | | | | | | | |
|---|--|----|---|---|---|----|---|----|---|------------|
| 1. 1099 | 22. 98 | | | | | | | | | |
| 2. 19 | 23. 24 | | | | | | | | | |
| 3. 1035,5310 | 24. 73901, 73903 | | | | | | | | | |
| 4. 0 | 25. 570 | | | | | | | | | |
| 5. 900 | 26. 23314 | | | | | | | | | |
| 6. 900 | 27. 12000 | | | | | | | | | |
| 7. 1001, 999 | 28. 3399 | | | | | | | | | |
| 8. 0 | 29. 10005 | | | | | | | | | |
| 9. 9990 | 30. 24 | | | | | | | | | |
| 10. 72500 | 31. 1 | | | | | | | | | |
| 11. 1 | 32. 36 years | | | | | | | | | |
| 12. Rs.60 | 33. 48 | | | | | | | | | |
| 13. | 34. 2000, 1998 | | | | | | | | | |
| $\begin{array}{r} 3 \ 9 \ 4 \ 1 \\ - \quad \boxed{2} \boxed{0} \ 7 \ 8 \\ \hline 1 \ 8 \ \boxed{6} \ \boxed{3} \end{array}$ | 35. 5 | | | | | | | | | |
| 14. | 36. 99999 | | | | | | | | | |
| <table border="1" style="border-collapse: collapse; text-align: center; width: 60px; margin: auto;"> <tbody> <tr><td>14</td><td>1</td><td>9</td></tr> <tr><td>3</td><td>8</td><td>13</td></tr> <tr><td>7</td><td>15</td><td>2</td></tr> </tbody> </table> | 14 | 1 | 9 | 3 | 8 | 13 | 7 | 15 | 2 | 37. 887000 |
| 14 | 1 | 9 | | | | | | | | |
| 3 | 8 | 13 | | | | | | | | |
| 7 | 15 | 2 | | | | | | | | |
| 15. (a) 50 | 38. (a) 10 (b) 20 | | | | | | | | | |
| (b) 97 | 39. (a) 90 (b) 10,99 | | | | | | | | | |
| 16. 8499, 8497, 8495 | 40. 81 | | | | | | | | | |
| 17. (a) 10006 (b) 29995 (c) 20003 | 41. 9 Nos. 32, 10 | | | | | | | | | |
| 18. 8 times | 42. 50 | | | | | | | | | |
| 19. (a) 320,230, 302, 203 | 43. 3333 | | | | | | | | | |
| (b) 203, 320 | 44. 136 | | | | | | | | | |
| 20. 800, 801, 802 | 45. (ii) Three Crore (iii) Three Thousand
(iv) Thirty Lakh (v) Three Lakh | | | | | | | | | |
| 21. (a) 1009 (b) 2 | 46. (a) 7654321 (b) 1234567 | | | | | | | | | |
| | 47. 101 | | | | | | | | | |
| | 48. 0 | | | | | | | | | |
| | 49. 60060 | | | | | | | | | |
| | 50. (a) 18 (b) 7 | | | | | | | | | |

Points to remember:-

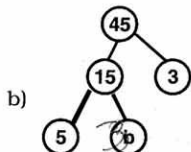
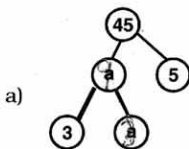
1. Every factor of a number is exact divisor of that number.
2. Every number has at least two factors 1 and the number itself. (Except number 1)
3. Prime numbers have only two factors.
4. 1 is neither prime nor composite.
5. All even numbers have 2 as a factor.
6. 2 is the smallest and the only even prime number.

7.	Divisibility by	Rule
(i)	2	Number ends with 0,2,4,6,8.
(ii)	3	Sum of all digits divisible by 3.
(iii)	4	Last two digits divisible by 4.
(iv)	5	Number ends with 0,5
(v)	6	Number is divisible by 2 and 3
(vi)	8	Last 3 digits of the number is divisible by 8.
(vii)	9	Sum of all digits of the number is divisible by 9.
(viii)	10	The number ends with 0.
(ix)	11	(Sum of digits at even places of the number) - (Sum of digits at odd place of the number) is either 0 or divisible by 11.

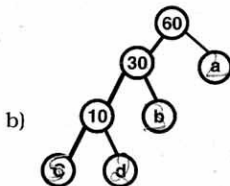
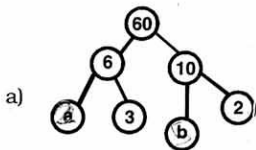
8. The prime factorisation of any number is unique.
9. For any two numbers, HCF is a factor of the two numbers.
10. HCF is a factor of LCM.

Questions

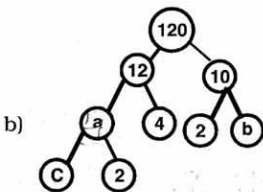
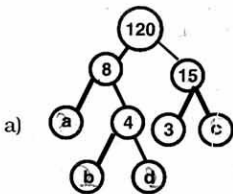
- Below 10, there are prime numbers.
- Below 20, there are prime numbers.
- The largest two digit prime number is
- The following is factor tree of 45. Find the values of a,b.



- The following is factor tree of 60. Find the values of a,b,c,d.



- The following is factor tree of 120. Find the values of a,b,c,d.



- Write all the factors of
(a) 18, (b) 23, (c) 36
- Write first five multiples of
(a) 4, (b) 13, (c) 21
- Which of the following are prime numbers
(a) 13, (b) 28, (c) 51, (d) 67

10. Which of the following are composite numbers.

(a) 25, (b) 17, (c) 38, (d) 49

Using divisibility tests. Which of the following numbers are

11. Divisible by 2

58, 916, 1105, 3000, 4006

12. Divisible by 3

522, 417, 813, 2236

13. Divisible by 4

36, 216, 2098, 9923, 39, 20496516

14. Divisible by 5

115, 235, 2316, 30780

15. Divisible by 6

327, 930, 1902, 7341

16. Divisible by 8

572, 5500, 12159, 31795072

17. Divisible by 9

128, 275, 429714, 2856

18. Divisible by 10

4556, 920, 1155, 2250

19. Divisible by 11

5445, 1749, 70109600, 901153

20. What will be the lowest form of $\frac{63}{99}$?

21. Write the simplest form of $\frac{60}{96}$?

22. What is the lowest form of $\frac{56}{98}$?

23. Write the simplest form of $\frac{32}{80}$.

In each of the following question from 24 to 28 fill in the blank with the smallest and largest possible number to make the number divisible by 2, 3, 4, 5, 6 respectively.

24. 79987__ divisible by 2

25. 54__7 divisible by 3

26. 65172__ divisible by 4

27. 378__ divisible by 5

28. 56__4 divisible by 6

In the following questions from 29 to 32 fill in the blank so that the given no is divisible by 8,9,10,11 respectively.

29. 721__ divisible by 8
30. 401__ divisible by 9
31. 87994__ divisible by 10
32. 1-49 divisible by 11.
33. Which of the following pairs can be listed as co-prime numbers.
- (a) 16,25 (b) 17,68
- (c) 13,49 (d) 14,84
34. Write down the common factors of each:-
- (a) 13, 143 (b) 16, 49
- (c) 34, 38
35. Write HCF of $2^3 \times 3$ and 3×5 and LCM also.
36. What the HCF and LCM of $2^2 \times 3^2$, $2^3 \times 3 \times 5$ and $2^3 \times 3$?
37. What is the LCM of
- (i) 6,18 (ii) 9, 45
38. Write HCF and LCM of numbers whose prime factorisation is as :-
 $2 \times 3^3 \times 5 \times 7$, $2^2 \times 3 \times 5$, 3×7
 (Give the answer in power form only do not multiply all factors)
39. Calculate HCF and LCM of 8, 15, 24
40. What will be the HCF of 25, 45 and 60?

(Test Yourself)

- The smallest prime number is
- The smallest composite number is
- The smallest odd composite number is
- Two numbers are said to be if they have no common factor other than 1.
- The smallest even prime number is
- is neither prime nor composite number.
- The H.C.F of 2 and any even number is
- An exact divisor of a number is called of the number.
- A of a number is exactly divisibly by the number.
- The two factors always possible for any number are and

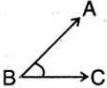


Answers

- 4
- 8
- 97
- (a) 3, (b) 3
- (a) $a=2$, $b=5$
(b) $a=2$, $b=3$
 $d, c=2, 5$
- (a) $a=2$, $b, d=2, 2$
 $c=5$
(b) $a=4$, $c=2$, $b=5$
- (a) 1, 2, 3, 6, 9, 18
(b) 1, 2, 3
(c) 1, 2, 3, 6, 9, 12, 18, 36
- (a) 4, 8, 12, 16, 20
(b) 13, 26, 39, 52, 65
(c) 21, 42, 63, 84, 105
- (a) and (d)
- (b)
- 58, 916, 3000, 4006
- 522, 417, 813
- 36, 216, 20496516
- 115, 235, 30780
- 930, 1902
- 31795072
- 429714
- 920, 2250
- 5445, 1749, 70109600, 901153
- $7/11$
- $5/8$
- $4/7$
- $2/5$
- Smallest = 0, largest = 8
- Smallest = 2, largest = 8
- Smallest = 0, largest = 8
- Smallest = 0, largest = 5
- Smallest = 1, largest = 9
- 6
- 4
- 0
- 7
- (a), (c)
- (a) 1, 13, (b) 1 (c) 1, 2
- HCF = 3
LCM = $2^3 \times 3 \times 5$
- HCF = $2^2 \times 3$
LCM = $2^3 \times 3^2 \times 5$
- (a) 18 (b) 45
- HCF = 3
LCM = $2^2 \times 3^5 \times 5 \times 7$
- HCF = 1
LCM = 120
- HCF = 5
LCM = $2^2 \times 3^2 \times 5^2 = 900$

Test Yourself (Answers)

- 2
- 4
- 9
- Coprime
- 2
- 1
- 2
- Factor
- Multiple
- 1 and the number itself.

