



Mathematics Benchmark Achievements Senior Math

Ages 12+

Learning for Life

Objectives at this age:

Continue with a systematic approach to developing math skills.

Please note that levels listed are not correlated with age or grade.

Develop confidence to use mathematics in practical applications in all areas of life, home management, and work.

Please note: If students are preparing for College, they should use the College-Bound Math Mastery Skills List instead of this one.

Math programs and curriculum may be selected to teach the following math concepts to prepare students to begin College Algebra.

Whole Numbers	Level 7	Level 8
System of numeration	x	
The Four Operations/combined operations	x	
Factors and multiples	x	
Prime numbers and prime factorization	x	
Greatest common factor	x	
Least common multiple	x	
Number patterns	x	
Variables	x	
Basic number laws (commutative, associative, distributive)	x	
Input / Output tables	x	
Fractions, Decimals, Approximation		
Equivalent, reduced, comparison, improper and mixed #'s	x	
Addition and subtraction	x	
Multiplication and division	x	
Decimals (Four operations: +, -, x, ÷)	x	
Approximation (Rounding and significant figures)	x	

Conversion between fractions and decimals	x	
Real Numbers		
The Number Line	x	
Negative numbers	x	
Adding and subtracting integers	x	
Multiplication of Integers	x	
Absolute value and additive inverse property of addition	x	
Signed integers and symbols in order of operations	x	
Division of integers	x	
Real numbers: rational and irrational	x	
Order of calculation	x	
Exponents		x
Squares and square roots		
Square roots introduction	x	
Perfect squares	x	
Add/subtract square roots	x	
Algebraic Expressions		
Algebraic notation	x	
Evaluation of algebraic expressions	x	
Terms, brackets, like terms	x	
Special algebraic rules and expanding products		x
Factorization		x
Rate, ratio, and percentage		
Rate and speed	x	
Ratio	x	
Direct and inverse proportions	x	
Percentage	x	
Word problems with rate, ratio, and percentages		x
Financial transactions and Business Math		
Calculating Unit Price		x
Calculating Total Cost		x
Price comparison based on unit price		x
Calculating percent increase		x
Calculating percent decrease		x
Wholesale price		x

Selling or Retail Price		x
Sale Price and discount		x
Calculating Markup and Markup rate		x
Calculating discount rate		x
Profit, loss, commissions and discounts	x	
Interest – simple and compound	x	
Principal and Interest rate		x
Calculate simple interest earned or spent over a period of time		x
Calculate compounded interest earned or spent over a period of time (semi-annually; quarterly)		x
Checking accounts – debits and credits		
Bank statements and balancing a checkbook		x
Mortgage – Loans for Real Estate		x
Loan Origination Fees		x
Monthly mortgage payments including both principal and interest		x
Taxation and money exchange	x	x
Car purchases including down payment, license fees and sales tax		x
Word problems using financial transactions		x
Payment for work: commissions, hourly wages, and salary		x
Commissions: Percent of sales		x
Hourly wage: calculating check amount based on hours worked		x
Yearly salary: calculating weekly, bi-weekly and monthly draw based on a yearly salary		x
Graphs		
The coordinate plane		x
Graphs of linear equations in two variables		x
Simple applications of straight line graphs		x
Geometry		
Line segment, line and angles	x	
Angle properties related to straight lines	x	
Perpendicular and parallel lines	x	

Angle properties related to parallel lines	x	
Polygons	x	
Angle properties of a triangle	x	
Isosceles and equilateral triangles	x	
Angle properties of a polygon	x	
Quadrilaterals	x	
Angle properties of a quadrilateral	x	
Congruent and similar triangles		x
Cones and pyramids – volume and area		x
Pythagorean theorem		x
Line symmetry	x	
Rotations symmetry	x	
Patterns	x	
Symmetry of a solid figure	x	
Nets of solid figures	x	
Area and Perimeter	x	
Perimeter and area of a polygon	x	
Circumference and area of circle	x	
Volume, surface area and density	x	
Statistics		
Collecting and presenting data		x
Reading data (Graphs – bar, line, circle, scatter plots)		x
Frequency distribution		x
Mean, mode, and median of frequency distributions		x
Types of averages		x
Probability		x
Identify certain and impossible events		x
Making decisions with probability		x