

Publisher:	Glencoe/McGraw-Hill
Program Title:	<i>Algebra 1</i> © 2005 California Edition
Components:	Student Edition (SE) Teacher Wraparound Edition (TWE)
Grade Level(s):	8 through 12
Intended Audience:	Students who are ready to move from basic mathematical and algebraic concepts to understanding and applying more advanced algebraic concepts.

**Standards Map - Basic Comprehensive Program  
Grades Eight Through Twelve - Mathematics**

The standards for grades eight through twelve are organized differently from those for kindergarten through grade seven. In this section strands are not used for organizational purposes as they are in the elementary grades because the mathematics studied in grades eight through twelve falls naturally under discipline headings: algebra, geometry, and so forth. Many schools teach this material in traditional courses; others teach it in an integrated fashion. To allow local educational agencies and teachers flexibility in teaching the material, the standards for grades eight through twelve do not mandate that a particular discipline be initiated and completed in a single grade. The core content of these subjects must be covered; students are expected to achieve the standards however these subjects are sequenced.

			PUBLISHER CITATIONS*			Meets Standard		FOR LEA USE ONLY
Grade	Standard #	Text of Standard	Introduced	Practiced	Taught to Mastery	Y	N	Local Education Agency Evaluator Notes
<b>DISCIPLINE</b>		<b>Algebra I</b> Symbolic reasoning and calculations with symbols are central in algebra. Through the study of algebra, a student develops an understanding of the symbolic language of mathematics and the sciences. In addition, algebraic skills and concepts are developed and used in a wide variety of problem-solving situations.						
8-12	1.0	Students identify and use the arithmetic properties of subsets of integers and rational, irrational, and real numbers, including closure properties for the four basic arithmetic operations where applicable:	SE: 25 #41-#43, 26-31, 32-36	SE: 25 #41-#43, 26-31, 32-36, 42 #61-#66, 48 #28, 59 #48-#53, 60 #54-#75 TWE: 25	SE: 36 #1-#10, 63 #14-#15 TWE: 25, 31, 36			

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						Y	N	
8-12	1.1	Students use properties of numbers to demonstrate whether assertions are true or false.	SE: 25 #41-#43, 26-31, 32-36	SE: 25 #41-#43, 26-31, 32-36, 42 #61-#66, 48 #28, 59 #48-#53, 60 #54-#75 TWE: 25	SE: 36 #1-#10, 63 #14-#15 TWE: 25, 31, 36			
8-12	2.0	Students understand and use such operations as taking the opposite, finding the reciprocal, taking a root, and raising to a fractional power. They understand and use the rules of exponents.	SE: 21, 103-109, 410-415, 417-423	SE: 103-109, 114 #60-#70, 410-415, 417-423, 430 #68-#70, 436 #65-#68, 465 #65-#68 TWE: 106, 412, 419	SE: 115 #25-#27, 430 #1-#6, 469 #4-#11, 471 #16 TWE: 106, 109, 415, 423			
8-12	3.0	Students solve equations and inequalities involving absolute values.	SE: 345-351	SE: 345-351, 357 #49-#51, 362 #42-#49 TWE: 346	TWE: 363 #15-#16 TWE: 351			
8-12	4.0	Students simplify expressions before solving linear equations and inequalities in one variable, such as $3(2x-5) + 4(x-2) = 12$ .	SE: 141, 142-148, 149-154, 332-337	SE: 141, 142-148, 149-154, 159 #40-#45, 332-337, 351 #60-#62, 357 #57-#59, 361 #27-#35 TWE: 333, 334	SE: 185 #12-#30, 187 #15, 363 #5-#13, 365 #16 TWE: 148, 154, 337			
8-12	5.0	Students solve multistep problems, including word problems, involving linear equations and linear inequalities in one variable and provide justification for each step.	SE: 141, 142-148, 149-154, 332-337	SE: 141, 142-148, 149-154, 159 #40-#45, 332-337, 351 #60-#62, 357 #57-#59, 361 #27-#35 TWE: 333, 334	SE: 185 #12-#30, 187 #15, 363 #5-#13, 365 #16 TWE: 148, 154, 337			
8-12	6.0	Students graph a linear equation and compute the x- and y-intercepts (e.g., graph $C262x + 6y = 4$ ). They are also able to sketch the region defined by linear inequality (e.g., they sketch the region defined by $(2x + 6y < 4)$ ).	SE: 218-223, 352-357, 358	SE: 218-223, 231 #56-#58, 249 #31-#36, 305 #50-#52, 310 #31-#36, 352-357, 358, 362 #50-#57 TWE: 219, 220	SE: 251 #14-#15, 313 #8-#10, 363 #27-#29, 365 #18 TWE: 223, 357			

