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# Teachers who helped in preparation of the Question Bank

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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

1. Which of the following is the greatest number?

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

Test yourself
1. 9432
2. 8832
3. 1502
4. 5 times
5. 10000
6. 868
7. 43
8. 9999,9998,9997
9. 1000
10. 999

(8)
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 725×4×25?
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 □ with suitable digit :-

\[
\begin{array}{c}
3 \ 9 \ 4 \ 1 \\
- \ \square \ \square \ 7 \ 8 \\
\hline
1 \ 8 \ \square \ \square
\end{array}
\]

14. If the sum of each row, column and the diagonal is same, complete the magic square.
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. \(560+(100+10) = \) .................

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. 8870×461-8870×361= ................. 

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+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?

(11)
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
2. 19
3. 1035.5310
4. 0
5. 900
6. 900
7. 1001, 999
8. 0
9. 9990
10. 72500
11. 1
12. Rs.60
13. \[
\begin{array}{c}
3941 \\
2078 \\
\hline
1863
\end{array}
\]
14. \[
\begin{array}{ccc}
14 & 1 & 9 \\
3 & 8 & 13 \\
7 & 15 & 2
\end{array}
\]
15. (a) 50 
   (b) 97
16. 8499, 8497, 8495
17. (a) 10006 (b) 29995 (c) 20003
18. 8 times
19. (a) 320,230, 302, 203
   (b) 203, 320
20. 800, 801, 802
21. (a) 1009 (b) 2
22. 98
23. 24
24. 73901, 73903
25. 570
26. 23314
27. 12000
28. 3399
29. 10005
30. 24
31. 1
32. 36 years
33. 48
34. 2000, 1998
35. 5
36. 99999
37. 887000
38. (a) 10 (b) 20
39. (a) 90 (b) 10.99
40. 81
41. 9 Nos, 32, 10
42. 50
43. 3333
44. 136
45. (ii) Three Crore (iii) Three Thousand (iv) Thirty Lakh (v) Three Lakh
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**

<table>
<thead>
<tr>
<th>Rule</th>
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<tbody>
<tr>
<td>(i) 2</td>
</tr>
<tr>
<td>Number ends with 0,2,4,6,8.</td>
</tr>
<tr>
<td>(ii) 3</td>
</tr>
<tr>
<td>Sum of all digits divisible by 3.</td>
</tr>
<tr>
<td>(iii) 4</td>
</tr>
<tr>
<td>Last two digits divisible by 4.</td>
</tr>
<tr>
<td>(iv) 5</td>
</tr>
<tr>
<td>Number ends with 0.5</td>
</tr>
<tr>
<td>(v) 6</td>
</tr>
<tr>
<td>Number is divisible by 2 and 3</td>
</tr>
<tr>
<td>(vi) 8</td>
</tr>
<tr>
<td>Last 3 digits of the number is divisible by 8.</td>
</tr>
<tr>
<td>(vii) 9</td>
</tr>
<tr>
<td>Sum of all digits of the number is divisible by 9.</td>
</tr>
<tr>
<td>(viii) 10</td>
</tr>
<tr>
<td>The number ends with 0</td>
</tr>
<tr>
<td>(ix) 11</td>
</tr>
<tr>
<td>(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.</td>
</tr>
</tbody>
</table>

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

1. Below 10, there are ............. prime numbers.
2. Below 20, there are ........... prime numbers.
3. The largest two digit prime number is ............... 

4. The following is factor tree of 45. Find the values of a,b.

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

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

7. Write all the factors of 
   (a) 18, (b) 23, (c) 36
8. Write first five multiples of 
   (a) 4, (b) 13, (c) 21
9. 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 63/99?
21. Write the simplest form of 60/96?
22. What is the lowest form of 56/98?
23. Write the simplest form of 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__ 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\(^3\times3\) and 3\times5 and LCM also.
36. What the HCF and LCM of
   2\(^2\times3\), 2\(^2\times3\times5\) and 2\(^3\times3\)?
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\times3\(^2\times5\), 2\(^3\times3\times5\), 3\times7
   (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**

