SOFTWARE & TECH

Math Vocabulary List With Definitions

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Introduction

Mathematics is often described as a universal language, but like any language, it has its own set of specialized terms and expressions. Without a solid grasp of the fundamental **math vocabulary list with definitions**, students and professionals alike can feel lost when tackling problems, discussing concepts, or reading mathematical texts. A clear understanding of these terms is the foundation for building confidence, solving complex problems, and connecting abstract ideas to real-world applications. Whether you are a parent helping with homework, a teacher looking for resources, or a student aiming to improve your math skills, this comprehensive guide will walk you through essential vocabulary organized by topic. Each section includes clear, concise definitions supported by examples to help you remember and use these terms naturally. Let us begin our journey through the key building blocks of mathematics.

Basic Arithmetic Vocabulary

Arithmetic forms the bedrock of all mathematics. Knowing the correct names for operations and their results is crucial for clear communication.

Addition and Subtraction

- Addition: The process of combining two or more numbers to find a total. The symbol is +. Example: 3 + 5 = 8.
- Sum: The result of an addition problem. In 3 + 5 = 8, the sum is 8.
- Addend: Any of the numbers being added together. In 3 + 5, both 3 and 5 are addends.
- Subtraction: The operation of taking one number away from another to find the difference. Symbol: " . Example: 9 " 4 = 5.
- Difference: The result of a subtraction problem. In 9 " 4 = 5, the difference is 5.
- Minuend: The number from which another number is subtracted. In 9 " 4, the minuend is 9.
- Subtrahend: The number that is subtracted. In 9 " 4, the subtrahend is 4.

Multiplication and Division

- Multiplication: The operation of adding a number to itself a certain number of times. Symbol: × or ·. Example: 4 × 3 = 12.
- Product: The result of multiplication. In 4 × 3 = 12, the product is 12.
- Factor: Any number being multiplied. In 4 × 3, both 4 and 3 are factors.
- Division: The operation of splitting a number into equal parts. Symbol: ÷ or /. Example: 10 ÷ 2 = 5.
- Quotient: The result of division. In 10 ÷ 2 = 5, the quotient is 5.
- Dividend: The number being divided. In 10 ÷ 2, the dividend is 10.
- Divisor: The number by which another number is divided. In 10 ÷ 2, the divisor is 2.
- Remainder: The amount left over after division when the dividend is not a multiple of the divisor. Example: 10 ÷ 3 = 3 with a remainder of 1.

Geometry Vocabulary

Geometry uses precise language to describe shapes, spaces, and their properties. Knowing these terms helps you visualize and solve spatial problems.

Points, Lines, and Angles

- Point: A exact location in space, usually represented by a dot. It has no size or dimension.
- Line: A straight, infinite set of points extending in both directions. It has no thickness.
- Line Segment: A part of a line with two distinct endpoints.
- Ray: A part of a line that starts at one endpoint and extends infinitely in one direction.
- Angle: The figure formed by two rays sharing a common endpoint (the vertex). Measured in degrees.
- Vertex: The common endpoint where two rays or line segments meet to form an angle.
- Right Angle: An angle that measures exactly 90°.
- Acute Angle: An angle measuring less than 90°.
- Obtuse Angle: An angle measuring more than 90° but less than 180°.
- Parallel Lines: Lines in the same plane that never meet, no matter how far extended.
- Perpendicular Lines: Lines that intersect at a right angle (90°).

Shapes and Figures

- Triangle: A three-sided polygon. Types include equilateral (all sides equal), isosceles (two sides equal), and scalene (no sides equal).
- Quadrilateral: A four-sided polygon. Examples: square, rectangle, parallelogram, rhombus, trapezoid.
- Polygon: A closed shape made of straight line segments. Named by number of sides (e.g., pentagon for 5 sides).
- Circle: A set of all points in a plane equidistant from a center point.
- Radius: The distance from the center of a circle to any point on the circle.
- Diameter: A line segment through the center connecting two points on the circle. It is twice the radius.
- Circumference: The perimeter or distance around a circle.
- Area: The amount of space inside a two-dimensional shape, measured in square units.
- Perimeter: The total distance around the boundary of a two-dimensional shape.
- Volume: The amount of space occupied by a three-dimensional object, measured in cubic units.