Things to remember:-

1.	Name	Figure	Presentation
(a)	Point	\dot{a} \dot{p}	.A, .P
(b)	Line Segment	A ————— B	AB
(c)	Ray	L —————→ M	LM
(d)	Line	P ←———— Q	Pq, or l.m
(e)	Paralled lines	←————→ l ←————→ m	$l \parallel m$ or $pq \parallel rs$
(f)	Angle		$\angle ABC$
(g)	Triangle		$\triangle XYZ$
(h)	Arc		MN

- Polygon is a closed figure made of 3 or more lines.
- In simple curves, sides do not cross each other.



is a simple curve



is not a simple curve

- A quadrilateral has four sides and four angles.



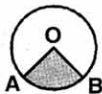
- A circle consists of 2 semicircles.



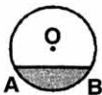
- The circumference of a circle is its perimeter.

Questions

1. How many end points does a line have?
2. In how many directions can a line be extended?
3. How many lines can pass through one given point?
4. A line segment extended in one direction is called?
5. How many end-points does a ray have?
6. How many end-points does a line-segment have?
7. How many rays are required to form an angle?
8. What are the closed figures formed by three or more line segments called?
9. What are the line- segments forming a polygon called?
10. Name the points where adjacent sides of a polygen meet.
11. Give the name of a polygon with three sides.
12. Name the polygon with four sides.
13. Name the sides of a polygon with common vertex.
14. What is the relation among the radii of a circle?
15. How is diameter of a circle related to its radius?
16. What is the longest chord of a circle called?
17. How many radii can a circle have?
18. Name a line segment joining any two points on a circle.
19. How many vertices does a circle have?
20. What is the line segment joining the centre and any point on the circumference of a circle called?
21. How many diameters can a circle have?
22. How many semi-circles of same radius are required to form a circle?
23. Name the pair of lines which never meet.
24. Name a type of curve which does not cross itself.
25. What is a curve called if its ends are joined?
26. What does the shaded area of the circle represent in the given figure?

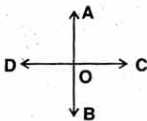


27. What does the shaded area of the circle represent in the given figure?

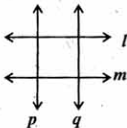


True or False : (Q. 28 - Q. 35)

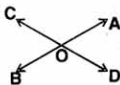
28. Diameter is the longest chord of the circle.
29. Radius of a circle is twice the diameter.
30. A circle has no vertex.
31. The opposite sides of a quadrilateral may have common vertex.
32. By joining any 2 points on a circle, diameter is obtained.
33. Two lines can intersect in more than one point.
34. The centre of a circle will always be in the interior of the circle.
35. A triangle is also a polygon.
36. Name the rays in this figure. How many angles are being formed?



37. Identify and name the pairs of parallel lines :



38. Write names of (a) any two points (b) 2 intersecting lines.

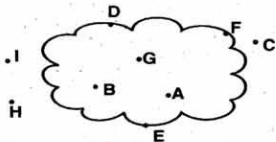


39. Identify simple curves from below. Which of them are open curves and which are closed ?





40.



Identify the points which are

(a) In exterior of the curve

(b) On the curve

(c) In the interior of the curve.

41. Which of the following are polygons:-

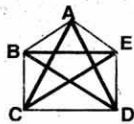


42. (a) Name the 5 vertices forming this figure.

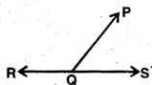
(b) Name 2 adjacent sides.

(c) Name 2 opposite sides.

(d) Name the diagonals.



43. How many angles are being formed at Q. Name them.



44. How many triangles are shown in the figure. Name them.



45. Using the given figure, answer the following questions:-

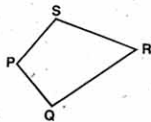
(i) What is the name of the figure?

(ii) How many sides are there in the figure? Name them.

(iii) How many pairs of adjacent sides are there in the figure?

(iv) How many pairs of opposite sides are there in the figure?

(v) Name the diagonals that can be formed in the figure.



46. Which point is the centre of this circle? What are DA and DB called?

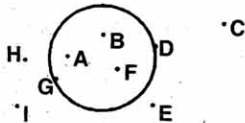


47. Name the points

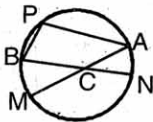
(i) In the interior of the circle.

(ii) On the circle.

(iii) In exterior of circle.



48. Name the chords shown in this figure. Write the names of chords passing through the centre. What are these 2 chords called?

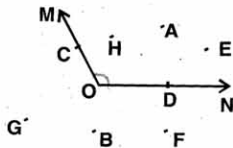


49. What is the name of the angle shown in this figure? Name the points.

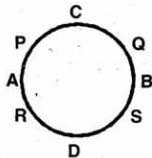
(a) In the interior of angle

(b) On the angle

(c) In the exterior of angle.



50. Name the diameters in this circle.



Answers

- | | |
|--|--|
| 1. None | 34. True |
| 2. Two | 35. True |
| 3. Infinite | 36. DA, OB, OC, OD four angles |
| 4. A line segment extended in one direction. | 37. $l \parallel m, p \perp q$ |
| 5. One | 38. A, B, C, D, O, AB and CD |
| 6. Two | 39. (a), (c), (d), (f), (g) are simple curves and (d), (f), (g) are closed curves. |
| 7. One | 40. (a) C, H, I |
| 8. Polygon | (b) D, F, E |
| 9. Sides | (c) A, B, G |
| 10. Vertices | 41. (a), (e) are polygons |
| 11. Triangle | 42. (a) A, B, C, D, E |
| 12. Quadrilateral | (b) AB, BC |
| 13. Adjacent sides | (c) BC, DE |
| 14. Equal | (d) AC, AD, BE, BD, CE |
| 15. Diameter is twice it's radius. | 43. three, DPQR, DPQS, DRQS |
| 16. Diameter | 44. Three, DXNY, DXZN, DXYZ |
| 17. Infinite | 45. (i) Quadrilateral |
| 18. Chord | (ii) 4; PQ, QR, RS, SP |
| 19. None | (iii) 4 pairs |
| 20. Radius | (iv) 2 pairs |
| 21. Infinite | (v) PR, QS |
| 22. Two | 46. O; radii |
| 23. Parallel lines | 47. (a) A, B, F |
| 24. Simple | (b) D, G |
| 25. Closed | (c) C, E, I, H |
| 26. Sector | 48. AP, BP, AM, BN; AM AND BN; Di- |
| 27. Segment | ameters |
| 28. True | 49. DMON |
| 29. False | (a) A, H, E |
| 30. True | (b) C, D |
| 31. False | (c) B, G, F |
| 32. False | 50. AB, CD. |
| 33. False | |

Chapter
5

Understanding Elementary Shapes

1. Types of Triangles:-

(a) Based On Sides

(i) Equilateral Triangle : Equal sides.



(ii) Isosceles Triangle : Two Equal sides.



(iii) Scalene Triangle : Three unequal sides.



(b) Based on Angles

(i) Acute angled triangle.








(ii) Right angled Triangle



(iii) Obtuse angled Triangle



2. Polygon

Number of Sides	Name	Figure
3	Triangle	
4	Quadrilateral	
5	Pentagon	
6	Hexagon	
8	Octagon	

3. Three Dimensional shapes:

(a) Cuboid



Faces-6, Edges-12, Corners-8

(b) Cube



Faces-6, Edges-12, Corners-8

(c) Triangular Pyramid



Faces-4, Edges-6, Corners-4

(d) Square Pyramid



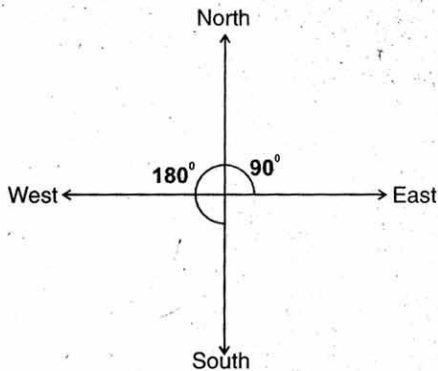
Faces-5, Edges-8, Corners-5

(e) Triangular Prism



Faces-5, Edges-9, Corners-6

DIRECTIONS



- * One full turn of the hand is one revolution.
- * A right angle is $\frac{1}{4}$ revolution
- * A straight angle is $\frac{1}{2}$ revolution.

Questions

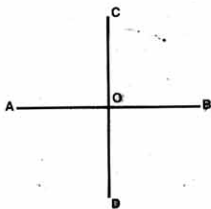
- Which direction is opposite to North?
- Which direction is opposite to West?
- What is the angle name for half a revolution?
- What is the angle name for one fourth revolution?
- What is the angle name for one complete revolution?
- What fraction of a clockwise revolution does the hour hand of a clock turn through when it goes from
 - 2 to 8
 - 6 to 9
 - 3 to 12
- Where will the hand of a clock stop if it
 - Starts at 1 end makes $\frac{1}{2}$ of a revolution, clockwise?
 - Starts at 6 end makes $\frac{1}{4}$ of a revolution, clockwise?
 - Starts at 3 end makes $\frac{3}{4}$ of a revolution, clockwise?
- Which direction will you face, if you start facing.
 - East and make one full revolution?
 - South and make $\frac{3}{4}$ of revolution anticlockwise?
 - North and make $\frac{1}{2}$ of revolution clockwise?
- What part of a revolution have you turned through if you stand facing?
 - North and turn clockwise to face East.
 - East and turn clockwise to face South.
 - East and turn clockwise to face West.
- Stand facing north turn clockwise to east. By how much angle have you turned?
- Stand facing south. If you turn by a right angle in the anticlockwise direction, which direction will you face?
- From facing north to facing south, how much angle have you turned.
- Stand facing south. Turn by a straight angle. Which direction do you face now?
- By how much right angles should you turn in the same direction to reach your original position?
- Find the number of right angle turned through by the hour-hand of clock when it goes from?
 - 6 to 12
 - 6 to 9
 - 1 to 10

16. Rupali is rowing a boat due south-west. In which direction will she be rowing if she turns to the left through.
(i) One straight angle (ii) One complete angle.
17. Tanmay and Divyansh start from a point
A Tanmay moves towards east (E) and Divyansh moves toward south (S) Name the kind of angle which will be formed between them.
18. What is the angle name for less than one fourth of revolution?
19. What is the angle name for between $1/2$ and $1/4$ of a revolution?
20. What is the angle name for more than half a revolution?
21. How many degrees are there in (i) half a revolution (ii) one right angle (iii) one straight angle.
22. How many right angles make:
(i) 180° (ii) 360° (iii) 270°
23. Classify the angles whose measures are given below (acute angle or obtuse angle)
(i) 118°
(ii) 19°
(iii) 70°
(iv) 360°
(v) 210°
24. If the measure of sides are 2 cm, 2 cm, 2 cm and measure of angles of the triangle are $60^\circ, 60^\circ, 60^\circ$ then what type of triangle is this?
25. If the measure of sides are 2.5cm, 2.5cm, 2cm and measure of angles are $40^\circ, 70^\circ, 70^\circ$ then what type of triangle is this?
26. If the measure of sides are 3cm, 2cm, 3.5cm and measure of angles are $60^\circ, 90^\circ, 30^\circ$ then what type of triangle is this?
27. How many degrees are there in the angle between the hour hand and the minute hand of clock, when it is.
(i) 10 minutes past 50' clock
(ii) 15 minutes to 30' clock
(iii) 12 O' clock
28. What kind of angle is formed between two adjacent fingers?
29. What type of angle is formed between the following direction?
(i) North and North-East
(ii) North and South-East

30. A traffic policeman is standing looking East. In which direction will he look if he turns to the left through.
- (i) One right angle (ii) two right angles
 (iii) three right angles (iv) four right angles.
31. What is the magnitude of the angle formed by the hands of a clock when it is (i) 2 o'clock (ii) 5 o'clock.