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

1. 4
2. 8
3. 97
4. (a) 3, (b) 3
5. (a) a=2, b=5
   (b) a=2, b=3
d, c=2.5
6. (a) a=2, b, d=2.2
   c=5
   (b) a=4, c=2, b=5
7. (a) 1, 2, 3, 6, 9, 18
   (b) 1, 23
   (c) 1, 2, 3, 6, 9, 12, 18, 36
8. (a) 4, 8, 12, 16, 20
   (b) 13, 26, 39, 52, 65
   (c) 21, 42, 63, 84, 105
9. (a) and (d)
10. (b)
11. 58, 916, 3000, 4006
12. 522, 417, 813
13. 36, 216, 20496516
14. 115, 235, 30780
15. 930, 1902
16. 31795072
17. 429714
18. 920, 2250
19. 5445, 1749, 70109600, 901153
20. 7/11
21. 5/8
22. 4/7
23. 2/5
24. Smallest =0, largest=8
25. Smallest =2, largest=8
26. Smallest=0, largest=8
27. Smallest=0, largest=5
28. Smallest=1, largest=9
29. 6
30. 4
31. 0
32. 7
33. (a), (c)
34. (a) 1, 13, (b) 1, (c) 1, 2
35. HCF=3
   LCM=2^3\times3\times5
36. HCF=2^2\times3
   LCM=2^3\times3^2\times5
37. (a) 18, (b) 45
38. HCF=3
   LCM=2^2\times3^2\times5\times7
39. HCF=1
   LCM=120
40. HCF=5
   LCM= 2^2\times3^3\times5^2=900

Test Yourself (Answers)

1. 2
2. 4
3. 9
4. Coprime
5. 2
6. 1
7. 2
8. Factor
9. Multiple
10. 1 and the number itself.
**Chapter 4**

*Basic Geometrical Ideas*

### Things to remember:

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<tr>
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<th>Figure</th>
<th>Presentation</th>
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<tbody>
<tr>
<td>(a) Point</td>
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<td>.A, .P</td>
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<td>(b) Line Segment</td>
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<td>AB</td>
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<td>(c) Ray</td>
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<td>LM</td>
</tr>
<tr>
<td>(d) Line</td>
<td><img src="image" alt="Line" /></td>
<td>Pq, or l.m</td>
</tr>
<tr>
<td>(e) Parallel lines</td>
<td><img src="image" alt="Parallel lines" /></td>
<td>l \parallel m or pq \parallel Rs</td>
</tr>
<tr>
<td>(f) Angle</td>
<td><img src="image" alt="Angle" /></td>
<td>DABC</td>
</tr>
<tr>
<td>(g) Triangle</td>
<td><img src="image" alt="Triangle" /></td>
<td>DXYZ</td>
</tr>
<tr>
<td>(h) Arc</td>
<td><img src="image" alt="Arc" /></td>
<td>MN</td>
</tr>
</tbody>
</table>

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

![Simple curve](image) is a simple curve

is not a simple curve

4. A quadrilateral has four sides and four angles.

![Quadrilateral](image)

5. A circle consists of 2 semicircles.

![Circle](image)

6. 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-poins 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 polygon 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?

- [Diagram of a circle with shaded area]

**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?

- [Diagram of rays and angles]

37. Identify and name the pairs of parallel lines:

- [Diagram of parallel lines]

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

- [Diagram of intersecting lines]

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

- [Diagram of simple curves]

a) 

b) 

(20)
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:
   a)  
   b)  
   c)  
   d)  
   e)  

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

<table>
<thead>
<tr>
<th>Number of Sides</th>
<th>Name</th>
<th>Figure</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Triangle</td>
<td><img src="triangle.png" alt="Figure" /></td>
</tr>
<tr>
<td>4</td>
<td>Quadrilateral</td>
<td><img src="quadrilateral.png" alt="Figure" /></td>
</tr>
<tr>
<td>5</td>
<td>Pentagon</td>
<td><img src="pentagon.png" alt="Figure" /></td>
</tr>
<tr>
<td>6</td>
<td>Hexagon</td>
<td><img src="hexagon.png" alt="Figure" /></td>
</tr>
<tr>
<td>8</td>
<td>Octagon</td>
<td><img src="octagon.png" alt="Figure" /></td>
</tr>
</tbody>
</table>

(24)
3. Three Dimensional shapes:

(a) Cuboid

(b) Cube

(c) Triangular Pyramid

(d) Square Pyramid

(e) Triangular Prism

* Faces-6, Edges-12, Corners-8
* Faces-6, Edges-12, Corners-8
* Faces-4, Edges-6, Corners-4
* Faces-5, Edges-8, Corners-5
* 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

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

(26)
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) $180^\circ$ (ii) $360^\circ$ (iii) $270^\circ$

23. Classify the angles whose measures are given below (acute angle or obtuse angle)
   (i) $118^\circ$
   (ii) $19^\circ$
   (iii) $70^\circ$
   (iv) $360^\circ$
   (v) $210^\circ$

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
   DBOC.