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8-12	7.0	Students verify that a point lies on a line, given an equation of the line. Students are able to derive linear equations by using the point-slope formula.	SE: 280-285, 286-291	SE: 280-285, 286-291, 305 #47-#49, 310 #37-#44, 311 #45-#53 TWE: 282	SE: 294 #1-#5, 313 #15-#20, 314 #8, 315 #11 TWE: 285, 291			
8-12	8.0	Students understand the concepts of parallel lines and perpendicular lines and how those slopes are related. Students are able to find the equation of a line perpendicular to a given line that passes through a given point.	SE: 292-297	SE: 292-297, 305 #45-#46, 312 #54-#65 TWE: 294	SE: 297 #4, 313 #17, 314 #9, 315 #11 TWE: 297			
8-12	9.0	Students solve a system of two linear equations in two variables algebraically and are able to interpret the answer graphically. Students are able to solve a system of two linear inequalities in two variables and to sketch the solution sets.	SE: 368, 369-374, 375, 376-381, 382-386, 387-392, 394-398	SE: 368, 369-374, 375, 376-381, 382-386, 387-392, 394-398, 399-402	SE: 381 #1-#5, 392 #1-#5, 403 TWE: 374, 381, 386, 392, 398			
8-12	10.0	Students add, subtract, multiply, and divide monomials and polynomials. Students solve multistep problems, including word problems, by using these techniques.	SE: 410-415, 417-423, 437-438, 439-443, 444-449, 450-451, 452-457, 458-463	SE: 410-415, 417-423, 430 #68-#70, 437-438, 439-443, 444-449, 450-451, 452-457, 458-463, 464-465	SE: 430 #1-#6, 449 #7-#10, 469 #4-#11, 470 #10, 471 #18 TWE: 415, 423, 443, 451, 457, 463			
8-12	11.0	Students apply basic factoring techniques to second- and simple third-degree polynomials. These techniques include finding a common factor for all terms in a polynomial, recognizing the difference of two squares, and recognizing perfect squares of binomials.	SE: 480, 481-486, 487-488, 489-494, 495-500, 501-506, 508-514	SE: 480, 481-486, 487-488, 489-494, 495-500, 501-506, 508-514, 516-518	SE: 519 #10-#27, 521 #20 TWE: 486, 494, 500, 506, 514			
8-12	12.0	Students simplify fractions with polynomials in the numerator and denominator by factoring both and reducing them to the lowest terms.	SE: 648-653, 654	SE: 648-653, 654, 665 #7-#12, 697 #11-#14 TWE: 650	SE: 659 #3-#6, 701 #6-#11, 703 #14 TWE: 653, 654			

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8-12	13.0	Students add, subtract, multiply, and divide rational expressions and functions. Students solve both computationally and conceptually challenging problems by using these techniques.	SE: 655-659, 660-664, 672-677, 678-683	SE: 655-659, 660-664, 672-677, 678-683, 689 #46-#53, 695 #42-#44, 697 #15-#20, 698 #21-#24 TWE: 656, 674	SE: 659 #7-#10, 677 #1-#3, 701 #12-#21 TWE: 659, 664, 677, 683			
8-12	14.0	Students solve a quadratic equation by factoring or completing the square.	SE: 539-544	SE: 539-544, 552 #57-#59	SE: 544 #7-#10 TWE: 544			
8-12	15.0	Students apply algebraic techniques to solve rate problems, work problems, and percent mixture problems.	SE: 171-172, 178, 691 ex 4, 692 ex 4	SE: 174 #11-#14, 175 #15-#18, 176 #35, 178, 184 #54-#55, 694 #30-#35, 695 #33-#34 TWE: 172	SE: 185 #28, 187 #19, 701 #24, 703 #15			
8-12	16.0	Students understand the concepts of a relation and a function, determine whether a given relation defines a function, and give pertinent information about given relations and functions.	SE: 205-211, 226-231	SE: 205-211, 226-231, 245 #41, 248 #21-#23 TWE: 227	SE: 211 #7-#10, 231 #6-#7, 251 #17-#19 TWE: 211, 231			
8-12	17.0	Students determine the domain of independent variables and the range of dependent variables defined by a graph, a set of ordered pairs, or a symbolic expression.	SE: 205-211, 226-231	SE: 205-211, 248 #21-#24	SE: 211 #7-#10 TWE: 211			
8-12	18.0	Students determine whether a relation defined by a graph, a set of ordered pairs, or a symbolic expression is a function and justify the conclusion.	SE: 205-211, 226-231	SE: 205-211, 226-231, 245 #41, 248 #21-#23 TWE: 227	SE: 211 #7-#10, 231 #6-#7, 251 #17-#19 TWE: 211, 231			
8-12	19.0	Students know the quadratic formula and are familiar with its proof by completing the square.	SE: 587-588 TWE: 547	SE: 587-588 TWE: 547, 588	TWE: 588			
8-12	20.0	Students use the quadratic formula to find the roots of a second-degree polynomial and to solve quadratic equations.	SE: 546-552	SE: 546-552, 560 #48-#50, 565 #36-#38, 577 #29-#34	SE: 560 #1-#3, 579 #12-#20, 580 #9, 591 #21d TWE: 552			