Algebra Vocabulary

Algebra introduces symbols and letters to represent numbers and relationships. Mastering its vocabulary unlocks higher-level math.

- Variable: A symbol, usually a letter, that represents an unknown or changeable number. Example: x in 2x + 3 = 7.
- Constant: A fixed value that does not change. In 2x + 3, the 3 is a constant.
- Coefficient: A number multiplied by a variable. In 2x, 2 is the coefficient of x.
- Expression: A mathematical phrase combining numbers, variables, and operations. Example: 4y " 7.
- Equation: A statement that two expressions are equal, shown by an equals sign. Example: 4y " 7 = 9.
- Term: A single part of an expression, separated by + or " signs. In 2x + 3, the terms are 2x and 3.
- Polynomial: An expression made up of variables, coefficients, and exponents, combined using addition, subtraction, and multiplication. Example: $3x^2$ + 2x " 5.
- Monomial: A polynomial with exactly one term. Example: $7x^3$.
- Binomial: A polynomial with two terms. Example: x + 4.
- Exponent: A small number written above and to the right of a base number, indicating how many times the base is multiplied by itself. In 5^3, the exponent is 3, meaning 5 × 5 × 5.
- Base: The number that is being multiplied by itself when raised to an exponent. In 5^3, the base is 5.
- Inequality: A mathematical statement that uses symbols like <, >, "d, or "e to compare values. Example: x

> 4.

- Function: A relation where each input (usually x) has exactly one output (usually y or f(x)). Example: f(x) = 2x + 1.

Statistics and Probability Vocabulary

Statistics and probability help us collect, analyze, and interpret data to make informed decisions.

- Data: A collection of facts, numbers, or information used for analysis.
- Mean: The average of a set of numbers. Calculated by adding all numbers and dividing by the count. Example: Mean of 2, 4, 6 is (2+4+6)/3 = 4.
- Median: The middle value in a data set when arranged in ascending order. If there is an even number of values, the median is the average of the two middle numbers.
- Mode: The value that appears most frequently in a data set. Sets can have one, more than one, or no mode.
- Range: The difference between the highest and lowest values in a data set. Example: For 3, 7, 12, the range is 12 " 3 = 9.
- Probability: A measure of how likely an event is to occur, expressed as a number between 0 and 1. Example: The probability of flipping a coin and getting heads is 1/2.
- Outcome: A possible result of a probability experiment. For a dice roll, outcomes are 1 through 6.
- Event: A specific set of outcomes. For example, rolling an even number on a die includes outcomes 2, 4, 6.
- Sample Space: The set of all possible outcomes. For a coin flip, sample space is {heads, tails}.
- Frequency: The number of times a particular data value or event occurs.
- Histogram: A bar graph that displays the frequency of data in intervals.

Fractions, Decimals, and Percentages

These interconnected concepts are essential for everyday calculations and more advanced math.

- Fraction: A number representing a part of a whole. Written as a numerator over a denominator. Example: 3/4 means 3 parts out of 4 equal parts.
- Numerator: The top number in a fraction. It shows how many parts are taken. In 3/4, the numerator is 3.
- Denominator: The bottom number in a fraction. It shows the total number of equal parts. In 3/4, the denominator is 4.
- Proper Fraction: A fraction where the numerator is smaller than the denominator (e.g., 2/5).
- Improper Fraction: A fraction where the numerator is greater than or equal to the denominator (e.g., 7/4).
- Mixed Number: A number made of a whole number and a proper fraction. Example: 1 3/4.
- Decimal: A number that uses a decimal point to show a fraction of ten, hundred, thousand, etc. Example: 0.75 equals 75/100.
- Percentage: A way of expressing a number as a part of 100, denoted by the % symbol. 75% means 75 per 100, or 0.75.

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