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 $\text{DMNO}$?
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? $\bigtriangleup$
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
2. East
3. Straight Angle
4. Right Angle
5. Complete Angle
6. (i) $1/2$ (half)
   (ii) $1/4$ (one fourth)
   (iii) $3/4$ (three-fourth)
7. (i) on 7 (ii) on 9 (iii) on 12
8. (i) East (ii) West (iii) South
9. (i) $1/4$ (ii) $1/4$ (iii) $1/2$
10. Right Angle
11. East
12. Straight Angle
13. South
14. 4 (four)
15. (i) Two (ii) One (iii) Three
16. (i) North-East (ii) South-West
17. Rigth angle
18. Acute Angle
19. Obtuse Angle
20. Reflex Angle
21. (i) 180° (ii) 90° (iii) 180°
22. (i) Two (ii) Four (iii) Three
23. (i) Obtuse Angle
   (ii) Acute Angle
   (iii) Acute Angle
   (iv) Complete Angle
   (v) Reflex Angle
24. Equilateral Triangle
25. Isosceles Triangle
26. Scalene or Right Triangle
27. (i) 90° (ii) 180°
28. Acute Angle
29. (i) Acute Angle
   (ii) Obtuse Angle
30. (i) North
   (ii) West
   (iii) South
   (iv) East
31. (i) 60° (ii) 150°
32. Reflex Angle
33. Right Angle
34. 90°
35. 180°
36. 180°
37. 90°
38. 90°
39. 90°, 90°
40. 90°
41. 90°, 90°
42. (i) 18 (ii) 14
43. Triangular Pyramid
44. 5
45. 6
46. Cube
47. Square Pyramid
48. Rhombus
49. Cubiod
50. Cube
51. Cube
52. Eight
53. Cylinder
54. Spherical
55. Spherical

(30)
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. $10-\left(100-\left(89+5\times5\right)\right) =$ ..............
10. What is the product of first 3 multiples of 5?
11. $4-\left[-4\right]+1=$ ...................
12. Multiplicative inverse of 3 is .................?
13. Multiplicative inverse of $\frac{1}{2}$ is .................?
14. (a) Product of 25 and its multiplicative inverse
   (b) The product of a number and its multiplicative inverse is .................
   (c) The sum of a number and its additive inverse is .........................
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 7x(-6)?
23. Find the value of 4x3x0.
24. Find the value of (-12)x5x1.
25. Find the value of 9x(-8)x(-1).
26. What is (-70) ÷ 7?
27. What is (-75) + (-15)?
28. What is 153 + (-17) ?
29. What is 96 ÷ (-16) ?
30. (a) What is the value of 1-21 |?
      (b) What is the value of -1-21 |?
31. (a) What is the value of |47|?
      (b) What is the value of -|47|?
32. What is the value of |10|?
33. Value of |1-102| is .................
34. Which integer when divided by -1 gives -23?
35. Which integer when divided by -1 gives 101?
36. What is the product -10x(-32)?
37. What is the product -21x(-1000)x(-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

(32)
(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: \[-(80 + 16)\times3\].
47. Find the value of: \[- [63 + (-21)]\times2\].
48. Find the value of \[(-45) + (-15)]\times4\].
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**

|   |     | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |
|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 1 | 0  | 18 | -5 |   |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 2 | -1 | 19 | -12|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 3 | 0  | 20 | 210|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 4 | 0  | 21 | 10 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 5 | 0  | 22 | -42|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 6 | 0  | 23 | 0  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 7 | -3 | 24 | -60|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 8 | 13 | 25 | 72 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 9 | 0  | 26 | -10|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 10| 750| 27 | 5  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 11| 1  | 28 | -9 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 12| 1/3 | 29 | -6 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 13| 2  | 30 | (a) 21 (b) -21|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 14| (a) 1 (b) 1 (c) 0 | 31 | (a) 47 (b) -47|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 15| -7 | 32 | 0  |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 16| -7 | 33 | 102|    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |
| 17| (a) -7 (b) -19 | 34 | 23 |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |    |

