



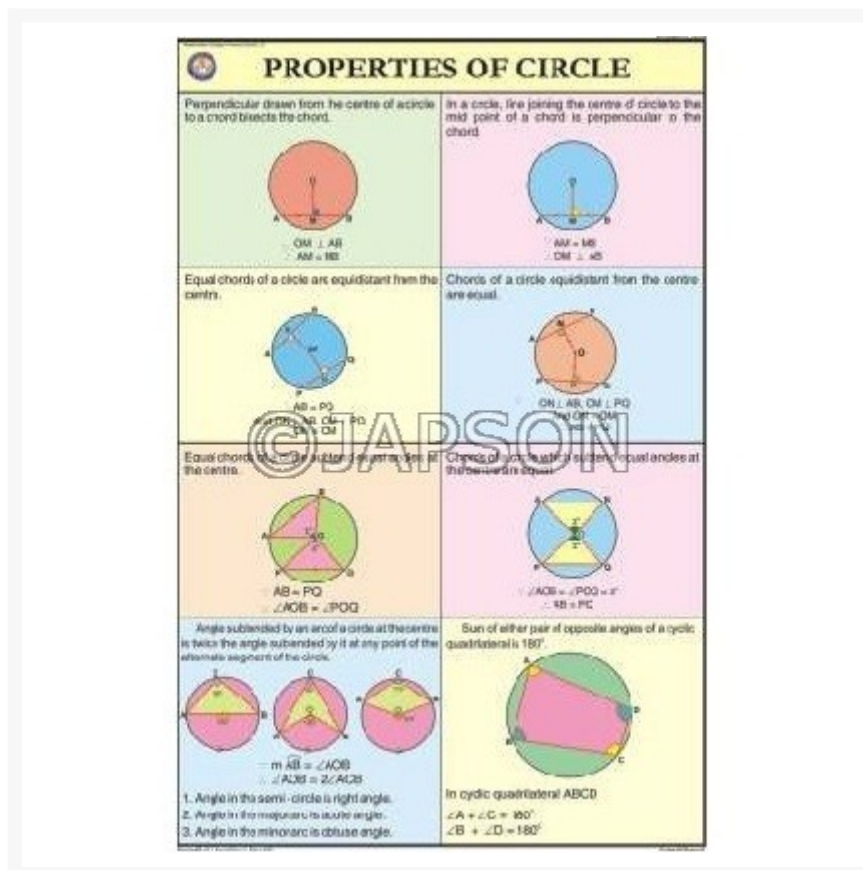
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Mathematics (Upper Primary) Charts, School Education

Product Image



Description

Standard Size: 50x75cms, Set of 15 Charts

Language: English

English & Hindi Combined

Laminated Paper Charts with Plastic Rollers. These Charts have technically accurate and detailed description in vivid colours.

Note: Based on minimum order quantity conditions, Charts can be customized to your requirements in terms of CONTENT, LANGUAGE, SIZE, etc. Please write back to us for discussion.

A. Charts, Angles

B. Charts, Algebra (Definitions & Formulae)

ANGLER

Acute angle
Angle of measure less than 90° and greater than 0°.

Right angle
Angle of measure of 90°.

Obtuse angle
Angle of measure greater than 90° but less than 180°.

Straight angle
Angle of measure of 180°.

Reflex angle
Angle of measure greater than 180° but less than 360°.

Complete angle
Angle of measure of 360°.

Complementary angles
If the sum of measures of two angles is equal to 90°, then they are complementary angles.

Supplementary angles
If the sum of measures of two angles is equal to 180°, then they are supplementary angles.

ALGEBRA
Definitions & Formulae

Definitions

1. A combination of terms connected by sign of + and - is called an Algebraic Expression.
2. A monomial is another name for a term.
3. A binomial is made up of two monomials and a trinomial is made up of three monomials connected by + or - signs.
4. A polynomial is made up of more than three terms (monomials) linked by + and - signs.
5. A linear equation is a statement of equality between two expressions of the first degree.
6. The value of a variable in an equation is called its root.