32. An angle whose measure is more than 180° but less than 360° is called .
33. What is the measure of an angle at each corner of a room that the wall makes with the floor?
34. What is the measure of each angle of a square?
35. What is the sum of two adjacent angles of a rectangle?
36. What is the sum of two adjacent angles of a square?
37. If line segment CD is perpendicular bisector of AB then what is the measure of $\angle BOC$.

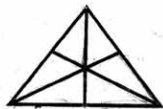


38. What is the measure of an angle formed by the hands of a clock when it is 30' clock?



39. What is the measure of each of the angle formed by the perpendicular bisector of a line segment?

40. Quadrilateral MNOP is a square. What is the measure of $\angle MNO$?
41. If a straight angle is bisected. What is the measure of each angle?
42. (a) Count the number of line segments.
(b) Count the number of Triangles.



43. What shape is a tetrahedron?
44. How many faces do a square pyramid has?
45. How many corners do a triangular prism has? 6
46. Name the figure which has six faces and equal edges.
47. Name the figure which has 8 edges and 5 corners.
48. What shape is kaju Barfi?
49. What shape is a book?
50. What shape is a chalk box?
51. What shape is a playing dice?
52. How many vertices do a playing dice has?
53. What is the shape of a softdrink can?
54. What is the shape of our Earth?
55. What is the shape of the full moon?

Answers

- | | |
|----------------------------|-------------------------------------|
| 1. South | 7. (i) on 7 (ii) on 9 (iii) on 12 |
| 2. East | 8. (i) East (ii) West (iii) South |
| 3. Straight Angle | 9. (i) $1/4$ (ii) $1/4$ (iii) $1/2$ |
| 4. Right Angle | 10. Right Angle |
| 5. Complete Angle | 11. East |
| 6. (i) $1/2$ (half) | 12. Straight Angle |
| (ii) $1/4$ (one fourth) | 13. South |
| (iii) $3/4$ (three-fourth) | 14. 4 (four) |

- | | | | |
|-----|---|-----|---------------------------------|
| 15. | (i) Two (ii) One (iii) Three | 31. | (i) 60° (ii) 150° |
| 16. | (i) North-East (ii) South-West | 32. | Reflex Angle |
| 17. | Right angle | 33. | Right Angle |
| 18. | Acute Angle | 34. | 90° |
| 19. | Obtuse Angle | 35. | 180° |
| 20. | Reflex Angle | 36. | 180° |
| 21. | (i) 180° (ii) 90° (iii) 180° | 37. | 90° |
| 22. | (i) Two (ii) Four (iii) Three | 38. | 90° |
| 23. | (i) Obtuse Angle | 39. | $90^\circ, 90^\circ$ |
| | (ii) Acute Angle | 40. | 90° |
| | (iii) Acute Angle | 41. | $90^\circ, 90^\circ$ |
| | (iv) Complete Angle | 42. | (i) 18 (ii) 14 |
| | (v) Reflex Angle | 43. | Triangular Pyramid |
| 24. | Equilateral Triangle | 44. | 5 |
| 25. | Isosceles Triangle | 45. | 6 |
| 26. | Scalene or Right Triangle | 46. | Cube |
| 27. | (i) 90° (ii) 180° | 47. | Square Pyramid |
| 28. | Acute Angle | 48. | Rhombus |
| 29. | (i) Acute Angle | 49. | Cuboid |
| | (ii) Obtuse Angle | 50. | Cube |
| 30. | (i) North | 51. | Cube |
| | (ii) West | 52. | Eight |
| | (iii) South | 53. | Cylinder |
| | (iv) East | 54. | Spherical |
| | | 55. | Spherical |

Chapter
6

Integers

1. Which is the smallest integer greater than all the negative integers?
2. What are the integers whose absolute value is less than 2?
3. Which is the integer that is neither positive nor negative?
4. What is the sum of 64 and its additive inverse? Is it true for all the integers?
5. Which number when added to its additive inverse is the number itself?
6. What number will you get if you subtract 0 from - 854 and add their difference to the absolute value of - 854?
7. What is the number 6 less than 3?
8. What will you get if you divide 5^3+5 by 10?
9. $10 - \{100 - (89 + 5 \div 5)\} = \dots\dots\dots$
10. What is the product of first 3 multiples of 5?
11. $4 - \{-4\} + 1 = \dots\dots\dots$
12. Multiplicative inverse of 3 is $\dots\dots\dots$?
13. Multiplicative inverse of $1/2$ is $\dots\dots\dots$?
14. (a) Product of 25 and its multiplicative inverse
(b) The product of a number and its multiplicative inverse is $\dots\dots\dots$
(c) The sum fo a number and its additive inverse is $\dots\dots\dots$
15. What is the number 4 less than -3?
16. What is the number 5 less than -2?
17. (a) Add (-13) and 6
(b) Add (-13) and (-6)

18. Add 15 and (-20)
19. Sum of two integers is 30. If one integer is 42, what is the other integer?
20. Sum of two integers is 100. If one of them is - 110, then what will be the other integer?
21. Sum of two integers is -80. If one of them is -90, then what will be the other integer?
22. What will be the product $7 \times (-6)$?
23. Find the value of $4 \times 3 \times 0$.
24. Find the value of $(-12) \times 5 \times 1$.
25. Find the value of $9 \times (-8) \times (-1)$.
26. What is $(-70) \div 7$?
27. What is $(-75) \div (-15)$?
28. What is $153 \div (-17)$?
29. What is $96 \div (-16)$?
30. (a) What is the value of $|-21|$?
(b) What is the value of $-|-21|$?
31. (a) What is the value of $|47|$?
(b) What is the value of $-|-47|$?
32. What is the value of $|0|$?
33. Value of $|-102|$ is
34. Which integer when divided by -1 gives -23?
35. Which integer when divided by -1 gives 101?
36. What is the product $-10 \times (-32)$?
37. What is the product $-21 \times (-1000) \times (-1)$?
38. Predecessor of -32 is
39. Successor of -11 is
40. What will be the value of x if $x+13 = -18$?
41. What is the value of a :-
 $a + 3 = -21$
42. Convert the following into integers :-
(i) Rohit climbs up 16 stairs
(ii) 3 m right to zero

- (iii) 2 m left to zero
 (iv) Loss of Rs. 500
 (v) Temperature 90° more than zero
43. What is the value of x if :-
 $-19x = 95$
44. The product of integers is -132 . If one them is -12 then what the other integer?
45. Solve :- $-15+11-3$.
46. Solve :- $(-80 \div 16) \times 3$.
47. Find the value of :- $[63+ (-21)] \times 2$.
48. Find the value of $[(-45) \div (-15)] \times 4$.
49. (a) What is the value of $(-1)^4$?
 (b) What is the value of -1^3 ?
50. If $ax(-1) = 53$, then what is the value of 'a'?

Answer

- | | | |
|-----------------------|--------------------|------------------------------|
| 1. 0 | 18. -5 | 35. -101 |
| 2. -1, 0, +1 | 19. -12 | 36. 320 |
| 3. 0 | 20. 210 | 37. -21000 |
| 4. 0, Yes | 21. 10 | 38. -33 |
| 5. 0 | 22. -42 | 39. -10 |
| 6. 0 | 23. 0 | 40. -31 |
| 7. -3 | 24. -60 | 41. -63 |
| 8. 13 | 25. 72 | 42. (i) +16 (ii) +3 (iii) -2 |
| 9. 0 | 26. -10 | (iv) -500 (v) +90 |
| 10. 750 | 27. 5 | 43. -5 |
| 11. 1 | 28. -9 | 44. 11 |
| 12. $1/3$ | 29. -6 | 45. -7 |
| 13. 2 | 30. (a) 21 (b) -21 | 46. -15 |
| 14. (a) 1 (b) 1 (c) 0 | 31. (a) 47 (b) -47 | 47. -6 |
| 15. -7 | 32. 0 | 48. 12 |
| 16. -7 | 33. 102 | 49. (a) 1 (b) -1 |
| 17. (a) -7 (b) -19 | 34. 23 | 50. -53 |

Chapter
7

Fractions

Points to remember :-

* A fraction is a number representing a part of a whole.

* In proper fraction numerator is less than the denominator.

Exp. $5/7$, $3/5$, $2/9$

* In Improper fraction the numerator is greater than the denominator.

Exp. $8/3$, $5/2$, $15/9$

* A fraction is said to be in its simplest form if its numerator and denominator have no common factor except.

* A fraction which is expressed as a combination of whole and a part is known as mixed fraction.

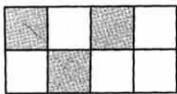
Exp. Mixed Fraction of $15/7$ is $2\frac{1}{7}$,

or $2 + 1/7$

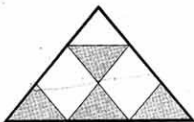
or 2 whole and $1/7$ more.