(33)
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 $2 + \frac{1}{7}$

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

Reduce the following in simplest form (34 to 37)
34. $\frac{12}{52}$
35. $\frac{84}{98}$
36. $\frac{102}{136}$
37. $\frac{121}{1331}$
38. Fill with the missing fraction
   \[ \frac{2}{3} - \quad \square = \frac{1}{3} \]
39. Fill with the missing fraction
   \[ \frac{5}{7} - \quad \square = \frac{3}{7} \]

(36)
40. Fill with the missing fraction
   \[ \frac{8}{9} - \square = \frac{3}{9} \]

41. Fill with the missing fraction
   \[ \frac{7}{11} - \square = \frac{4}{11} \]

42. Add \( \frac{2}{5} \) and \( \frac{3}{4} \)

43. Add \( \frac{3}{10} \) and \( \frac{1}{2} \)

44. Add \( \frac{4}{5} \) and \( \frac{3}{25} \)

45. Add \( 2 \frac{4}{5} \) and \( 3 \frac{1}{5} \)

46. Add \( 3 \frac{4}{9} \) and \( 5 \frac{5}{9} \)

47. Subtract \( \frac{5}{10} \) from \( \frac{13}{10} \)

48. Subtract \( 2 \frac{3}{5} \) from \( 8 \frac{2}{5} \)

49. Ravi was given \( \frac{3}{5} \) 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**

1. What fraction of a day is 6 hours?

2. What fraction of the numbers 1 to 30 is prime no?

3. Express the mixed fraction \( 9 \frac{3}{21} \) as improper fraction.

4. Express \( \frac{231}{9} \) as mixed fraction.

5. What is the equivalent fraction of \( \frac{5}{11} \) having numerator 75?

6. What is the equivalent fraction of \( \frac{13}{15} \) having denominator 60?

7. Reduce \( \frac{112}{154} \) in its simplest form.

8. Fill with the missing fraction \( \frac{5}{7} - \square = \frac{1}{7} \)

9. Add \( 3 \frac{2}{5} \) and \( 2 \frac{3}{5} \)

10. Meena bought two pieces of ribbon \( 2 \frac{7}{10} \) metre and \( 1 \frac{1}{2} \) metre of length. What is the total length of the ribbon bought by her?
Answers

1. $3/8$
2. $4/9$
3. $4/8$ or $1/2$
4. $3/24$ or $3/8$
5. $1/8$
6. $1/48$
7. $1/2$
8. $2/7$
9. $1/4$
10. $1/2$
11. $2/3$
12. $4/10$
13. $7/15$
14. $8/16 = 1/2$
15. $13/4$
16. $41/19$
17. $25/11$
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. $8/20$
24. $25/35$
25. $45/85$
26. $81/270$
27. $48/102$
28. $40/56$
29. $18/102$
30. $15/36$
31. $63/117$
32. $36/124$
33. $104/232$
34. $3/13$
35. $6/7$
36. $3/4$
37. $1/11$
38. $1/3$
39. $2/7$
40. $5/9$
41. $3/11$
42. $23/20$
43. $8/10$ or $4/5$
44. $23/25$
45. $6$
46. $9$
47. $8/10 = 4/5$
48. $39/5$
49. $2/5$
50. $17/6m$ or $2 \frac{5}{6} m$

Answer (Try your self)

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

Decimals

Points to remember:

1. Every decimal number can be represented on a number line.
2. Every decimal number can be written as a fraction and vice versa.
3. Any two or more decimal numbers can be compared among themselves.
4. Decimal numbers can be represented as e.g. 260.521.

<table>
<thead>
<tr>
<th>Thousand 1000</th>
<th>Hundreds 100</th>
<th>Tens 10</th>
<th>Ones 1</th>
<th>Tenths 1/10</th>
<th>Hundredths 1/100</th>
<th>Thousandths 1/1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>2</td>
<td>6</td>
<td>0</td>
<td>5</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>

5. Thus one tenth = $\frac{1}{10} = 0.1$

One hundredth = $\frac{1}{100} = 0.01$

One thousandth = $\frac{1}{1000} = 0.001$

Questions

1. What is Nine thousandth in decimal form?
2. Which is the digit at the tenth place in:
   (a) 32.42  
   (b) 9.543
3. Which digit is at unit's place in:
   (a) 243.1  
   (b) 20.24
4. $89m = \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \km$ (in decimal form)

(39)
5. \( \frac{426}{100} = \ldots \)