Formulae

1. $(a - b)^2 = a^2 + b^2 - 2ab$
2. $(a + b)^2 = a^2 + b^2 + 2ab$
3. $a^2 - b^2 = (a + b)(a - b)$
4. $(a - b + c)^2 = a^2 + b^2 + c^2 + 2ab + 2bc + 2ca$
5. $(a + b)^3 = a^3 + b^3 + 3ab(a + b)$
6. $(a - b)^3 = a^3 - b^3 - 3ab(a - b)$
7. $a^3 + b^3 = (a + b)(a^2 - ab + b^2)$
8. $a^3 - b^3 = (a - b)(a^2 + ab + b^2)$
9. $a^3 + b^3 + c^3 - 3abc = (a + b + c)(a^2 + b^2 + c^2 - ab - bc - ca)$
10. If $a + b + c = 0$, then $a^3 + b^3 + c^3 = 3abc$

C. Charts, Number System

D. Charts, Triangles

NUMBER SYSTEM	
Natural Numbers Counting numbers starting from 1.	1 2 3 4 5 ...
Whole Numbers When zero is added to Natural numbers, it gives whole numbers.	0 1 2 3 4 ...
Integers System of numbers containing whole numbers and negative of natural numbers is system of integers.	... -3 -2 -1 0 1 2 3
Rational Numbers A number in the form of $\frac{p}{q}$, where p and q are integers and $q \neq 0$ is a rational number.	$\frac{100}{17}$ $\frac{21}{31}$ $-\frac{61}{19}$
Even Numbers Numbers exactly divisible by 2 are even numbers. Unit digit of even numbers is either 0, 2, 4, 6 or 8.	22 164 198 100 8 100
Odd Numbers Numbers which are not divisible by 2. Unit digit of odd numbers is either 1, 3, 5, 7 or 9.	31 197 289 599 83 105
Prime Numbers Numbers which have only two factors either 1 or the number itself. 2 is the smallest prime number.	2 3 5 7 11 13 ...
Composite Numbers Numbers which have more than two factors.	4 6 10 18 23 25 ...

TRIANGLES

A CLOSED FIGURE MADE UP OF THREE LINE SEGMENTS & THREE ANGLES

WHAT TRIANGLES HAVE

- Three sides
- Three Angles
- Three vertices
- Total of angles = 180°
- An exterior angle equals the sum of the two interior opposite angles.
- The sum of any two sides of a triangle is greater than the third side.

WHAT TRIANGLES CANNOT HAVE

- Two right angles
- Two obtuse angles
- All angles = 90°
- All angles = 60°
- One obtuse and one right angle

Equilateral Triangle

All sides are equal
All angles are equal

Isosceles Triangle

Two sides are equal
Two angles are equal

Scalene Triangle

All sides are unequal
All angles are unequal

Acute Triangle

All angles less than 90°

Obtuse Triangle

One angle more than 90°

Right Triangle

One angle 90°

Pythagoras Theorem

In a right triangle, the square of the hypotenuse equals the sum of the squares of its sides.

The altitudes of a triangle are concurrent i.e. they meet at a point called orthocentre.

The three medians of a triangle are concurrent i.e. they meet at a point called centroid.

Angle bisector of a triangle are concurrent and meet at a point called incentre.

Perpendicular bisectors of three sides of a triangle are concurrent and meet at a point called circumcentre.

E. Charts, Profit & Loss

F. Charts, Congruent Triangles

PROFIT & LOSS	
1	Gain = Selling Price - Cost Price when (Selling Price > Cost Price)
2	Loss = Cost Price - Selling Price when (Cost Price > Selling Price)
3	Gain % = $\frac{\text{Gain} \times 100}{\text{Cost Price}}$
4	Loss % = $\frac{\text{Loss} \times 100}{\text{Cost Price}}$
5	Selling Price = $\frac{(100 + \text{Gain \%}) \times \text{Cost Price}}{100}$
6	Selling Price = $\frac{100 - \text{Loss \%} \times \text{Cost Price}}{100}$
7	Cost Price = $\frac{\text{Selling Price} \times 100}{100 + \text{Gain \%}}$
8	Cost Price = $\frac{\text{Selling Price} \times 100}{100 - \text{Loss \%}}$
9	Discount = List Price - Selling Price
10	Discount Rate = $\text{Discount \%} = \frac{\text{Discount} \times 100}{\text{List Price}}$
11	Selling Price = $\frac{\text{List Price} \times (100 - \text{Discount \%})}{100}$
12	List Price = $\frac{100 \times \text{Selling Price}}{100 - \text{Discount \%}}$

CONGRUENT TRIANGLES

Two triangles are congruent if

- Their corresponding sides are equal.
- Their corresponding angles are equal.