Questions

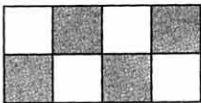
1. What fraction of the picture representing the shaded portion?



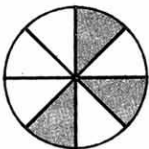
2. What fraction of the picture representing the shaded portion?



3. What fraction of the picture representing the shaded portion?



4. What fraction of the picture representing the shaded portion?



5. What fraction of a day is 3 hours?
6. What fraction of a day is 30 minutes?
7. What fraction of a rupee is 50 paise?
8. What fraction of one week is 2 days?
9. What fraction of one year is 3 months?
10. What fraction of one metre is 50 centimetre?
11. What fraction of one minute is 40 seconds?
12. What fraction of the numbers 1 to 10 is prime numbers?

13. What fraction of the numbers 1 to 15 is multiple of 2?
14. What fraction of the numbers 10 to 25 is odd numbers?
15. Express the mixed fraction $3\frac{1}{4}$ as improper fraction.
16. Express the mixed fraction $2\frac{3}{19}$ as improper fraction.
17. Express the mixed fraction $2\frac{3}{11}$ as improper fraction.
18. Express $11/5$ as mixed fraction.
19. Express $17/9$ as mixed fraction.
20. Express $94/13$ as mixed fraction.
21. Express $125/8$ as mixed fraction.
22. Express $237/18$ as mixed fraction.
23. What is the Equivalent fraction of $2/5$ having numerator 8?
24. What is the Equivalent fraction of $5/7$ having denominator 35?
25. What is the Equivalent fraction of $9/17$ having numerator 45?
26. What is the Equivalent fraction of $3/10$ having numerator 81?
27. What is the Equivalent fraction of $8/17$ having numberator 48?
28. What is the Equivalent fraction of $5/7$ having denominator 56?
29. What is the Equivalent fraction of $3/17$ having denominator 102?
30. What is the Equivalent fraction of $5/12$ having denominator 36?
31. What is the Equivalent fraction of $7/13$ having denominator 117?
32. What is the Equivalent fraction of $9/31$ having denominator 124?
33. What is the Equivalent fraction of $13/29$ having denominator 232

Reduce the following in simplest form (34 to 37)

34. $12/52$
35. $84/98$
36. $102/136$
37. $121/1331$
38. Fill with the missing fraction

$$2/3 - \boxed{} = 1/3$$

39. Fill with the missing fraction

$$5/7 - \boxed{} = 3/7$$

40. Fill with the missing fraction
 $8/9 - \square = 3/9$
41. Fill with the missing fraction
 $7/11 - \square = 4/11$
42. Add $2/5$ and $3/4$
43. Add $3/10$ and $1/2$
44. Add $4/5$ and $3/25$
45. Add $2\frac{4}{5}$ and $3\frac{1}{5}$
46. Add $3\frac{4}{9}$ and $5\frac{5}{9}$
47. Subtract $5/10$ from $13/10$
48. Subtract $2\frac{3}{5}$ from $8\frac{2}{5}$
49. Ravi was given $3/5$ of a lot of marbles. What fraction was left in the lot?
50. Ashok has $1\frac{1}{2}$ m of piece of cloth and Hari has $1\frac{1}{3}$ m of piece of cloth. What is the total length of cloth having by both.

(Test Your Self)

- What fraction of a day is 6 hours?
- What fraction of the numbers 1 to 30 is prime no?
- Express the mixed fraction $9\frac{3}{21}$ as improper fraction.
- Express $\frac{231}{9}$ as mixed fraction.
- What is the equivalent fraction of $5/11$ having numerator 75?
- What is the equivalent fraction of $13/15$ having denominator 60?
- Reduce $112/154$ in its simplest form.
- Fill with the missing fraction $5/7 - \square = 1/7$
- Add $3\frac{2}{5}$ and $2\frac{3}{5}$
- Meena bought two pieces of ribbon $2/7$ metre and $1/2$ metre of length. What is the total length of the ribbon bought by her?

Answers

1. $\frac{3}{8}$
2. $\frac{4}{9}$
3. $\frac{4}{8}$ or $\frac{1}{2}$
4. $\frac{3}{24}$ or $\frac{3}{8}$
5. $\frac{1}{8}$
6. $\frac{1}{48}$
7. $\frac{1}{2}$
8. $\frac{2}{7}$
9. $\frac{1}{4}$
10. $\frac{1}{2}$
11. $\frac{2}{3}$
12. $\frac{4}{10}$
13. $\frac{7}{15}$
14. $\frac{8}{16} = \frac{1}{2}$
15. $\frac{13}{4}$
16. $\frac{41}{19}$
17. $\frac{25}{11}$
18. $2\frac{1}{5}$
19. $1\frac{8}{9}$
20. $7\frac{3}{13}$
21. $15\frac{5}{8}$
22. $13\frac{3}{18}$
23. $\frac{8}{20}$
24. $\frac{25}{35}$
25. $\frac{45}{85}$
26. $\frac{81}{270}$
27. $\frac{48}{102}$
28. $\frac{40}{56}$
29. $\frac{18}{102}$
30. $\frac{15}{36}$

31. $\frac{63}{117}$
32. $\frac{36}{124}$
33. $\frac{104}{232}$
34. $\frac{3}{13}$
35. $\frac{6}{7}$
36. $\frac{3}{4}$
37. $\frac{1}{11}$
38. $\frac{1}{3}$
39. $\frac{2}{7}$
40. $\frac{5}{9}$
41. $\frac{3}{11}$
42. $\frac{23}{20}$
43. $\frac{8}{10}$ or $\frac{4}{5}$
44. $\frac{23}{25}$
45. 6
46. 9
47. $\frac{8}{10} = \frac{4}{5}$
48. $\frac{39}{5}$
49. $\frac{2}{5}$
50. $\frac{17}{6}\text{m}$ or $2\frac{5}{6}\text{m}$

Answer (Try your self)

1. $\frac{1}{4}$
2. $\frac{10}{30}$ or $\frac{1}{3}$
3. $\frac{192}{21}$
4. $25\frac{6}{9}$
5. $\frac{75}{165}$
6. $\frac{52}{60}$
7. $\frac{8}{11}$
8. $\frac{4}{7}$
9. 6 (Hint :- $3 + \frac{2}{5} + 2 + \frac{3}{5} = 5 + 1 = 6$)
10. $\frac{11}{14}$ metre.

5. $\frac{426}{100} = \dots\dots\dots$

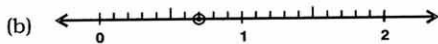
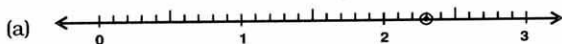
6. $82.1 \times 100 = \dots\dots\dots$

7. $\frac{\square}{10} = 0.03$

8. $\frac{\square}{1000} = 9.02$

9. $\frac{1333}{\square} = 13.33$

10. Read out the decimal from the given number lines:



11. $\dots\dots\dots \times 10 = 6.06$

12. $0.46 \times 1000 = \dots\dots\dots$

13. $11.01 + 1.101 = \dots\dots\dots$

14. Which decimal numbers do the points A, B, C and D refer to in the number line?



15. Find the value of:-

(a) $90 + 2 + \frac{1}{10}$

(b) $99 + \frac{9}{10} + \frac{9}{1000}$

(c) $800 + 4 + \frac{2}{10}$

16. What is the decimal form of forty nine and six hundredths?

17. What is the decimal representation of:-

(a) $9/5$

(b) $11/2$

18. Express $6\frac{1}{5}$ in decimal form

19. $824/10 - 80.1 = \dots\dots\dots$

20. $0.89 + 0.89 \times 100 - 10 = \dots\dots\dots$

21. $6.2 \times 100 - 200 = \dots\dots\dots$

22. What will be the next number in the series:-

0.0142, 0.142, 1.42, $\dots\dots\dots$

23. What will be the length in cm of a table calender whose length is 18cm 7mm?

17.4, 1.74, 0.174,

44. Namrata gave Rs.100 to a shopkeeper for a gift, whose cost was Rs. 75.65. How much will she get back from the shopkeeper?
45. Rajesh travelled 8 km 45m by bus and 3 km 65 m by car. How much distance did he travel in all?
46. How much money is left out of a fifty rupee note, if I paid Rs.12.50 for onions?
47. Mihir goes to office at 8.35 a.m and reaches there at 9.40 a.m. How long does he take to reach?
48. Complete :-
 $400\text{m} + \dots\dots\dots\text{m} = 1\text{km}$
49. How many times is 940.1 of 9.401?
50. $425.041 = 425 + \dots/1000$
51. Find the value of : $15 + 1/5 + 1/25$
52. Calculate : $445/10 - 9/2$

Answer

- | | | |
|----------------|---------------------------|---------------------------|
| 1. 0.009 | 17. (a) 1.8 | (c) 65.013km |
| 2. (a) 4 (b) 5 | (b) 5.5 | (d) 8cm |
| 3. (a) 3 (b) 0 | 18. 6.2 | 35. 5.16m |
| 4. 0.089 | 19. 2.3 | 36. (a) 1.755 |
| 5. 4.26 | 20. 79.89 | (b) 7.36 |
| 6. 8210 | 21. 420 | 37. (a) 13 |
| 7. 0.3 | 22. 14.2 | (b) 41 |
| 8. 9020 | 23. 18.7cm | 38. Rs. 33.25 |
| 9. 100 | 24. 1.25 | 39. 4.85kg |
| 10. (a) 2.3 | 25. (a) 13/50 | 40. Rs.9.50 |
| (b) 0.7 | (b) 41/500 | 41. 1/8 |
| 11. 0.606 | 26. 1 | 42. (c) > (b) > (d) > (a) |
| 12. 460 | 27. 5.092 | 43. 0.0174 |
| 13. 12.111 | 28. (a) 0.99 | 44. Rs.24.35 |
| 14. (a) 5.2 | (b) 63.41 | 45. 11.11km (or) 11km |
| (b) 1.6 | 29. 0.83 | 110m |
| (c) 3.4 | 30. 63 | 46. Rs. 37.50 |
| (d) 0.8 | 31. 0.14 | 47. 1hr 35min. |
| 15. (a) 92.1 | 32. (c) < (d) < (a) < (b) | 48. 600m |
| (b) 99.909 | 33. (a) Rs.7.05 | 49. 100 times |
| (c) 804.2 | (b) Re 0.70 | 50. 41 |
| 16. 49.06 | 34. (a) 6.9m | 51. 15.24 |
| | (b) 4.21kg | 52. 40 |

1. The following table represents the choice of milk shakes of class VI students

Choice	Tally marks	Number of students
Banana Shake only		15
Chocolate Shake Only		12
Banana and Chocolate Shake both		13
	Total	40

Answer the following questions according to the table:-

- How many students like chocolate shake only?
 - Which shake does the students like the most?
 - How many students like Banana and Chocolate shake both?
2. The following table represents the choice of sweets of 40 students of class VI.