6. \( 82.1 \times 100 = \ldots \)

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:
   (a) 
   (b) 

11. \( \ldots \times 10 = 6.06 \)

12. \( 0.46 \times 1000 = \ldots \)

13. \( 11.01 + 1.101 = \ldots \)

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) \( \frac{9}{5} \)
   (b) \( \frac{11}{2} \)

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

19. \( \frac{824}{10} - 80.1 = \ldots \)

20. \( 0.89 + 0.89 \times 100 - 10 = \ldots \)

21. \( 6.2 \times 100 - 200 = \ldots \)

22. What will be the next number in the series:
    \( 0.0142, 0.142, 1.42, \ldots \)

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

(40)
24. What is the decimal form of $\frac{5}{4}$?

25. Express as fractions in their lowest terms:
   (a) 0.26
   (b) 0.082

26. $0.02 = \boxed{2}/50$

27. What is five and ninety two thousandths in decimal notation?

28. Which of these numbers is greatest?
   (a) 0.090, 0.909, 0.099, 0.99
   (b) 6.314, 6.341, 63.41, 6.31

29. What is the decimal form of 8 tenths + 3 hundredths?

30. What is the whole number part in 63.01?

31. Find the value of 0.2 - 0.06.

32. Arrange in ascending order:
   (a) 6.931, (b) 9.613, (c) 1.693, (d) 3.619.

33. How many rupees are there in:
   (a) 7 rupees 5 paise
   (b) 70 paise

34. Convert
   (a) 6 m 90 cm into m
   (b) 4210 g into kg
   (c) 65 km 13 m into km
   (d) 80 mm into cm.

35. Rekha bought 7 m 56 cm long cloth. She cuts 2 m 40 cm length of cloth from this. How much cloth is left with her?

36. Find the value of:
   (a) 6.045 - 4.29
   (b) 35.95 - 28.59

37. Find the sum:
   (a) 9.75 + 3.05 + 0.2
   (b) 32.26 + 8.74

38. Nagma took Rs. 20.75 for buying cake and Rs. 12.50 for bread. Find the total amount spent by Nagma.

39. A shopkeeper bought 19 kg 300 g of vegetables. Out of this, he could sell 14 kg 450 g. What is the weight of vegetables left with the shopkeeper?

40. How many rupees are there in 950 paise?

41. What is the fractional form of 0.125?

42. Arrange in descending order:
   (a) 4.013, (b) 4.301, (c) 4.31, (d) 4.130

43. Complete the series:
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 45 m 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 :-

\[ 400 \text{m} + \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots \ldots .\text{m} = 1 \text{km} \]

49. How many times is 940.1 of 9.401?

50. \[ 425.041 = 425 + \ldots/1000 \]

51. Find the value of : \( 15 + 1/5 + 1/25 \)

52. Calculate : \( 445/10 - 9/2 \)

---

**Answer**

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

(42)
1. The following table represents the choice of milk shakes of class VI students

<table>
<thead>
<tr>
<th>Choice</th>
<th>Tally marks</th>
<th>Number of students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Banana Shake only</td>
<td>HHH HHT HHT</td>
<td>15</td>
</tr>
<tr>
<td>Chocolate Shake Only</td>
<td>HHH HHT HHT</td>
<td>12</td>
</tr>
<tr>
<td>Banana and Chocolate</td>
<td>HHH HHT HHH</td>
<td>13</td>
</tr>
<tr>
<td>Shake both</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>40</strong></td>
</tr>
</tbody>
</table>

Answer the following questions according to the table:-

(i) How many students like chocolate shake only?
(ii) Which shake does the students like the most?
(iii) How many students like Banana and Chocolate shake both?

2. The following table represents the choice of sweets of 40 students of class VI.

<table>
<thead>
<tr>
<th>Choice</th>
<th>Tally marks</th>
<th>No of students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gulab Jamun</td>
<td>HHH HHT HHT</td>
<td>12</td>
</tr>
<tr>
<td>Kaju Burfi</td>
<td>HHH HHT HHT HHT</td>
<td>16</td>
</tr>
<tr>
<td>Rasgulla</td>
<td>HHH HHH HHH</td>
<td>08</td>
</tr>
<tr>
<td>Ladoo</td>
<td>HHH HHH HHH</td>
<td>04</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>40</strong></td>
</tr>
</tbody>
</table>

Answer the following questions according to the table :-

(i) How many students like Kaju Burfi?
(ii) Which sweet does the students like the most?
(iii) Which sweet does the students like the least?
(iv) How many students like Gulab Jamun?