SSS Congruency
If the corresponding sides of two triangles are equal, they are congruent.

ASA Congruency
If two angles and included side of a triangle are equal to two corresponding side and included angle of another triangle, then they are congruent.

SAS Congruency
If two sides and included angle of a triangle are equal to two corresponding side and included angle of another triangle, then they are congruent.

AAS Congruency
If two angles and a side of a triangle are equal to two corresponding angles and a corresponding side of another triangle then they are congruent.

RHS Congruency
If the hypotenuse of a right triangle and a side is equal to the hypotenuse and a side of another right triangle, then they are congruent.

SSA Congruency
If two sides and a non-included angle of a triangle are equal to two corresponding sides and a non-included angle of another triangle, then they are congruent.

G. Charts, Mensuration-I

H. Charts, Quadrilaterals

MENSURATION - I			
Figure	Area	Perimeter	Illustrations
Rectangle 	$l \times b$	$2 \times (l + b)$	l = length b = breadth
Square 	$s \times s$	$4 \times s$	s = side
Quadrilateral 	$\frac{1}{2} \times d \times (h_1 + h_2)$	$p + q + r + s$	d = diagonal h_1, h_2 = altitudes p, q, r, s = sides
Triangle 	$\frac{1}{2} \times b \times h$ or $\frac{1}{2} \times a \times h_1$ or $\frac{1}{2} \times c \times h_2$	$a + b + c$	h = altitude a, b, c = sides h_1 = base h_2 = $a + b + c$
Parallelogram 	$b \times h$	$2 \times (a + b)$	h = altitude a = side b = base
Rhombus 	$\frac{1}{2} \times d_1 \times d_2$ or $h \times s$	$4 \times s$	d_1, d_2 = diagonal h = altitude s = side
Trapezium 	$\frac{1}{2} \times (a + b) \times h$	$a + b + c + d$	a, b = parallel sides c, d = non-parallel sides h = altitude
Circle 	πr^2	$2\pi r$	$\pi = 3.14$ or $\frac{22}{7}$ r = radius

QUADRILATERALS	
Closed Figure made up of four line segments	
Properties of Quadrilaterals 1. Points A, B, C, D are called the vertices of the quadrilateral. 2. Line segments AB, BC, CD, DA are called the sides of the quadrilateral. 3. Four angles of the quadrilateral ABCD are $\angle A, \angle B, \angle C, \angle D$. 4. The two line segments joining two opposite vertices are called diagonals. 5. The sum of the angles of a quadrilateral is 360° .	Convex Quadrilateral With each θ its angle less than 180° .
Concave Quadrilateral One of its interior angles is greater than 180° .	Trapezium A quadrilateral with one pair of opposite sides parallel.
Parallelogram A quadrilateral with both the pairs of opposite sides parallel.	Rhombus A parallelogram whose all sides are equal.
Rectangle A parallelogram with each of its angles a right angle.	Square A rhombus with all the angles right angle or a rectangle with all the sides equal.

I. Charts, Angles

J. Charts, Mensuration - II

ANGLES	
Acute angle Angle of measure less than 90° and greater than 0° . 	Right angle Angle of measure of 90° .
Obtuse angle Angle of measure greater than 90° but less than 180° . 	Straight angle Angle of measure of 180° .
Reflex angle Angle of measure greater than 180° but less than 360° . 	Complete angle Angle of measure of 360° .
Complementary angles If the sum of measures of two angles is equal to 90° , then they are complementary angles. (i) $\angle ABC + \angle PQR = 60^\circ + 30^\circ = 90^\circ$ A ray drawn in the interior of a right angle from vertex forms a pair of complementary angles. (ii) $\angle AOC + \angle COB = 65^\circ + 25^\circ = 90^\circ$	Supplementary angles If the sum of measures of two angles is equal to 180° then they are supplementary angles. (i) $\angle DEF + \angle XYZ = 140^\circ + 40^\circ = 180^\circ$ A ray drawn on a straight angle from vertex forms a pair of supplementary angles. (ii) $\angle AOC + \angle COB = 120^\circ + 60^\circ = 180^\circ$