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8-12	21.0	Students graph quadratic functions and know that their roots are the x-intercepts.	SE: 524-530, 531-532, 533-538	SE: 524-530, 531-532, 533-538, 575 #17-#22	SE: 580 #9, 581 #21d TWE: 530, 538			
8-12	22.0	Students use the quadratic formula or factoring techniques or both to determine whether the graph of a quadratic function will intersect the x-axis in zero, one, or two points.	SE: 524-530, 531-532, 533-538	SE: 524-530, 531-532, 533-538, 575 #17-#22	SE: 580 #9, 581 #21d TWE: 530, 538			
8-12	23.0	Students apply quadratic equations to physical problems, such as the motion of an object under the force of gravity.	SE: 535 ex 6, 548 ex 3	SE: 529 #38-#49, 543 #49, 551 #46-#47	SE: 581 #22			
8-12	24.0	Students use and know simple aspects of a logical argument:	SE: 37-42	SE: 37-42, 55 #23-#25, 61 #76-#79	SE: 63 #19-#20 TWE: 42			
8-12	24.1	Students explain the difference between inductive and deductive reasoning and identify and provide examples of each.	SE: 38	SE: 39 #3, 239 TWE: 239	SE: 239 TWE: 239			
8-12	24.2	Students identify the hypothesis and conclusion in logical deduction.	SE: 37-42	SE: 39 #3, 48 #26-#27	TWE: 42			
8-12	24.3	Students use counterexamples to show that an assertion is false and recognize that a single counterexample is sufficient to refute an assertion.	SE: 37-42	SE: 37-42, 55 #23-#25, 61 #76-#79	SE: 63 #19-#20 TWE: 42			
8-12	25.0	Students use properties of the number system to judge the validity of results, to justify each step of a procedure, and to prove or disprove statements:	SE: 25 #41-#43, 26-31, 32-36	SE: 25 #41-#43, 26-31, 32-36, 42 #61-#66, 48 #28, 59 #48-#53, 60 #54-#75 TWE: 25	SE: 36 #1-#10, 63 #14-#15 TWE: 25, 31, 36			
8-12	25.1	Students use properties of numbers to construct simple, valid arguments (direct and indirect) for, or formulate counterexamples to, claimed assertions.	SE: 37-42	SE: 37-42, 55 #23-#25, 61 #76-#79	SE: 63 #19-#20 TWE: 42			
8-12	25.2	Students judge the validity of an argument according to whether the properties of the real number system and the order of operations have been applied correctly at each step.	SE: 25 #41-#43, 26-31, 32-36	SE: 25 #41-#43, 26-31, 32-36, 42 #61-#66, 48 #28, 59 #48-#53, 60 #54-#75 TWE: 25	SE: 36 #1-#10, 63 #14-#15 TWE: 25, 31, 36			

