

## STANDARDS MAP

### Grade Eight – Mathematics (Algebra I)

Stand. #	Standard	Publisher Comments		IMAP/CRP Meets Standard		IMAP/CRP Notes
		Primary Citations	Supporting Citations	Y	N	
	<b>ALGEBRA I</b>					
<b>1.0</b>	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: pp. 21-25, 26-31, 68-72, 73-78, 79-83, 84-87	SE: pp. 32-36			
1.1	Students use properties of numbers to demonstrate whether assertions are true or false.	SE: p. 25 (Exercises 41-43)	SE: pp. 414 (Exercises 55-57), 477 (Exercise 1), 479 (Exercise 68) MCS: pp. 17-18			
<b>2.0</b>	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: pp. 103-109, 410-415, 417-423, 586-592	SE: pp. 21-25, 73-78, 425-430, 800-801 MCS: pp. 19-20			
<b>3.0</b>	Students solve equations and inequalities involving absolute values.	SE: pp. 345-351	MCS: pp. 21-22			
<b>4.0</b>	Students simplify expressions before solving linear equations and inequalities in one variable, such as $3(2x-5) + 4(x-2) = 12$ .	SE: pp. 149-154	SE: pp. 80-86, 135-140, 142-148, 171-177, 318-323, 332-337 MCS: pp. 23-24			
<b>5.0</b>	Students solve multistep problems, including word problems, involving linear equations and linear inequalities in one variable and provide justification for each step.	SE: pp. 142-148, 160-164, 332-337	SE: pp. 149-154, 171-177, 318-323 MCS: pp. 25-26			

SE = Student Edition; MCS = *Mastering the California Standards: Diagnose-Prescribe-Practice Workbook, Algebra 1*

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6.0	Students graph a linear equation and compute the $x$ - and $y$ - intercepts (e.g., graph $2x + 6y = 4$ ). They are also able to sketch the region defined by linear inequality (e.g., they sketch the region defined by $2x + 6y < 4$ ).	SE: pp. 218-223, 224-225, 352-357, 358	SE: pp. 272-277, 278-279, 369-375, 394-398 MCS: pp. 27-28			
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: pp. 286-291	SE: pp. 212-217 MCS: pp. 29-30			
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: pp. 292-297	SE: pp. 369-374 MCS: pp. 31-32			
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: pp. 375, 376-381, 382-386, 387-392, 394-398	SE: pp. 369-374 MCS: pp. 33-34			
10.0	Students add, subtract, multiply, and divide monomials and polynomials. Students solve multistep problems, including word problems, by using these techniques.	SE: pp. 437-438, 439-443, 444-449, 450-451, 452-457, 458-463, 666-671	SE: pp. 29-31, 80-83, 410-415, 417-423 MCS: pp. 35-36			
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: pp. 474-479, 480, 481-486, 487-488, 489-494, 495-500, 501-506, 508-514	SE: pp. 648-653, 654, 655-659, 660-664, 666-671, 672-677, 678-683 MCS: pp. 37-38			
12.0	Students simplify fractions with polynomials in the numerator and denominator by factoring both and reducing them to the lowest terms.	SE: pp. 648-653, 654, 665	SE: pp. 655-659, 660-664, 665, 666-671, 672-677, 678-683, 684-689, 690-695 MCS: pp. 39-40			

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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: pp. 655-659, 660-664, 672-677, 678-683, 684-689	SE: pp. 690-695 MCS: pp. 41-42			
14.0	Students solve a quadratic equation by factoring or completing the square.	SE: pp. 539-544	SE: pp. 483-486, 491-493, 497-500, 503-506, 510-514 MCS: pp. 43-44			
15.0	Students apply algebraic techniques to solve rate problems, work problems, and percent mixture problems.	SE: pp. 155-159, 171-177, 690-695	SE: pp. 378-380, 390-392 MCS: pp. 45-46			
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: pp. 205-211	SE: pp. 43-48, 212-217, 226-231 MCS: pp. 47-48			
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: pp. 43-48, 212-217	SE: pp. 205-210, 218-223 MCS: pp. 49-50			
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: pp. 226-231	MCS: pp. 51-52			
19.0	Students know the quadratic formula and are familiar with its proof by completing the square.	SE: pp. 546-552	SE: pp. 539-544, 586-592 MCS: pp. 53-54			
20.0	Students use the quadratic formula to find the roots of a second-degree polynomial and to solve quadratic equations.	SE: pp. 546-552	MCS: pp. 55-56			
21.0	Students graph quadratic functions and know that their roots are the x-intercepts.	SE: pp. 533-538	SE: pp. 524-530 MCS: pp. 57-58			

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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: pp. 546-552	MCS: pp. 59-60			
23.0	Students apply quadratic equations to physical problems, such as the motion of an object under the force of gravity.	SE: pp. 524-530	SE: pp. 533-538, 541 (Example 4), 548 (Example 3), 551 (Exercises 46-48) MCS: pp. 61-62			
24.0	Students use and know simple aspects of a logical argument:	SE: pp. 37-42				
24.1	Students explain the difference between inductive and deductive reasoning and identify and provide examples of each.	SE: pp. 239, 240-245	SE: pp. 37-42 MCS: pp. 63-64			
24.2	Students identify the hypothesis and conclusion in logical deduction.	SE: pp. 37-42	MCS: pp. 65-66			
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: pp. 37-42, 434 (Exercise 3)	SE: pp. 152 (Exercise 3), 228 (Exercise 3), 330 (Exercise 2), 371 (Exercise 3), 414 (Exercises 55-57), 479 (Exercise 68), 536 (Exercise 3), 694 (Exercise 3) MCS: pp. 67-68			

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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: pp. 32-36	SE: pp. 21-25, 26-31			
25.1	Students use properties of numbers to construct simple, valid arguments (direct and indirect) for, or formulate counterexamples to, claimed assertions.	SE: pp. 37-42, 330 (Exercise 52)	SE: pp. 21-25, 26-31, 32-36, 152 (Example 3), 228 (Exercise 3), 330 (Exercise 52), 371 (Exercise 3), 414 (Exercises 55-57), 434 (Exercise 3), 477 (Exercise 1), 479 (Exercise 68), 536 (Exercise 3), 694 (Exercise 3) MCS: pp. 69-70			
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: pp. 11-15, 16-20	SE: pp. 21-25, 26-31, 32-36 MCS: pp. 71-72			
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: p. 132 (Exercises 49-50)	SE: pp. 147 (Exercise 55), 323 (Exercise 53), 350 (Exercise 52), 371 (Exercise 2), 456 (Exercise 54) MCS: pp. 73-74			

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