(43)
3. The following table represents the games that the 600 students of Vidya Mandir School would like to play.

<table>
<thead>
<tr>
<th>Games</th>
<th>No of students</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Basketball</td>
<td>100</td>
</tr>
<tr>
<td>2. Table Tennis</td>
<td>150</td>
</tr>
<tr>
<td>3. Cricket</td>
<td>200</td>
</tr>
<tr>
<td>4. Badminton</td>
<td>50</td>
</tr>
<tr>
<td>5. Hockey</td>
<td>70</td>
</tr>
<tr>
<td>6. Football</td>
<td>...</td>
</tr>
</tbody>
</table>

Answer the following questions using table :-
(i) How many students like to play football?
(ii) Which game was liked by the students the most?
(iii) Which game was liked by the students the least?
(iv) 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.

<table>
<thead>
<tr>
<th>Subject</th>
<th>No of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Drawing</td>
<td>20</td>
</tr>
<tr>
<td>2. Music</td>
<td>15</td>
</tr>
<tr>
<td>3. Home Science</td>
<td>...</td>
</tr>
</tbody>
</table>

| Total | 50 |

(i) How many students prefer to take Home Science?
(ii) How many students prefer to take Music?
(iii) How many students prefer to take Drawing?
(iv) Which subject was taken by the maximum number of students?
(v) 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

Monday

Tuesday

Wednesday

Thursday

(44)
Friday

Saturday

From this pictograph answer the questions:-
(i) How many computers were sold on Friday?
(ii) How many computers were sold on Monday?
(iii) How many computers were sold during the week?
(iv) On which day was the sale maximum?
(v) On which day was the sale minimum?

6. The modes of travelling to school by 120 students are given below.

<table>
<thead>
<tr>
<th>Mode</th>
<th>Number of Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walking</td>
<td></td>
</tr>
<tr>
<td>Bicycle</td>
<td></td>
</tr>
<tr>
<td>Bus</td>
<td></td>
</tr>
</tbody>
</table>

Scale is given below :-

= 10 students (walking)

= 10 students (Bicycle)

= 10 students (Bus)

From the above pictograph answer the following questions.
(i) How many students travel by bus?
(ii) How many students go by walking?
(iii) How many students go by bicycle?
(iv) 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
Wednesday

Thursday

Friday

Saturday

Sunday

From the above pictograph answer the following questions:-
(i) How many Table Lamps were sold on Saturday?
(ii) How many Table Lamps were sold on Friday?
(iii) Total sale of the week?
(iv) 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:

<table>
<thead>
<tr>
<th>Tree Type</th>
<th>Trees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Banyan Tree</td>
<td>🌳🌳🌳</td>
</tr>
<tr>
<td>Neem Tree</td>
<td>🌳🌳🌳</td>
</tr>
<tr>
<td>Mango Tree</td>
<td>🌳🌳🌳🌳</td>
</tr>
</tbody>
</table>

(i) How many mango trees are there?
(ii) How many banyan trees are there?
(iii) How many neem trees are there?
(iv) 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:
(i) In which subject does Deepanker get the lowest marks?
(ii) 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.

![Bar Graph of No. of Families vs. No. of Children](image)

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:

![Bar Graph of Heights of Mountain Peaks](image)

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?
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.
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 × length of side.

3. Perimeter of a rectangle = 2 (length + breadth) units
   Area of rectangle = (length × breadth) square units.

4. Perimeter of a square = (4 × side) units
   Area of square = (side × side) square units.

5. Perimeter of equilateral triangle = 3 × 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. \[ \text{\(\triangle\)} 8\text{cm} \quad 12\text{cm} \]

2. \[ \text{\(\square\)} 1\text{cm} \quad 1\text{cm} \]

3. \[ 5\text{cm} \quad 12\text{cm} \]

4. \[ 6.5\text{cm} \quad 5\text{cm} \]

5. \[ 2\text{cm} \quad 6\text{cm} \quad 4\text{cm} \quad 2\text{cm} \]

6. \[ 1\text{cm} \quad 1\text{cm} \quad 1\text{cm} \]

7. \[ 5\text{cm} \quad 5\text{cm} \quad 5\text{cm} \]

8. \[ \text{\(\star\)} 1\text{cm} \quad 1\text{cm} \]

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=5m, b=50cm.
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 5cm×4cm.
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=120cm, b=150cm.
20. Calculate area of square in cm\(^2\) if its side = 1m.
21. What will be the perimeter of regular pentagon of side 4.5cm.
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 34.96m. Find the side of the square field.
24. Calculate the area of the square whose perimeter is 2.56cm.