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8-12	25.3	Given a specific algebraic statement involving linear, quadratic, or absolute value expressions or equations or inequalities, students determine whether the statement is true sometimes, always, or never.	SE: 42 #50, 330 #52, 414 #55-#57, 694 #3	SE: 42 #50, 330 #52, 414 #55-#57, 694 #3				
<b>DISCIPLINE</b>		<b>Geometry</b> The geometry skills and concepts developed in this discipline are useful to all students. Aside from learning these skills and concepts, students will develop their ability to construct formal, logical arguments and proofs in geometric settings and problems.						
8-12	1.0	Students demonstrate understanding by identifying and giving examples of undefined terms, axioms, theorems, and inductive and deductive reasoning.	SE: 38	SE: 39 #3, 239 TWE: 239	SE: 239 TWE: 239			
8-12	2.0	Students write geometric proofs, including proofs by contradiction.	See Glencoe's <i>Geometry</i> © 2005.	See Glencoe's <i>Geometry</i> © 2005.	See Glencoe's <i>Geometry</i> © 2005.			
8-12	3.0	Students construct and judge the validity of a logical argument and give counterexamples to disprove a statement.	SE: 37-42	SE: 37-42, 55 #23-#25, 61 #76-#79	SE: 63 #19-#20 TWE: 42			
8-12	4.0	Students prove basic theorems involving congruence and similarity.	SE: 616-621	SE: 616-621, 630 #70, 636 #51-#54	SE: 621 #9-#10, 637 #22-#25 TWE: 621			
8-12	5.0	Students prove that triangles are congruent or similar, and they are able to use the concept of corresponding parts of congruent triangles.	SE: 616-621	SE: 616-621, 630 #70, 636 #51-#54	SE: 621 #9-#10, 637 #22-#25 TWE: 621			
8-12	6.0	Students know and are able to use the triangle inequality theorem.	See Glencoe's <i>Geometry</i> © 2005.	See Glencoe's <i>Geometry</i> © 2005.	See Glencoe's <i>Geometry</i> © 2005.			

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8-12	7.0	Students prove and use theorems involving the properties of parallel lines cut by a transversal, the properties of quadrilaterals, and the properties of circles.	See Glencoe's <i>Geometry</i> © 2005.	See Glencoe's <i>Geometry</i> © 2005.	See Glencoe's <i>Geometry</i> © 2005.			
8-12	8.0	Students know, derive, and solve problems involving the perimeter, circumference, area, volume, lateral area, and surface area of common geometric figures.	SE: 122, 813-814, 815-816, 817	SE: 122, 124 #23-#26, 813-814, 815-816, 817	SE: 813-814, 815-816, 817			
8-12	9.0	Students compute the volumes and surface areas of prisms, pyramids, cylinders, cones, and spheres; and students commit to memory the formulas for prisms, pyramids, and cylinders.	SE: 124-125, 416, 817	SE: 124-125, 414 #46-#48, 415 #60, 416, 456 #43, 817	TWE: 416			
8-12	10.0	Students compute areas of polygons, including rectangles, scalene triangles, equilateral triangles, rhombi, parallelograms, and trapezoids.	SE: 813-814	SE: 813-814				
8-12	11.0	Students determine how changes in dimensions affect the perimeter, area, and volume of common geometric figures and solids.	SE: 416	SE: 416	TWE: 416			
8-12	12.0	Students find and use measures of sides and of interior and exterior angles of triangles and polygons to classify figures and solve problems.	See Glencoe's <i>Geometry</i> © 2005.	See Glencoe's <i>Geometry</i> © 2005.	See Glencoe's <i>Geometry</i> © 2005.			
8-12	13.0	Students prove relationships between angles in polygons by using properties of complementary, supplementary, vertical, and exterior angles.	See Glencoe's <i>Geometry</i> © 2005.	See Glencoe's <i>Geometry</i> © 2005.	See Glencoe's <i>Geometry</i> © 2005.			
8-12	14.0	Students prove the Pythagorean theorem.	See Glencoe's <i>Geometry</i> © 2005.	See Glencoe's <i>Geometry</i> © 2005.	See Glencoe's <i>Geometry</i> © 2005.			
8-12	15.0	Students use the Pythagorean theorem to determine distance and find missing lengths of sides of right triangles.	SE: 605-610	SE: 605-610, 615 #47-#50, 634 #31-#36	SE: 621 #1-#4, 637 #16-#18 TWE: 610			

