Grade 5 Math Formulas

Complete Formula Sheet

Based on Maharashtra Board Syllabus (NEP 2025-26)

Note:

This document contains a collection of key mathematical formulas and concepts typically covered in Grade 5.

Basic Arithmetic Formulas

Place Value

- Place value of a digit = Digit multiplied by the value of its position (e.g., in 523, place value of 2 is 2 multiplied by 10 = 20)
- Face value of a digit = The digit itself

Operations on Whole Numbers

- Addition: Sum = Addend + Addend
- Subtraction: Difference = Minuend - Subtrahend
- Multiplication: Product = Multiplicand multiplied by Multiplier
- Division: Dividend = Divisor multiplied by Quotient + Remainder

Properties of Operations (Basic)

- Commutative Property of Addition: a + b = b + a
- Commutative Property of Multiplication: a multiplied by b = b multiplied by a
- Associative Property of Addition: (a + b) + c = a + (b + c)
- Associative Property of Multiplication: (a multiplied by b) multiplied by c = a multiplied by (b multiplied by c)
- Distributive Property of Multiplication over Addition: a multiplied by (b + c) = a multiplied by b + a multiplied by c
- Identity Property of Addition: a + 0 = a (0 is the additive identity)
- Identity Property of Multiplication: a multiplied by 1 = a (1 is the multiplicative identity)
- Zero Property of Multiplication: a multiplied by 0 = 0

Fractions & Decimals Formulas

Fractions

- Fraction = Numerator / Denominator
- Proper Fraction: Numerator is less than Denominator (e.g., 1/2)
- Improper Fraction: Numerator is greater than or equal to Denominator (e.g., 3/2)
- Mixed Number: A combination of a whole number and a proper fraction (e.g., 1 and 1/2)
- Equivalent Fractions: Fractions that represent the same value (e.g., 1/2 = 2/4 = 3/6) - obtained by multiplying or dividing the numerator and denominator by the same non-zero number.

- Adding or Subtracting Fractions with Same Denominator: Add or subtract the numerators and keep the denominator the same.
- Converting Mixed Number to Improper Fraction: (Whole Number multiplied by Denominator + Numerator) / Denominator
- Converting Improper Fraction to Mixed Number: Divide the Numerator by the Denominator. The quotient is the whole number, the remainder is the new numerator, and the denominator stays the same.

Decimals

- Place Value in Decimals: ... Tens, Ones, . Tenths (1/10), Hundredths (1/100), Thousandths (1/1000) ...
- Converting Decimals to Fractions: Write the decimal digits as the numerator. The denominator is a power of 10 (10, 100, 1000, etc.) with the same number of zeros as decimal places. Simplify if possible. (e.g., 0.5 = 5/10 = 1/2)
- Converting Fractions to Decimals: Divide the numerator by the denominator. (e.g., 1/4 = 0.25)
- Adding or Subtracting Decimals: Line up the decimal points and add or subtract as with whole numbers.
- Multiplying a Decimal by 10, 100, 1000: Move the decimal point to the right by the number of zeros in 10, 100, or 1000.
- Dividing a Decimal by 10, 100, 1000: Move the decimal point to the left by the number of zeros in 10, 100, or 1000.

Geometry Formulas

Basic Geometric Concepts

- Point: A location in space, represented by a dot.
- Line: A straight path that extends infinitely in both directions.
- Ray: A part of a line that has one endpoint and extends infinitely in one direction.
- Line Segment: A part of a line that has two endpoints.
- Intersecting Lines: Lines that cross each other at one point.
- Parallel Lines: Lines that are always the same distance apart and never intersect.
- Perpendicular Lines: Lines that intersect to form a right angle (90 degrees).

Angles

- Angle: Formed by two rays sharing a common endpoint (vertex).
- Right Angle: Measures exactly 90 degrees.
- Acute Angle: Measures less than 90 degrees.
- Obtuse Angle: Measures greater than 90 degrees but less than 180 degrees.
- Straight Angle: Measures exactly 180 degrees (forms a straight line).

Polygons (Basic)

- Polygon: A closed shape made up of straight line segments.
- Triangle: A polygon with 3 sides and 3 angles.
- Quadrilateral: A polygon with 4 sides and 4 angles.
- Square: A quadrilateral with 4 equal sides and 4 right angles.

- Rectangle: A quadrilateral with 4 right angles and opposite sides equal.

Perimeter and Area

- Perimeter: The total distance around the outside of a shape.
- Area: The amount of surface a 2D shape covers.
- Perimeter of a Square = 4 multiplied by side
- Area of a Square = side multiplied by side or side squared
- Perimeter of a Rectangle = 2 multiplied by (length + width)
- Area of a Rectangle = length multiplied by width

End of Complete Formula Sheet - Grade 5

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