Choice	Tally marks	No of students
Gulab Jamun		12
Kaju Burfi		16
Rasgulla		08
Ladoo		04
	Total	40

Answer the following questions according to the table :-

- How many students like Kaju Burfi?
- Which sweet does the students like the most?
- Which sweet does the students like the least?
- How many students like Gulab Jamun?

3. The following table represents the games that the 600 students of Vidya Mandir School would like to play.

Games	No of students
1. Basket Ball	100
2. Table Tennis	150
3. Cricket	200
4. Badminton	50
5. Hockey	70
6. Football	...

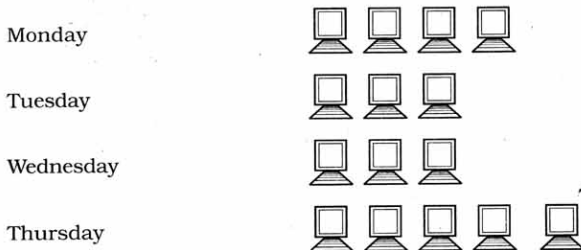
Answer the following questions using table :-

- How many students like to play football?
 - Which game was liked by the students the most?
 - Which game was liked by the students the least?
 - How many students like to play Table Tennis?
4. The following table represents the number of students of class VI who chose Drawing/ Music/Home Science.

	Subject	No of Students
1.	Drawing	20
2.	Music	15
3.	Home Science	...
	Total	50

- How many students prefer to take Home Science?
 - How many students prefer to take Music?
 - How many students prefer to take Drawing?
 - Which subject was taken by the maximum number of students?
 - Which subject was taken by the minimum number of students?
5. The following pictograph shows the number of computers sold by a company during a week.

Scale Used  = 5 computers



Friday



Saturday



From this pictograph answer the questions:-

- How many computers were sold on Friday?
 - How many computers were sold on Monday?
 - How many computers were sold during the week?
 - On which day was the sale maximum?
 - On which day was the sale minimum?
6. The modes of travelling to school by 120 students are given below.

Mode	Number of Students
Walking	
Bicycle	
Bus	

Scale is given below :-



= 10 students (walking)



= 10 students (Bicycle)



= 10 students (Bus)

From the above pictograph answer the following questions.

- How many students travel by bus?
 - How many students go by walking?
 - How many students go by bicycle?
 - Which mode is used by maximum number of students to travel?
7. Sale of Table Lamps on different days of a week is shown below.



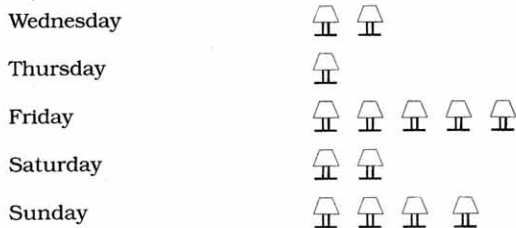
= 2 Table Lamps

Monday




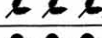

Tuesday



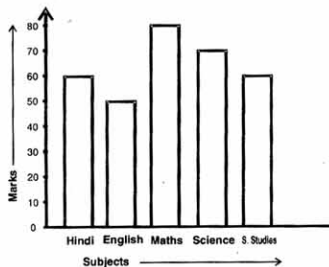


From the above pictograph answer the following questions:-

- How many Table Lamps were sold on Saturday?
 - How many Table Lamps were sold on Friday?
 - Total sale of the week?
 - On which day were the maximum number of Table Lamps sold?
8. The following pictograph shows different kinds of trees planted in a park. Each symbol represents 8 trees. Answer the following questions :

Banyan Tree	
Neem Tree	
Mango Tree	

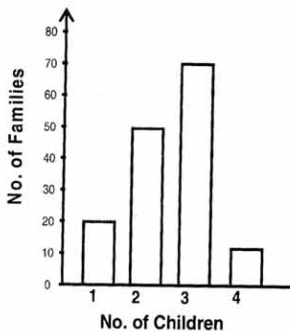
- How many mango trees are there?
 - How many banyan trees are there?
 - How many neem trees are there?
 - How many trees are there in all?
9. The following bar graph shows the marks obtained by Deepanker in five subjects.



According to the bar graph answer the following questions :

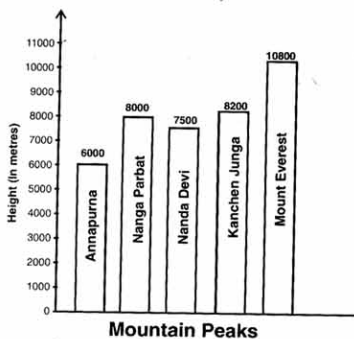
- In which subject does Deepanker get the lowest marks?
- In which subject he get the highest marks?

- (iii) How many marks does he get in English?
 (iv) In which subject does he get less than 60 marks?
10. In a survey of 150 families of a colony, the number of children in each family was recorded and the data has been represented by the bar graph.



From the No of children bar graph, answer the following questions:-

- (i) What information does the bar graph give?
 (ii) How many families have 2 children?
 (iii) How many families have 4 children?
- 11 Given below is a bar graph showing the heights of five mountain peaks:-



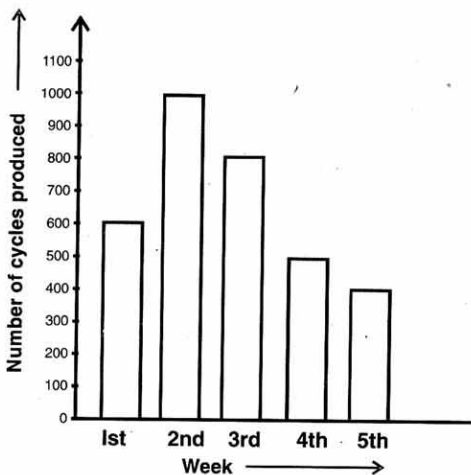
From the bar graph answer the following questions.

- (i) Which is the highest peak and what is its height?
 (ii) What is the ratio of the height of the highest peak and the lowest peak?
 (iii) What is the difference between the heights of Nanda Devi and Kanchanjunga

Peaks?

From the bar graph answer the following question:-

12. From the following bar graph answer the following questions?



- (i) In which week was the production maximum?
- (ii) In which week was the production minimum?
- (iii) What is the average production during these five weeks?
- (iv) How many cycles were produced in the first 3 weeks?

Chapter-9 (Data Handling)

Answer

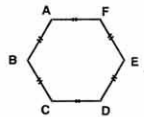
1. (i) 12 (ii) Banana shake
2. (i) 16 (ii) Kaju Burfi
(iii) Ladoo (iv) 12
3. (i) 30 (ii) Cricket
(iii) Football (iv) 150
4. (i) 15 (ii) 15 (iii) 20
(iv) Drawing (v) Music & Home science
5. (i) 15 (ii) 20 (iii) 110 (iv) Thursday (v) Tuesday, Wednesday, Friday
6. (i) 50 (ii) 30 (iii) 40 (iv) Car
7. (i) 4 (ii) 10 (iii) 42 (iv) Friday
8. (i) 32 (ii) 32 (iii) 24 (iv) 88
9. (i) English
(ii) Maths
(iii) 50
(iv) English
10. (i) It gives the information about the number of children that a family has
(ii) 50 (iii) 10
11. (i) Mount Everest Height = 10800m
(ii) $10800/6000 = 9/5$
(iii) 700m
12. (i) 2nd week (ii) 5th week (iii) $(600+1000+800+500+400)/5$
 $=3300/5=660$ cycles
(iv) $600+1000+800=2400$ cycles.

Chapter
10

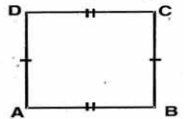
Mensuration

Points to remember :-

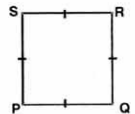
1. Figures, in which all sides and all angles are equal, are called regular polygons.
2. Perimeter of a regular polygon = number of sides \times length of side.



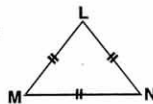
3. Perimeter of a rectangle = $2(\text{length} + \text{breadth})$ units
Area of rectangle = $(\text{length} \times \text{breadth})$ square units.



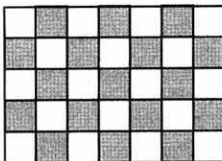
4. Perimeter of a square = $(4 \times \text{side})$ units
Area of square = $(\text{side} \times \text{side})$ square units.