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8-12	16.0	Students perform basic constructions with a straightedge and compass, such as angle bisectors, perpendicular bisectors, and the line parallel to a given line through a point off the line.	See Glencoe's <i>Geometry</i> © 2005.	See Glencoe's <i>Geometry</i> © 2005.	See Glencoe's <i>Geometry</i> © 2005.			
8-12	17.0	Students prove theorems by using coordinate geometry, including the midpoint of a line segment, the distance formula, and various forms of equations of lines and circles.	SE: 196 #48-#50, 611-615	SE: 196 #48-#50, 611-615, 621 #39-#42, 630 #72-#73, 635 #41-#50 TWE: 612, 613	SE: 621 #5-#8, 637 #19-#21 TWE: 615			
8-12	18.0	Students know the definitions of the basic trigonometric functions defined by the angles of a right triangle. They also know and are able to use elementary relationships between them. For example, $\tan(x) = \sin(x)/\cos(x)$ , $(\sin(x))^2 + (\cos(x))^2 = 1$ .	SE: 622, 623-630	SE: 622, 623-630, 636 #55-#66	SE: 637 #22-#25 TWE: 622, 630			
8-12	19.0	Students use trigonometric functions to solve for an unknown length of a side of a right triangle, given an angle and a length of a side.	SE: 626 ex 5	SE: 629 #61-#62, 630 #63-#64, 639 #29	SE: 637 #29			
8-12	20.0	Students know and are able to use angle and side relationships in problems with special right triangles, such as 30°, 60°, and 90° triangles and 45°, 45°, and 90° triangles.	See Glencoe's <i>Geometry</i> © 2005.	See Glencoe's <i>Geometry</i> © 2005.	See Glencoe's <i>Geometry</i> © 2005.			
8-12	21.0	Students prove and solve problems regarding relationships among chords, secants, tangents, inscribed angles, and inscribed and circumscribed polygons of circles.	See Glencoe's <i>Geometry</i> © 2005.	See Glencoe's <i>Geometry</i> © 2005.	See Glencoe's <i>Geometry</i> © 2005.			
8-12	22.0	Students know the effect of rigid motions on figures in the coordinate plane and space, including rotations, translations, and reflections.	SE: 197-203	SE: 197-203, 211 #57-#59, 217 #59-#60, 247 #17-#20	SE: 211 #5-#6, 251 #6-#7 TWE: 203			

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<b>DISCIPLINE</b>		<b>Probability and Statistics</b> This discipline is an introduction to the study of probability, interpretation of data, and fundamental statistical problem solving. Mastery of this academic content will provide students with a solid foundation in probability and facility in processing statistical information.						
8-12	1.0	Students know the definition of the notion of <i>independent events</i> and can use the rules for addition, multiplication, and complementation to solve for probabilities of particular events in finite sample spaces.	SE: 769-776	SE: 769-776, 781 #27-#29, 791 #18-#23	SE: 793 #9-#12 TWE: 776			
8-12	2.0	Students know the definition of <i>conditional probability</i> and use it to solve for probabilities in finite sample spaces.	SE: 769-776	SE: 769-776, 781 #27-#29, 791 #18-#23	SE: 793 #9-#12 TWE: 776			
8-12	3.0	Students demonstrate an understanding of the notion of <i>discrete random variables</i> by using them to solve for the probabilities of outcomes, such as the probability of the occurrence of five heads in 14 coin tosses.	SE: 777-781	SE: 777-781, 791 #24-#26	SE: 781 #1-#3, 793 #21-#24 TWE: 781			
8-12	4.0	Students are familiar with the standard distributions (normal, binomial, and exponential) and can use them to solve for events in problems in which the distribution belongs to those families.	See Glencoe's <i>Advanced Mathematical Concepts</i> © 2005.	See Glencoe's <i>Advanced Mathematical Concepts</i> © 2005.	See Glencoe's <i>Advanced Mathematical Concepts</i> © 2005.			
8-12	5.0	Students determine the mean and the standard deviation of a normally distributed random variable.	See Glencoe's <i>Advanced Mathematical Concepts</i> © 2005.	See Glencoe's <i>Advanced Mathematical Concepts</i> © 2005.	See Glencoe's <i>Advanced Mathematical Concepts</i> © 2005.			

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8-12	6.0	Students know the definitions of the <i>mean</i> , <i>median</i> , and <i>mode</i> of a distribution of data and can compute each in particular situations.	SE: 90-94, 818-819	SE: 67 #17-#19, 87 #74-#77, 90-94, 109 #84, 113 #50-#51, 818-819	SE: 115 #32, 116 #7, 818-819 TWE: 94			
8-12	7.0	Students compute the variance and the standard deviation of a distribution of data.	See Glencoe's <i>Advanced Mathematical Concepts</i> © 2005.	See Glencoe's <i>Advanced Mathematical Concepts</i> © 2005.	See Glencoe's <i>Advanced Mathematical Concepts</i> © 2005.			
8-12	8.0	Students organize and describe distributions of data by using a number of different methods, including frequency tables, histograms, standard line and bar graphs, stem-and-leaf displays, scatterplots, and box-and-whisker plots.	SE: 50-55, 56, 298-305, 722-728, 737-742	SE: 50-55, 56, 298-305, 312 #66-#70, 722-728, 736 #38, 737-742, 748 #29-#31 TWE: 724	SE: 313 #21, 736 #1-#2, 749 #14-#15, 750 #9-#10, 751 #19-#20 TWE: 55, 56, 305, 728, 742			

Publisher Notes/Additional Comments (note to publishers: please include grade level/standard when listing comments):

\* For more information, see Notes.  
Math 8-12th Grade Standards Map --Approved by the State Board of Education on February 6, 2002.