MENSURATION - II				
Figure	Lateral Surface Area	Total Surface Area	Volume	Illustrations
CUBOID 	$2(l + b) \times h$	$2(lb + bh + lh)$	lbh	l = length b = breadth h = height
CUBE 	$4s^2$	$6s^2$	s^3	s = Side
RIGHT CIRCULAR CUBOID 	$2\pi r h$	$2\pi r(l + r)$	$\pi r^2 h$	$\pi = 3.14$ or $\frac{22}{7}$ r = Radius h = height
RIGHT CIRCULAR CONE 	$\pi r l$	$\pi r(l + r)$	$\frac{1}{3} \pi r^2 h$	$\pi = 3.14$ or $\frac{22}{7}$ r = Radius h = height l = Slant Height $l^2 = r^2 + h^2$
SPHERE 	—	$4\pi r^2$	$\frac{4}{3} \pi r^3$	$\pi = 3.14$ or $\frac{22}{7}$ r = Radius
HEMISPHERE 	$2\pi r^2$	$3\pi r^2$	$\frac{2}{3} \pi r^3$	$\pi = 3.14$ or $\frac{22}{7}$ r = Radius

K. Charts, Multiplication Of Rational Numbers

L. Charts, Some Geometrical Concepts

MULTIPLICATION OF RATIONAL NUMBERS	
1	Closure Property :- The product of two rational numbers is always a rational number. If a and b are two rational numbers and $a \times b = c$, then c is also a rational number.
2	Commutative Property :- Two rational numbers can be multiplied in any order. If a and b are two rational numbers then $a \times b = b \times a$.
3	Associative Property :- Three or more rational numbers can be grouped in any order for multiplication. If a, b and c are three rational numbers then $a \times (b \times c) = (a \times b) \times c$.
4	Identity Element :- The product of any rational numbers and 1 is the rational number itself. If a is a rational number then $a \times 1 = 1 \times a = a$. Therefore 1 is identity element for multiplication.
5	Multiplication with 0 :- Any rational number multiplied by 0 is equal to 0. If a is a rational number then $a \times 0 = 0 \times a = 0$.
DIVISION OF RATIONAL NUMBERS	
6	Closure Property :- The division of two rational numbers is always a rational number. If a and b are two rational numbers and $a \div b = c$, then c is also a rational number, $b \neq 0$.
7	Division is not Commutative :- If a and b are two rational numbers then $a \div b \neq b \div a$.
8	Division is not Associative :- If a, b and c are three rational numbers then, $(a \div b) \div c \neq a \div (b \div c)$.
9	Division by 1 :- If a is a rational number then $a \div 1 = a$ and $1 \div a = \frac{1}{a} = a^{-1}$.
10	Division by 0 :- If a is a rational number then $a \div 0$ is not possible and $0 \div a = 0$.
11	If a, b and c are three rational numbers then 1. $a \div (b \div c) = a \times \frac{c}{b} = \frac{a \times c}{b} = (b \div c) \times a$ 2. $a \div (b \times c) = \frac{a}{b \times c} = \frac{a}{b} \times \frac{1}{c} = (b \times c) \div a$ 3. $(a \div b) \times c = a \div b \times c = a \div (b \div c) = (a \div b) \times c$ 4. $(a \div b) \times c = a \div (b \div c) = (a \div b) \times c$

SOME GEOMETRICAL CONCEPTS	
Point A dot having no length, width or depth, only fixed position in a space. It is represented by capital letters.	Line Line is a set of continuous points which extends indefinitely. It has only length, no width and no end points. It is represented by small letters written on one side.
Line Segment It is a part of a line. It has two end points. It has fixed length.	Ray A ray is a part of a line which has one end point. It moves indefinitely in one direction. It has no fixed length.
Collinear Points Three or more points lying on a same line are called Collinear Points. Points A, B, C, D, P, Q and R are collinear.	Non-Collinear Points Points not lying on the same line are Non-Collinear points.
Concurrent Lines Three or more lines passing through the same point are called concurrent lines. Point of intersection is called point of concurrence.	Non-Concurrent Lines Three or more lines which do not pass through the same point are non-concurrent lines.
Perpendicular Lines Lines intersecting each other at right angles.	Parallel Lines Two straight lines that are at the same distance and which do not meet each other are called parallel lines.
Intersecting Lines Lines which meet each other at a point are called intersecting lines. Point of meeting is called point of intersection.	Perpendicular Bisector A line which bisects a line segment at right angles.

