
Numbers

1 *Arithmetical operations.*

- ◆◆ 1.1 Add, subtract, multiply and divide whole numbers.
- 1.2 Solve operations involving combined addition, subtraction, multiplication and division of whole numbers.
- ◆ 1.3 Solve word problems involving addition, subtraction, multiplication and division of whole numbers.

2 *Divisibility, prime factorization, L.C.M. and H.C.F.*

- ◆ 2.1 Use the divisibility rules of 2, 3, 4, 5, 6, 9 and 10.
- 2.2 Find the prime factorization of whole numbers.
- 2.3 Find the lowest common multiples of two to three 1-2 digit numbers.
- 2.4 Find the highest common factors of two to three 1-2 digit numbers.

3 *Binary numerals*

- 3.1 Convert decimal numerals to binary numerals.
- 3.2 Convert binary numerals to decimal numerals.

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Fractions

1 *Comprehension of fractions.*

- ◆◆ 1.1 Form fractions from given information.
- ◆ 1.2 Form equivalent fractions to a given fraction.
- ◆◆ 1.3 Reduce fractions to their lowest term.
- ◆ 1.4 Compare fractions with different denominators.
- ◆◆ 1.5 Convert improper fractions to mixed numbers and vice versa.

2 *Operations of fractions.*

- 2.1 Carry out addition of 2-3 fractions (where the denominator is a 1-2 digit number) with different denominators.
- 2.2 Carry out subtraction of 2-3 fractions (where the denominator is a 1-2 digit number) with different denominators.
- 2.3 Carry out multiplication of 2-3 fractions.
- 2.4 Carry out division of 2-3 fractions.
- 2.5 Carry out combined operations involving the four operations and the use of brackets.

3 *Application of fractions.*

- 3.1 Solve word problems involving fractions.

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Decimals

1 *Comprehension of decimal numbers.*

- ◆ 1.1 Read and interpret decimal numbers.
- ◆ 1.2 Compare decimal numbers using $>$ or $<$.
- 1.3 Round off whole numbers to the nearest tens, hundreds, thousands etc.
- 1.4 Round off decimals to the nearest whole number and to the specified number of decimal places.
- 1.5 Convert fractions to decimals and vice-versa.

2 *Operation of decimal numbers.*

- ◆ 2.1 Addition of decimal numbers.
- ◆ 2.2 Subtraction of decimal numbers.
- 2.3 Solve operations involving addition and subtraction of decimal numbers.
- ◆ 2.4 Multiplication of decimal number by a decimal number.
- 2.5 Multiplication and division of decimals by 10, 100, 1000 etc.
- 2.6 Division of decimal numbers by a decimal number.

3 *Application of decimal numbers.*

- 3.1 Solve word problems involving decimal numbers.

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Directed Numbers

1 *Comprehension of directed numbers.*

- 1.1 Compare positive and negative numbers using $>$ or $<$.
- 1.2 Use addition rule to solve addition and subtraction of directed numbers.
- 1.3 Use multiplication rule to solve multiplication and division of directed numbers.

Indices

1 *Comprehension of indices.*

- 1.1 Introduce the index form.
- 1.2 Find the values of numbers written in the index form.
- 1.3 Use the multiplication law of indices in simplifying.
- 1.4 Use the division law of indices in simplifying.

Algebra and Equations

1 *Comprehension of algebra.*

- 1.1 Use letters to represent unknowns and write simple algebraic expressions (e.g. $6c + d$).
- 1.2 Add and subtract algebraic terms (e.g. $4m^2n + 8mn^2 - 7m^2n$).
- 1.3 Multiply algebraic terms (e.g. $-x^3(2xy^3)(-5y^5z)$).
- 1.4 Divide algebraic terms (e.g. $\frac{-15a^3b}{5a^2}$).
- 1.5 Evaluate algebraic expressions by substitution.
- 1.6 Simplify expressions with parenthesis (e.g. $(3x + 2)(4x - 1)$).
- 1.7 Factorize algebraic expressions (exclude group factorization).

2 *Comprehension of equations.*

- 2.1 Solve linear equations (include cases involving fractional coefficients, exclude: $\frac{x-3}{2} + \frac{2x-1}{5} = 1$).

