

# POWER STANDARDS FOR ALGEBRA 2

## Algebra and Trigonometry

### Structure and Method Book 2 (McDougal Littell 2000)

Standard	Activities (textbook sections)	Assessment (How skills are measured)
<b>1.0</b> Students solve equations and inequalities involving absolute value.	2-4	Teacher generated tests and quizzes are given for each chapter.
<b>2.0</b> Students solve systems of linear equations and inequalities (in two or three variables) by substitution, with graphs, or with matrices.	3-5, 3-7 9-9, 16-9	Problems testing the standards should be similar to those assigned for homework.  Resource materials are provided in the textbook.
<b>3.0</b> Students are adept at operations on polynomials, including long division.	4-1, 4-2, 4-3 8-3	There are also supplementary materials in the resource files provided with each teacher's edition of the textbook.
<b>4.0</b> Students factor polynomials representing the difference of squares, perfect square trinomials, and the sum and difference of two cubes.	4-5	See the Algebra 2 section leader for more information.
<b>5.0</b> Students demonstrate knowledge of how real and complex numbers are related both arithmetically and graphically. In particular, they can plot complex numbers as points in the plane.	6-8	Tests or Quizzes incorporate review questions from standards.  Quarterly Benchmark Tests  California State Standards Test  UCLA diagnostic test
<b>6.0</b> Students add, subtract, multiply, and divide complex numbers.	6-8	Department finals
<b>7.0</b> Students add, subtract, multiply, divide, reduce, and evaluate rational expressions with monomial and polynomial denominators and simplify complicated rational expressions, including those with negative exponents in the denominator.	5-4, 5-5, 5-6	
<b>8.0</b> Students solve and graph	4-7, 4-8,	

The Power Standards are listed in bold print. These are the standards that have 3 or more questions per standard according to CA Blueprint (10/2002)

9/2011

<p><b>quadratic equations by factoring, completing the square, or using the quadratic formula. Students apply these techniques in solving word problems. They also solve quadratic equations in the complex number system.</b></p>	<p>7-1, 7-2</p>	
<p><b>9.0</b> Students demonstrate and explain the effect that changing a coefficient has on the graph of quadratic functions; that is, students can determine how the graph of a parabola changes as <math>a</math>, <math>b</math>, and <math>c</math> vary in the equation <math>y = a(x-b)^2 + c</math>.</p>	<p>7-5</p>	
<p><b>10.0</b> Students graph quadratic functions and determine the maxima, minima, and zeros of the function.</p>	<p>7-6</p>	
<p><b>11.0</b> Students prove simple laws of logarithms.</p>	<p>10-5</p>	
<p><b>11.1</b> Students understand the inverse relationship between exponents and logarithms and use this relationship to solve problems involving logarithms and exponents.</p>	<p>10-1 through 10-5</p>	
<p><b>11.2</b> Students judge the validity of an argument according to whether the properties of real numbers, exponents, and logarithms have been applied correctly at each step. .</p>	<p>10-1 through 10-5</p>	
<p><b>12.0</b> Students know the laws of fractional exponents, understand exponential functions, and use these functions in problems involving exponential growth and decay.</p>	<p>10-1 10-6 10-7 10-8</p>	
<p><b>13.0</b> Students use the definition of logarithms to translate between logarithms in any base.</p>	<p>10-6</p>	

The Power Standards are listed in bold print. These are the standards that have 3 or more questions per standard according to CA Blueprint (10/2002)

<p><b>14.0</b> Students understand and use the properties of logarithms to simplify logarithmic numeric expressions and to identify their approximate values.</p>	<p>10-5</p>	
<p><b>15.0</b> Students determine whether a specific algebraic statement involving rational expressions, radical expressions, or logarithmic or exponential functions is sometimes true, always true, or never true.</p>	<p>10-1 through 10-5</p>	
<p><b>16.0</b> Students demonstrate and explain how the geometry of the graph of a conic section (e.g., asymptotes, foci, eccentricity) depends on the coefficients of the quadratic equation representing it.</p>	<p>9-2 9-3 9-4 9-5</p>	
<p><b>17.0</b> Given a quadratic equation of the form <math>ax^2 + by^2 + cx + dy + e = 0</math>, students can use the method for completing the square to put the equation into standard form and can recognize whether the graph of the equation is a circle, ellipse, parabola, or hyperbola. Students can then graph the equation.</p>	<p>9-2 9-3 9-4 9-5 9-6</p>	
<p><b>18.0</b> Students use fundamental counting principles to compute combinations and permutations.</p>	<p>15-6, 15-6, 15-7</p>	
<p><b>19.0</b> Students use combinations and permutations to compute probabilities. .</p>	<p>15-9</p>	
<p><b>20.0</b> Students know the binomial theorem and use it to expand binomial expressions that are raised to positive integer powers.</p>	<p>11-7 11-8</p>	
<p><b>21.0</b> Students apply the method of mathematical induction to prove general statements about the positive</p>	<p>Page 523</p>	

The Power Standards are listed in bold print. These are the standards that have 3 or more questions per standard according to CA Blueprint (10/2002) 9/2011

integers.		
<b>22.0</b> Students find the general term and the sums of arithmetic series and of both finite and infinite geometric series.	11-2 through 11-6	
<b>23.0</b> Students derive the summation formulas for arithmetic series and for both finite and infinite geometric series.	11-2, 11-3, 11-4	
<b>24.0</b> Students solve problems involving functional concepts, such as composition, defining the inverse function and performing arithmetic operations on functions.	3-8 10-3	
<b>25.0</b> Students use properties from number systems to justify steps in combining and simplifying functions.	1-3	
<b>Probability and Statistics</b>		
<b>PS 1.0</b> 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.	15-8, 15-9, 15-10	
<b>PS 2.0</b> Students know the definition of <i>conditional probability</i> and use it to solve for probabilities in finite sample spaces.	15-8, 15-9, 15-10	
<b>PS 7.0</b> Students compute the variance and the standard deviation of a distribution of data.	15-8, 15-9, 15-10	