(51)
25. What will be the perimeter of a 10,000m² 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 m².

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 24 cm. 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 2m×1m?

34. Find area of rectangle with side 1.8m and 0.5m.

35. Find perimeter of rectangle in metres with l=180cm, b=50cm.

(Q. No. 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).

40. 

41. 

42. 

43. 

44. 

45. 

46. If a 10m×5m room is to be tiled and each tile is 2m×1m, 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.

48. 

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

i) area of flower beds

ii) remaining area of the park

49. 

In a rectangular garden of dimension 150m×50m, 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 m².
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. 0.4m² or 4000cm²
15. 20cm²
16. 100m²
17. 35m
18. 120cm
19. 1.80m²
20. 10000cm²
21. 24.0cm
22. 150m
23. 874m
24. 81cm²
25. 400m
26. 11cm
27. Rs 1520
28. Rs 1800, 360m²

29. 450m²
30. 2.56m²
31. 14cm
32. 2cm
33. 5000
34. 0.9m²
35. 4.60m
36. 4 sq. units
37. 8 sq. units
38. 9sq. units
39. 4 sq. units
40. 32cm²
41. 33.5cm²
42. 13cm²
43. 9cm²
44. 26cm²
45. 11cm²
46. 25 tiles
47. 48 tiles
48. (i) 100m²
   (ii) 300m²
49. 300m²
50. Rs 3600

(54)
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.
- \(3 \times x = 3x, \quad 1 \times x = x, \quad x \times y = xy, \quad x \times 5 = 5x\) 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 +, -, \(x\) and \(÷\), is called an algebraic expression e.g. \(2y, \quad 5x - 1, \quad z/2\) etc.
- A statement of equality which involves one or more variable is called an equation. e.g. \(x + 5 = 2x - 1, \quad y + 2 = 8\) 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. $\frac{1}{3}x + 8 = 1$

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.
One-third of \(x\) multiplied by the sum of \(a\) and \(b\).

\(x\) taken away from 4.

The difference of \(a\) and \(b\), when \(a > b\).

Solve equations (56 - 60)

56. If \(x+3 = 4\) then \(x = \ldots\)

57. If \(a-2 = 5\) then \(a = \ldots\)

58. If \(6m = 18\) then \(m = \ldots\)

59. If \(11b = 55\) then \(b = \ldots\)

60. If \(x/7 = 2\) then \(x = \ldots\)

### Answers

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

(59)
(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) 6kg : 3kg 500g = .................... 
   (ii) 5m 25m : 75cm = ..................... 
   (iii) Rs. 18.50 : Rs. 22.75 = .................. 
   (iv) 6 weeks : 2 days = ...................... 

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

(60)
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

\[
\begin{array}{c}
5\text{cm} \\
\hline
5\text{cm} \\
\hline
4\text{cm} \\
\hline
4\text{cm}
\end{array}
\]

(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) \[2 : 8 = \ldots \ldots \ldots : 28\]
   (ii) \[3 : 5 = \ldots \ldots \ldots \]
   (iii) \[4 : \ldots \ldots \ldots = 8 : 10\]
   (iv) \[32 : 64 = \ldots \ldots \ldots : 12\]
   (v) \[20 : 35 = 12 : \ldots \ldots \ldots \]
   (vi) \[15 : \ldots \ldots \ldots = 150 : 250\]
   (vii) \[7 : \ldots \ldots \ldots = 8 : 24\]
   (viii) \[\ldots \ldots \ldots : 60 = 12 : 15\]

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
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

1. (i) 8 : 15
   (ii) 12 : 1
   (iii) 1 : 80
   (iv) 1 : 1
   (v) 4 : 1
   (vi) 4 : 1
   (vii) 1 : 2
   (viii) 1 : 50
   (ix) 3 : 5
   (x) 1 : 4