Geometry

1 *Comprehension of angles.*

- 1.1 Find unknown angles involving angles on a straight line and angles at a point.

2 *Angle properties of quadrilaterals.*

- 2.1 Use the angle sum of the quadrilateral in finding the unknown angles of the quadrilaterals.

3 *Angle properties of triangles.*

- 3.1 Use the angle sum of the triangle in finding the unknown angles of the triangles.
- 3.2 Identify the base angles of an isosceles triangle.
- 3.3 Find the size of angles of an equilateral triangle.
- 3.4 Use the relationship between exterior angle of a triangle and the sum of the far interior angles of the triangle to find the unknown angles.

Rate, Ratio and Proportion

1 *Comprehension of rate.*

- 1.1 Introduce rate.
- 1.2 Solve problems involving rate.

2 *Comprehension of ratio.*

- ◆ 2.1 Find the ratio of two or more quantities.
- ◆ 2.2 Simplify ratios with whole numbers.
- 2.3 Simplify ratios with units. (e.g. 20 hr : 1 day)
- 2.4 Simplify fractional ratios.

3 *Comprehension of proportion.*

- 3.1 Solve word problems involving direct proportions.
- 3.2 Solve word problems involving proportional parts (sharing).
- 3.3 Solve word problems involving alms (*zakaaiy*).

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Percentage

1 *Comprehension of percentage.*

- 1.1 Recognize the equivalent between percentage and fraction.
- 1.2 Change fraction to percentage, and vice versa.
- 1.3 Change decimal to percentage, and vice versa.
- 1.4 Calculate the percentage of a quantity.

2 *Application of percentage.*

- 2.1 Solve word problems involving percentages.
- 2.2 Solve word problems involving percentage of a quantity.
- 2.3 Solve word problems involving percentage increase and decrease.
- 2.4 Solve word problems involving discount.
- 2.5 Solve word problems involving profit and loss percentage.

Statistics

1 *Measure of central tendency.*

- 1.1 Find mean, median and mode from a given data.

2 *Comprehension of graph.*

- 2.1 Read and interpret data presented in pie charts.
- 2.2 Construct pie charts.

Perimeter

1 *Comprehension of perimeter.*

- ◆◆ 1.1 Find the perimeter of different shapes when the sides are given.
- 1.2 Find the circumference of circles, where the radius or diameter is given.
- 1.3 Find the perimeter of semi circles and quarter circles.
- 1.4 Find the perimeter of compound figures.
- 1.5 Find the dimensions of rectangles, squares and circles given its perimeter and other dimensions.

2 *Application of perimeter.*

- 2.1 Solve word problems involving perimeter.

Area

1 *Comprehension of area.*

- 1.1 Use formula to calculate the area of rectangles, squares, triangles, parallelograms, trapeziums and circles.
- 1.2 Find the area of semi circles and quarter circles.
- 1.3 Find the dimensions of rectangles, parallelograms, triangles and trapeziums given its area and other dimensions.
- 1.4 Find the area of compound figures.
- 1.5 Find the area of shaded regions.

2 *Application of area.*

- 2.2 Solve word problems involving area.

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Volume

1 *Comprehension of volume.*

- ◆◆ 1.1 Find the volume of cubes and cuboids.
- ◆ 1.2 Find the dimension of a cuboid given its volume and other dimensions.
- 1.3 Find the volume of prisms.
- 1.4 Find the length of a prism given its volume and area of the cross-section.

2 *Application of volume.*

- 2.1 Solve word problems involving volume of cuboids, cubes and prisms.

Measures

1 *Metric units.*

- 1.1 Express the units of length (km, m, cm, mm) in terms of larger or smaller quantities.
- 1.2 Express the units of mass (t, kg, g) in terms of larger or smaller quantities.
- 1.3 Express the units of capacity (l, ml or cm^3) in terms of larger or smaller quantities.

2 *Imperial units.*

- 2.1 Express other units of length (miles, feet, inches) in terms of larger or smaller quantities.
- 2.2 Express the units of time (s, min, hr) in terms of larger or smaller quantities.

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Straight line graph

1 *Comprehension of straight line graphs.*

1.1 Use Cartesian coordinates in two dimensions.

1.2 Draw straight line graphs for the equations in the form $y = mx + c$.