5. Perimeter of equilateral triangle = $3 \times \text{side}$.



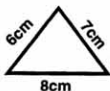
6. If tiles are to be used in an area, number of tiles = Area / Area of 1 tile



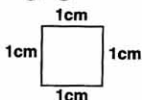
Questions

Find the perimeter in each of the following figures:-

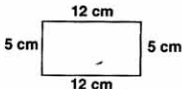
1-



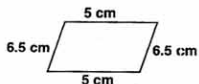
2-



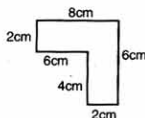
3-



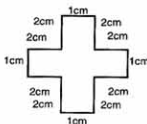
4-



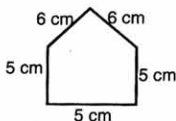
5-



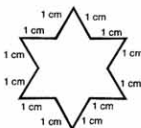
6-



7-

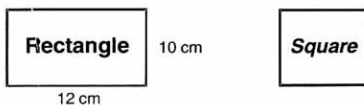


8-

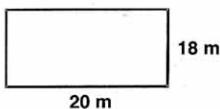


9. Find the perimeter of a rectangle of length 7.5cm and width 2.4cm.
10. What is the perimeter of a square of side 6.75mm?
11. Calculate the width of the rectangle whose area is 209 m^2 and length is 19m.
12. Find the perimeter of rectangle with $l=5\text{m}$, $b=50\text{cm}$.
13. Calculate perimeter of square of side 0.01m.
14. What is the area of a rectangle 4m long and 10cm broad?
15. Find the area of rectangle with dimensions $5\text{cm} \times 4\text{cm}$.
16. What is the area of that square whose perimeter is 40cm.
17. Find the length of that rectangle whose area is 4900m^2 and width is 140m.
18. Calculate the perimeter of that square whose area is 900cm^2 .
19. Find the area of a rectangle in m^2 if its $l=120\text{cm}$, $b=150\text{cm}$.
20. Calculate area of square in cm^2 if its side = 1m.
21. What will be the perimeter of regular pentagon of side 4.8 cm.
22. Calculate the perimeter of a 15-sided regular polygon of length 10m.
23. A man takes one round of a square field and travels 3.96m. Find the side of the square field.
24. Calculate the area of the square whose perimeter is 36cm.

25. What will be the perimeter of a $10,000\text{m}^2$ area square.
 26. In this figure, find the side of square if perimeters are same.

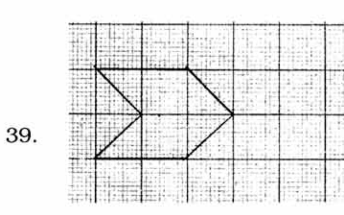
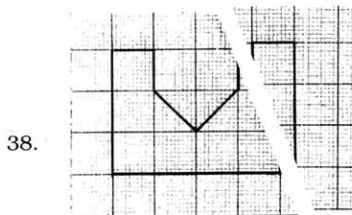
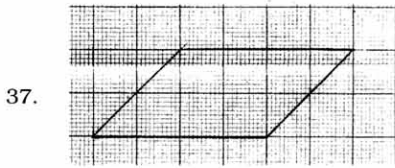
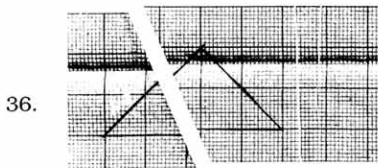


27. A rectangular park is of given dimensions. Find the cost of fencing it at the rate of Rs.20 per m.

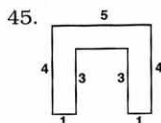
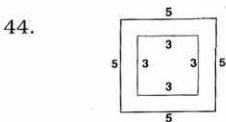
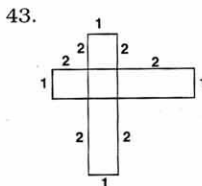
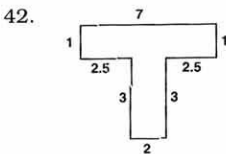
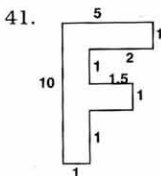
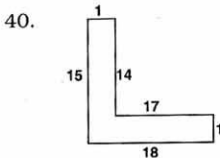


28. In the above figure, calculate the area to be levelled and its cost @ Rs.50 per m^2 .
 29. Find area of that rectangle whose perimeter is 90m and length is 30m.
 30. Calculate area of square of side 1.6m.
 31. The perimeters of 2 squares are 32 cm and 24cm. Find the side of that square whose perimeter is sum of perimeters of these 2 squares.
 32. In the above question, find the side of that square whose perimeter is difference of perimeters of these 2 squares.
 33. A 100m side square can be divided into how many rectangles of size $2\text{m} \times 1\text{m}$?
 34. Find area of rectangle with side 1.8m and 0.5m.
 35. Find perimeter of rectangle in metres with $l=180\text{cm}$, $b=50\text{cm}$.

(Q. 36-39 By counting Squares, find the area of each)

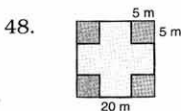


Split each of the following figures into rectangles and hence find their areas (taking the unit in cm).



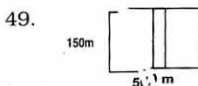
46. If a $10\text{m} \times 5\text{m}$ room is to be tiled and each tile is $2\text{m} \times 1\text{m}$, find no. of tiles required.

47. Mushi wants to cover the floor of a room 3m wide and 4m long by square tile. If each tile is of side 0.5m , calculate the number of tiles he wants to buy.



In a square park of side 20m , four square flower beds each of side 5m are to be made. Find

- area of flower beds
- remaining area of the park



In a rectangular garden of dimension $150\text{m} \times 50\text{m}$, a path is to be made as shown of width 2m . Find the area of the path.

50. In the above question, find the cost of gravelling the path (a) Rs. 12 per m^2 .

Answer

1. 21cm
2. 4cm
3. 34cm
4. 23cm
5. 28cm
6. 20cm
7. 27cm
8. 12cm
9. 19.8cm
10. 2700mm
11. 11m
12. 11m
13. 0.04
14. 0.4m^2 or 4000cm^2
15. 20cm^2
16. 100m^2
17. 35m
18. 120cm
19. 1.80m^2
20. 10000cm^2
21. 24.0cm
22. 150m
23. 874m
24. 81cm^2
25. 400m
26. 11cm
27. Rs 1520
28. Rs 1800, 360m^2
29. 450m^2
30. 2.56m^2
31. 14cm
32. 2cm
33. 5000
34. 0.9m^2
35. 4.60m
36. 4 sq. units
37. 8 sq. units
38. 9sq. units
39. 4 sq. units
40. 32cm^2
41. 33.5cm^2
42. 13cm^2
43. 9cm^2
44. 26cm^2
45. 11cm^2
46. 25 tiles
47. 48 tiles
48. (i) $1'00\text{m}^2$
(ii) 300m^2
49. $3'00\text{m}^2$
50. Rs. 3600

Chapter
11

Algebra

Guidelines

- Algebra is generalized arithmetic.
- Letters used to represent numbers are called literals e.g. $x, y, z, a, b, c, l, m, n, p, q, r$ etc.
- The literals obey all the rules and signs of addition, subtraction, multiplication and division.
- $3xx = 3x, 1xx = x, xxy = xy, xx5 = 5x$ etc.
- In $4x$, we have 4 as the numerical factor and x as the literal factor.
- A combination of constants and variables using any of the signs $+$ and $-$ or a combination of the signs $+, -, \times$ and \div , is called an algebraic expression e.g. $2y, 5x-1, z/2$ etc.
- A statement of equality which involves one or more variable is called an equation. e.g. $x+5 = 2x-1, y+2 = 8$ etc.

Questions

1. What is the rule for a pattern of letter Y formed by using matchsticks.
2. What is the rule for a pattern of letter G formed by using matchsticks.
3. What is the rule for a pattern of letter M formed by using matchsticks.
4. Express the perimeter of the regular pentagon of the side 'a'.
5. Express the perimeter of regular octagon using the side m .
6. Express the perimeter of an isosceles triangle.
7. In an N.C.C. parade there are 10 cadets in a row. What is the rule which gives the number of cadets if the number of rows are 'p'.

8. In a dot Rangoli there are 6 dots in a row. What is the total number of dots if there are 7 rows?
9. Meera has made Gulab Jamuns. If she gave away 't' Gulab Jamuns and '8' remains, how many Gulab Jamuns did she make?
10. Choose the expressions with numbers only?
 $z+7$, $8t$, $2(15-4) + 3 \times 5$
11. Identify the operations:-
 (i) $2m + 5$
 (ii) $3m - 9$
 (iii) $9z$
 (iv) $7/m$

State the following algebraic expression using numbers, literal numbers and arithmetic operations :-

12. 5 more than x
13. 4 less than y
14. The product of x and y added to 6
15. Five times x added to y
16. 5 more than one third of y
17. 3 times the sum of x and y
18. Cost of $(x+3)$ kg of flour at Rs.4 per kg.
19. An auto rickshaw driver charges Rs.2 for the first 1 km and then Re.1 for each additional kilometre. What fare will he charge for going x km?
20. The quotient of x and y added to four times the product of x and y is
21. The sum of x, y and z divided by three times the sum of x and y is
22. The population of a town is now x. It increases uniformly and becomes 'a' times after every year. What will it be after 3 years?
23. Ashish can do a piece of work in y minutes. How much work will be able to do in 20 minutes?
24. The height of a plant is x cm. Every month it increases by y cm. What will it be after 3 months?
25. Usha has x toffees and Sudhir has 3 times more toffees than Usha. How many toffees do both of them have?
26. Meena got 60 marks in Science and x marks in Mathematics. How many marks did she obtain?
27. The area of a rectangle given by the formula $A = axb$, where a is the length and b

is the breadth. What will be its area if $a = 30\text{cm}$, $b = 18\text{cm}$?

28. The age of Anita's mother is three times her age. Her brother's age is 4 years more than hers. What is the total age of all the three?
29. Form expression using z and 2, use not more than one number operation.
30. Form expression using x , 3, 7. Use only two number operations.

Form equations (31 - 40)

31. A number when added to four gives 9 as answer.
32. 7 less than x is six.
33. A father is 8 times as old as his son. Sum of their ages is 36.
34. One sixth of x added to x to get 28.
35. The sum of variable y and five is seven.
36. The difference of variable x and eleven is twenty five.
37. The product of variable a and itself is 49.
38. A number when added to 5 times the number is 36.
39. Six times a number added to 25 gives 49.
40. A number exceeds 5 by 3.