2. (i) 12 : 7 (ii) 7 : 1 (iii) 74 : 91

3. 1 : 2
4. 10 : 1

5. 5 : 4

6. (i) 2 : 3 (ii) 1 : 3 (iii) 2 : 1

7. (i) 1 : 5 (ii) 1 : 4 (iii) 5 : 4

8. (i) 3 : 5 (ii) 2 : 5 (iii) 3 : 2

9. (i) 11 : 9 (ii) 11 : 20 (iii) 9 : 20

10. (i) 8 : 3 (ii) 4 : 11

11. 1 : 4

12. 18 : 1

13. 9 : 10

14. 1 : 4

15. (i) 4 : 5 (ii) 4 : 5 (iii) 16 : 25

16. (i) Yes (ii) Yes (iii) No

17. (i) 7 (ii) 30 (iii) 5
   (iv) 6 (v) 21 (vi) 25
   (vii) 21 (viii) 48

18. 15


20. 186 : 72 = 217 : 84

21. (i) 9 (ii) 12

22. Breadth = 12m

23. 48

24. 30

25. Expenses = Rs. 4,000
   Savings = Rs. 2,000

26. 24

27. 7200

28. 136

29. 28

30. 1m

31. Rs.40

32. Rs.56

33. 48kg

34. Rs.90

35. 8 Shirts

36. Rs.108

37. 5 litres

38. 9kg

39. Rs.67

40. 6 pencils

41. 400 litres

42. Rs.12,000

43. Rs.20,000

44. 15kg.

45. 64 pens

46. 1380

47. Rs.360

48. Rs.60

49. 20 children

50. 6 pencils

51. Rs.3360

52. 10 watches

53. Rs.133.50

54. Rs.5920

55. Rs.1800

56. 600mm

57. Rs.420

58. Rs.900

59. Rs.2200

60. 7kg.
13. 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?

![Butterfly diagram]

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.

![Line symmetry diagram]

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

![Line symmetry diagram]

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 linves of symmetry an egg has?
25. How many lines of symmetry has a label 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.

![Completion option diagram]
31. Choose the correct option to complete the given picture.

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?

   a)  
   b)  
   c)  
   d)  

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

   a)  
   b)  
   c)  
   d)  

41. What type of lines of symmetry do the above shapes have (vertical or horizontal)?
<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Perpendicular Bisector</td>
<td>26. None or Zero</td>
</tr>
<tr>
<td>2. Angle Bisector</td>
<td>27. One</td>
</tr>
<tr>
<td>3. One</td>
<td>28. A, M</td>
</tr>
<tr>
<td>4. Perpendicular Bisector of diameter</td>
<td>29. B, D</td>
</tr>
<tr>
<td>5. Two</td>
<td>30. (b)</td>
</tr>
<tr>
<td>6. Parallelogram, Square</td>
<td>31. (c)</td>
</tr>
<tr>
<td>7. Circle</td>
<td>32. Zero</td>
</tr>
<tr>
<td>8. Four</td>
<td>33. 6</td>
</tr>
<tr>
<td>9. One</td>
<td>34. 4 (four)</td>
</tr>
<tr>
<td>10. Three</td>
<td>35. One</td>
</tr>
<tr>
<td>11. Diagonal</td>
<td>36. One</td>
</tr>
<tr>
<td>12. Angle bisectors</td>
<td>37. None or Zero</td>
</tr>
<tr>
<td>13. Infinite</td>
<td>38. One</td>
</tr>
<tr>
<td>14. One</td>
<td>39. i) Zero</td>
</tr>
<tr>
<td>15. One</td>
<td>ii) Two</td>
</tr>
<tr>
<td>16. One</td>
<td>iii) One</td>
</tr>
<tr>
<td>17. Two</td>
<td>iv) Two</td>
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<tr>
<td>18. Infinite</td>
<td>40. i) One</td>
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<tr>
<td>19. Two</td>
<td>ii) One</td>
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<tr>
<td>20. Two</td>
<td>iii) One</td>
</tr>
<tr>
<td>21. A, H</td>
<td>iv) zero</td>
</tr>
<tr>
<td>22. K, X</td>
<td>41. i) Vertical</td>
</tr>
<tr>
<td>23. J, N</td>
<td>ii) Vertical</td>
</tr>
<tr>
<td>24. One</td>
<td>iii) Vertical</td>
</tr>
<tr>
<td>25. Two</td>
<td>iv) None</td>
</tr>
</tbody>
</table>
1. What are the instruments required for geometrical construction?
2. How many perpendicular bisectors are required to trisect or 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 interest 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?
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 it 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