M. Charts, Properties Of Circle

N. Charts, Addition Of Rational Numbers

PROPERTIES OF CIRCLE	
Perpendicular drawn from the centre of a circle to a chord bisects the chord. $OM \perp AB$ $AM = MB$	In a circle, line joining the centre of circle to the mid point of a chord is perpendicular to the chord. $OM \perp AB$ $OM \perp AB$
Equal chords of a circle are equidistant from the centre. $AB = PQ$ $OM = ON$	Chords of a circle equidistant from the centre are equal. $OM = ON$ $AB = PQ$
Equal chords of a circle subtend equal angles at the centre. $AB = PQ$ $\angle AOB = \angle POQ$	Chords of a circle which subtend equal angles at the centre are equal. $\angle AOB = \angle POQ = \alpha^\circ$ $AB = PQ$
Angle subtended by an arc at a circle at the centre is twice the angle subtended by it at any point of the alternate segment of the circle. $\angle AOB = 2\angle ACB$	Sun of either pair of opposite angles of a cyclic quadrilateral is 180° . In cyclic quadrilateral ABCD $\angle A + \angle C = 180^\circ$ $\angle B + \angle D = 180^\circ$









ADDITION OF RATIONAL NUMBERS	
1	Closure Property :- The sum of two rational numbers is always a rational number. If a and b are two rational numbers and $a + b = c$, then c is also a rational number.
2	Commutative Property :- Two rational numbers can be added in any order. If a and b are two rational numbers then $a + b = b + a$.
3	Associative Property :- Three rational numbers to be added can be grouped in any order. If a, b and c are three rational numbers then $(a + b) + c = a + (b + c)$.
4	Addition of Zero :- The sum of any rational number and zero is the rational number itself. 0 is a rational number such that for every rational number a , $a + 0 = 0 + a = a$.
5	Additive Inverse :- The negative of a rational number added to it makes 0. So, the + and - signs of a rational number are called the additive inverse of each other. For rational number a and $-a$, $a + (-a) = (-a) + a = 0$. $-a$ is additive inverse of a .
SUBTRACTION OF RATIONAL NUMBERS	
6	Closure Property :- The difference of two rational numbers is a rational number. If a and b are two rational numbers and $a - b = c$ then c is also a rational number.
7	Subtraction is not Commutative :- If a and b are two rational numbers and $a \neq b$, then $a - b \neq b - a$. If $a = b$, then $a - b = b - a = 0$.
8	Subtraction is not Associative :- If a, b and c are three rational numbers then $(a - b) - c \neq a - (b - c)$, $c \neq 0$.
9	Subtraction with Zero :- If a is a rational number then $a - 0 = a$ but $0 - a = -a$.

O. Charts, Circle

CIRCLE

Set of all points equidistant from a fixed point called centre, is a circle.

Radius: Fixed distance (OC) between centre and circle.
 Diameter: Chord (AOB) passing through centre.
 Diameter = 2 × radius.

<p>Circumference Perimeter of circle.</p>  <p>Circumference $C = 2\pi r$</p>	<p>Chord Line segment joining two points on the circle.</p>  <p>Diameter (PQ) is the longest chord.</p>
<p>Semicircle Perimeter of semicircle = πr</p> <p>Diameter divides the circle in two equal parts and each part is called semicircle.</p> 	<p>Arc Continuous piece of a circle is an arc.</p>  <p>PAQ is major arc. P BQ is minor arc.</p>
<p>Sector</p>  <p>Region lying between an arc and two radii joining end points of arc and centre is called sector. Sector with greater central angle is major sector. Sector with central angle of 90° is quadrant.</p>	<p>Segment</p>  <p>Two parts of a circular region divided by a chord are segments. Segment with major arc is major segment. Segment with minor arc is minor segment.</p>
<p>Area</p> <p>Region occupied by the circular disc is called Area of the circle.</p>  <p>Area of a circle = πr^2</p>	<p>Concentric Circles Circles with different radii and same centre.</p> 

$\pi = 22/7$ or 3.14 $r =$ Radius $\theta =$ Central angle
 $O =$ Centre of circle $C =$ Circumference

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