Solve the equations (41 - 49)

41. $x - 8 = 4$
42. $2x = 9 - x$
43. $z - 1 = -3$
44. $1/3x + 8 = 1$
45. $10x - x = 6$
46. $y/12 = 4$
47. $10x + 2 = -18$
48. $x + 5 = -9$
49. $y - 7 = -5$
50. $x - 12 = -8$

Test your self (In one minute)

Form equations / expressions (51 - 55)

51. Twice a number plus 7 is 23.
52. Half of a number is 17.

53. One-third of x multiplied by the sum of a and b .
54. x taken away from 4.
55. The difference of a and b , when $a > b$.
- Solve equations (56 - 60)
56. If $x+3 = 4$ then $x = \dots\dots\dots$
57. If $a-2 = 5$ then $a = \dots\dots\dots$
58. If $6m = 18$ then $m = \dots\dots\dots$
59. If $11b = 55$ then $b = \dots\dots\dots$
60. If $x/7 = 2$ then $x = \dots\dots\dots$

Answers

- | | | |
|--|----------------------------|------------------------|
| 1. $3n$ | 21. $\frac{x+y+z}{3(x+y)}$ | 43. $z = -2$ |
| 2. $5n$ | 22. xxa^3 | 44. $x = -21$ |
| 3. $4n$ | 23. $20/y$ | 45. $x = 2/3$ |
| 4. $5a$ | 24. $x+3y$ | 46. $y = 48$ |
| 5. $8m$ | 25. $5x$ | 47. $x = -2$ |
| 6. $2x+y$ | 26. $x+60$ | 48. $x = -14$ |
| 7. $10p$ | 27. 540 cm^2 | 49. $y = 2$ |
| 8. 42 | 28. $5x+4$ | 50. $x = 4$ |
| 9. $t+8$ | 29. $z+2, z-2, z/2, 2z$ | 51. $2x+7 = 23$ |
| 10. $2(15-4) + 3 \times 5$ | 30. $3x+7, 3x-7, 3x/7$ | 52. $\frac{x}{2} = 17$ |
| 11. (i) Addition (ii) Subtraction (iii) Multiplication (iv) Division | 31. $x+4 = 9$ | 53. $\frac{x}{3}(a+b)$ |
| 12. $(x+5)$ | 32. $x-7 = 6$ | 54. $4-x$ |
| 13. $(y-4)$ | 33. $8x+x = 36$ | 55. $a-b$ |
| 14. $(xy+6)$ | 34. $\frac{x}{6}+x = 28$ | 56. 1 |
| 15. $(5x+y)$ | 35. $y+5 = 7$ | 57. 7 |
| 16. $(\frac{1}{3}y+5)$ | 36. $x-11 = 25$ | 58. 3 |
| 17. $3(x+y)$ | 37. $a^2 = 49$ | 59. 5 |
| 18. Rs.4 $(x+3)$ | 38. $x+5x = 36$ | 60. 14 |
| 19. Rs. $(x+1)$ | 39. $6x+25 = 49$ | |
| 20. $\frac{x}{y}+4xy$ | 40. $x-3 = 5$ | |
| | 41. $x = 12$ | |
| | 42. $x = 12$ | |
| | 42. $x = 3$ | |

Chapter
12

Ratio and Proportion

Points to remember:-

1. For comparison by ratio, the two quantities must be in the same unit.
2. A ratio may be treated as a fraction.
3. Two ratios are equivalent if the fractions corresponding to them are equivalent.
4. We get equivalent ratios by multiplying or dividing the numerator and denominator by the same number.
5. Four quantities are said to be in proportion if the ratio of the first and the second quantities is equal to the ratio of the third and the fourth quantities.

Thus, 4, 8, 24, 48 are in proportion since $4/8 = 24/48$.

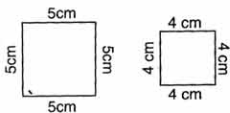
6. We may also note that in a proportion, product of extreme terms = product of mean terms e.g. in the above proportion, $4 \times 48 = 8 \times 24$.
7. The method in which we find the value of one unit and then the value of the required number of units is known as the unitary method.

Questions

1. What is the ratio of :-
 - (i) 32 to 60
 - (ii) 6kg to 500g
 - (iii) 50g to 4kg
 - (iv) 5 minutes to 40 seconds
 - (v) 1 hour to 60 minutes
 - (vi) Rs. 2 to 50 paise
 - (vii) 75 paise to Rs. 3

- (viii) 500m to 1km
 (ix) 20cm to 10m
 (x) A dozen to a score
 (xi) 500ml to 2 litres.
2. What is the simplest form of the following ratios:-
- (i) $6\text{kg} : 3\text{kg} \ 500\text{g} = \dots\dots\dots$
 (ii) $5\text{m} \ 25\text{m} : 75\text{cm} = \dots\dots\dots$
 (iii) $\text{Rs. } 18.50 : \text{Rs. } 22.75 = \dots\dots\dots$
 (iv) $6 \text{ weeks} : 2 \text{ days} = \dots\dots\dots$
3. In an annual examination, Ramesh got 450 marks out of 900 marks. What is the ratio of the marks of Ramesh to total marks?
4. Price of one scooter is Rs. 40,000 and price of one cycle is Rs. 4,000. What is the ratio of the price of scooter to the price of cycle?
5. The number of boys and girls in a school is 1000 and 800 respectively. Express the ratio of the number of boys to that of the girls in the simplest form.
6. In the 11th class, 45 students appeared for maths exam. Only 30 students passed in the exam. What is the ratio of the :-
- (i) passed students to the total students
 (ii) failed students to the total students
 (iii) passed students to the failed students
7. Urmila gets Rs. 300 as pocket money per month. She saves Rs. 60 every month. What is the ratio of her :-
- (i) saving to the total pocket money
 (ii) saving to the amount she spent
 (iii) total pocket money to the amount she spent.
8. In one box there are 60 red balls and 40 white balls. What is the ratio of :-
- (i) red balls to the total number of balls
 (ii) white balls to the total number of balls.
 (iii) red balls to white balls
9. In one class there are 22 boys and remaining are girls. If the total number of students is 40, what is the ratio of -
- (i) the boys to girls
 (ii) the boys to the total number of students
 (iii) the girls to the total number of students

10. Length of a field is 40m and breadth is 15m. What is the ratio of :-
 (i) length to the breadth of a field
 (ii) length of the field to its perimeter
11. In a box containing 80 bulbs, 16 are found to be defective. What is the ratio of the defective to good bulbs?
12. In a year, Ram earned Rs. 7,20,000 and paid Rs. 40,000 as income tax. What is the ratio of his income to the income tax paid?
13. Out of a total strength of 500 students in a school, 450 students went to a picnic. What is the ratio of the number of students who went for the picnic to the total?
14. In a company total number of employees are 800, out of which 350 are female and the rest are male. What is the ratio of :-
 (i) the number of male to the total number of employees
 (ii) the number of male to the number of female.
15. There are two squares A and B of sides 4cm and 5cm respectively. What is



- (i) the ratio of their sides?
 (ii) the ratio of their perimeters?
 (iii) the ratio of their areas?
16. Are the following numbers in proportion ?
 (i) 20, 30, 60, 90
 (ii) 20g, 100g, 6kg, 30kg
 (iii) 12, 18, 28, 56
17. What is the missing term of the proportion :-
 (i) $2 : 8 = \dots : 28$
 (ii) $3 : 5 = 18 : \dots$
 (iii) $4 : \dots = 8 : 10$
 (iv) $32 : 64 = \dots : 12$
 (v) $20 : 35 = 12 : \dots$
 (vi) $15 : \dots = 150 : 250$
 (vii) $7 : \dots = 8 : 24$
 (viii) $\dots : 60 = 12 : 15$
18. The first, third & fourth terms of a proportion are 3, 21, 105. What is the second term?

19. Arrange the numbers 12, 16, 28 and 21 so that they are in proportion.
20. What is the value of x in the following proportions ?
 - (i) $22 : 55 = 28 : x$
 - (ii) $9 : 15 = x : 40$
 - (iii) $3 : 33 = 333 : x$
 - (iv) $2 : 3 = x : 6$
21. Fill in the blanks :-
 - (i) $* / 3 = 48 / 16$
 - (ii) $45 / 60 = 9 / *$
22. In a school the ratio of length and breadth of a play ground is 5 : 2. If the length of the play ground is 30m., what is the breadth of the play ground?
23. The ratio of men to women at a certain meeting is 3 : 5. If there are 18 men in the meeting, how many people are there at the meeting?
24. The ratio of red marbles to green marbles is 2 : 5. If there are 12 red marbles, how many green marbles are there?
25. The ratio of income and expenditure is 3 : 2. If income is Rs. 6,000., how much is the expenditure and the savings?
26. What is the value of x if 6, 12, x are in proportion?
27. The ratio of novels in a library to other books is 2 : 7. If the number of novels is 1600, how many total number of books are in the library?
28. The ratio of boys and girls in a school is 12 : 5. If the number of girls is 40, what is the total strength of the school?
29. If $5 : 4 :: 35 : x$, then what is the value of x ?
30. Ratio between length and breadth of a table is 7 : 5. If the length is 1.4m then breadth is
31. Cost of 10m of cloth is Rs. 100. What is the cost of 4m cloth?
32. Cost of 5 kg of rice is Rs. 140. How much Sheila has to pay for 2kg of rice?
33. If 27 books weigh 108kg, what is the weight of 12 books?
34. What is the cost of 36 pencils if a pack of 10 pencils costs Rs.25?
35. Anshul purchased 4 shirts for Rs.464. How many shirts can he purchase for Rs. 928?
36. If the cost of 1 dozen oranges is Rs.36, find the cost of 36 oranges.
37. Rajesh covered 46km in one litre of petrol. How much petrol will be consumed to cover 230km?
38. 3 members of a family consume $1\frac{1}{2}$ kg of sugar. How much sugar will be consumed by 18 members?
39. Rajni purchased 36 toffees for Rs.134. How much money Gita has to pay for 18

toffees of the same quality?

40. If we can buy 2 pencils for Rs.5, then how many pencils can be purchased for Rs.15?
41. 136 litres of milk can be stored in 17 cans. How many litres of milk can be stored in 50 cans?
42. What is the cost of printing 1000 pages if 150 pages can be printed for Rs.1800?
43. Rahul's annual income is Rs.80,000. How much salary will he get for 3 months?
44. Cost of 3kg of sweets is Rs.240. How much sweets can be purchased for Rs. 1200?
45. We can purchase 16 pens for Rs. 150. How many pens can be purchased for Rs. 600?
46. 1 litre pack of ice cream costs Rs.65 and 5 litre pack costs Rs.250. What is the minimum amount Ram has to pay for 27 litres of ice cream?
47. At Appu Ghar, cost of one ticket is Rs. 20. What will be the cost of 18 tickets?
48. Cost of 2 dozens of oranges is Rs.24. What is the cost of 5 dozens of oranges?
49. 5 children can eat 15 bananas. How many children can eat 60 bananas?
50. Cost of one score of pencils is Rs.50. What is the number of pencils that can be bought for Rs.15?
51. The earnings of 10 workers is Rs.1200. What are the earnings of 28 workers?]
52. Cost of 3 wrist watches is Rs.1566. What is the number of watches that Raghu will get for Rs.5220?
53. 10kg pack of rice costs Rs.267. What is the cost of 5kg of rice?
54. The cost of 2 sarees is Rs.1280 and 2 blouses is Rs.200. What is the cost of 8 sarees and 8 blouses?
55. For a class party, 34 students of class VI A collected Rs.510. If all the 120 students of class VI wanted to have party together how much money will be collected in all?
56. 200mm of rainfall is recorded in 20 minutes. How much rainfall is expected in 1 hr?
57. In a metro train, a group of 14 students have to pay Rs.196 for tickets. How much money in all they have to pay if 16 more students join them in the trip?
58. One has to pay Rs.10 as tax on purchase of medicines for Rs.60. What amount of tax one will have to pay for purchasing medicines worth Rs.5400?
59. A company announces to pay the players Rs.1500 for five sixers and Rs.1250 for five fours in a cricket match. How much money will a player get if he hits 4 sixes and 4 fours?
60. Weight of 600 similar books is 28kg. What will be the weight of 150 such books?

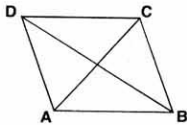
Answers

- (i) 8 : 15
(ii) 12 : 1
(iii) 1 : 80
(iii) 15 : 2
(iv) 1 : 1
(v) 4 : 1
(vi) 4 : 1
(vii) 1 : 2
(viii) 1 : 50
(ix) 3 : 5
(x) 1 : 4
- (i) 12 : 7 (ii) 7 : 1 (iii) 74 : 91
(iv) 21 : 1
- 1 : 2
- 10 : 1
- 5 : 4
- (i) 2 : 3 (ii) 1 : 3 (iii) 2 : 1
- (i) 1 : 5 (ii) 1 : 4 (iii) 5 : 4
- (i) 3 : 5 (ii) 2 : 5 (iii) 3 : 2
- (i) 11 : 9 (ii) 11 : 20 (iii) 9 : 20
- (i) 8 : 3 (ii) 4 : 11
- 1 : 4
- 18 : 1
- 9 : 10
- 1 : 4
- (i) 4 : 5 (ii) 4 : 5 (iii) 16 : 25
- (i) Yes (ii) Yes (iii) No
- (i) 7 (ii) 30 (iii) 5
(iv) 6 (v) 21 (vi) 25
(vii) 21 (viii) 48
- 18 : 15
- 12 : 21 = 16 : 28 or 12 : 16 = 21 : 28
- 186 : 72 = 217 : 84
- (i) 9 (ii) 12
- Breadth = 12m
- 48
- 30
- Expenses = Rs. 4,000
Savings = Rs. 2,000
- 24
- 7200
- 136
- 28
- 1m
- Rs.40
- Rs.56
- 48kg
- Rs.90
- 8 Shirts
- Rs.108
- 5 litres
- 9kg
- Rs.67
- 6 pencils
- 400 litres
- Rs.12,000
- Rs.20,000
- 15kg.
- 64 pens
- 1380
- Rs.360
- Rs.60
- 20 children
- 6 pencils
- Rs.3360
- 10 watches
- Rs.133.50
- Rs.5920
- Rs.1800
- 600mm
- Rs.420
- Rs.900
- Rs.2200
- 7kg.

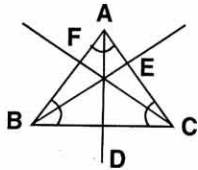
Chapter
13

Symmetry

1. What do you call the axis of symmetry of a line segment?
2. What do you call the axis of symmetry of an angle having equal arms?
3. How many line of symmetry a kite has?
4. What do you call the line of symmetry of a semi circle?
5. How many lines of symmetry a rectangular shaped blackboard?
6. Name any geometrical figure that has no line of symmetry?
7. Which figure is symmetrical about its diameters?
8. How many lines of symmetry a square has?
9. How many lines of symmetry a trapezium has whose unparallel sides are equal?
10. How many lines of symmetry an equilateral triangle has?
11. Figure (i) is a rhombus. What are its axis of symmetry called?



12. Figure (ii) is an equilateral triangle what are its axis of symmetry called?



13. How many lines of symmetry do the English alphabet O has.
14. How many lines of symmetry do the English alphabet U has.
15. How many lines of symmetry has the English alphabet V has?

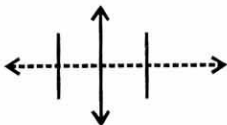
16. In figure how many lines of symmetry are there?



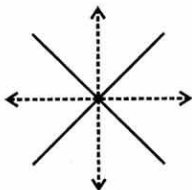
17. How many lines of symmetry do the English alphabet I has?

18. How many lines of symmetry can a circle has?

19. In figure count the number of lines of symmetry.



20. In figure count the number of lines of symmetry.



21. Which letters have vertical lines of symmetry A, H, B, D.

22. Which letter have horizontal lines of symmetry K, T, U, X.

23. Which letters have no lines of symmetry J, A, H, N.

24. How many lines of symmetry an egg has?

25. How many lines of symmetry has a table top?

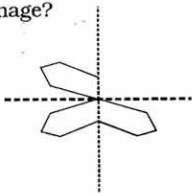
26. How many lines of symmetry a compass has?

27. How many lines of symmetry pair of scissors has?

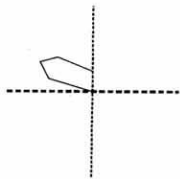
28. Name two English alphabets which have same mirror image?

29. Name two English alphabets which do not have same mirror image?

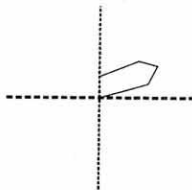
30. Choose the correct option to complete the given picture.



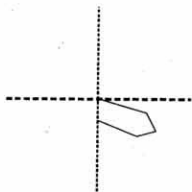
a)



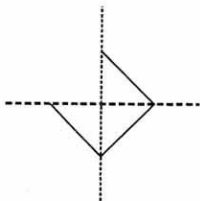
b)



c)



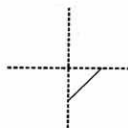
31. Choose the correct option to complete the given picture.



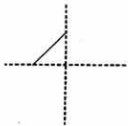
a)



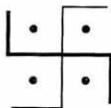
b)



c)



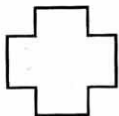
32. How many lines of symmetry the given figure has?



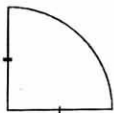
33. How many lines of symmetry the given figure has?



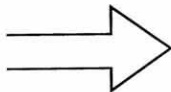
34. How many lines of symmetry the given figure has?



35. How many lines of symmetry the given figure has?



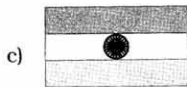
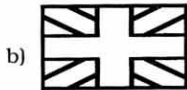
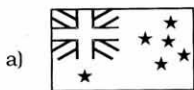
36. How many lines of symmetry the given figure has?



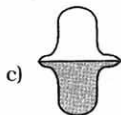
37. How many lines of symmetry a parallelogram has?

38. How many lines of symmetry a human face has?

39. How many lines of symmetries do these flags have?



40. How many lines of symmetry do the following shapes have?



41. What type of lines of symmetry do the above shapes have (vertical or horizontal)?

Answer

1. Perpendicular Bisector
2. Angle Bisector
3. One
4. Perpendicular Bisector of diameter
5. Two
6. Parallelogram, Square
7. Circle
8. Four
9. One
10. Three
11. Diagonal
12. Angle bisectors
13. Infinite
14. One
15. One
16. One
17. Two
18. Infinite
19. Two
20. Two
21. A, H
22. K, X
23. J, N
24. One
25. Two
26. None or Zero
27. One
28. A, M
29. B, D
30. (b)
31. (c)
32. Zero
33. 6
34. 4 (four)
35. One
36. One
37. None or Zero
38. One
39. i) Zero
ii) Two
iii) One
iv) Two
40. i) One
ii) One
iii) One
iv) zero
41. i) Vertical
ii) Vertical
iii) Vertical
iv) None

Chapter
14

Practical Geometry

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1. What are the instruments required for geometrical construction?
 2. How many perpendicular bisectors are required to trisect a line segment?
 3. Why do we call the line bisecting a line segment, a perpendicular bisector?
 4. How many arcs are required to be drawn to construct an angle of 60° ?
 5. How many arcs are to be drawn to construct an angle of 90° ?
 6. What are minimum number of perpendiculars to be constructed to construct a square?
 7. An angle bisector of an angle divides the angle into equal parts?
 8. A line segment is bounded by how many and points?
 9. Which instrument is used to draw arcs and circles?
 10. Which instrument is used to draw and measure angles?
 11. Which instrument is used to draw perpendicular and parallel lines.
 12. Which instrument is used to compare lengths.
 13. What is the equal distance of a point from its centre called?
 14. How many circles can be drawn through one given point?
 15. How many circles can be drawn through two given points?
 16. How many circles can be drawn through four scattered points?
 17. How many circles can be drawn through three collinear points?
 18. What type of angle is formed by the two lines or rays if they intersect perpendicularly.
 19. What construction is required to find the axis of symmetry of a line segment joining two given points?
 20. How many perpendicular bisectors are required to trisect a line segment?
 21. How many perpendicular bisectors are required to be constructed to divide a line segment in eight equal parts?
 22. How many perpendicular bisectors are required to be constructed to divide a line segment in four equal parts?

Answer

1. Scale and Compass
2. Two
3. The line bisecting or line segment is called a perpendicular Bisector because it makes an angle of 90° (is perpendicular) at the point on the line segment where it74 also divides the line segment into two equal parts.
4. Two
5. Five
6. Two
7. Two
8. Two
9. Compass
10. Protector
11. Set Squares
12. Divider
13. Radius
14. Infinite Circles
15. One Circle
16. No Circle
17. One Circle
18. Right Angles.
19. Yes
20. Two
21. Seven
22. Three