

Algebra II 2011-2012 Benchmark Blueprint

Green Dot Public Schools

Assessments

Algebra II		1	2	3	4
1.0	Students solve equations and inequalities involving absolute value.	4			
2.0	Students solve systems of linear equations and inequalities (in two or three variables) by substitution, with graphs, or with matrices. •1: no matrices only two variable equations •2: no matrices only two and three variable equations •4: no matrices only inequalities	4	3		3
3.0	Students are adept at operations on polynomials, including long division. •1: no long division	4		3	3
4.0	Students factor polynomials representing the difference of squares, perfect square trinomials, and the sum and difference of two cubes. •2: only squares •4: only cubes		3		3
5.0	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.	4			
6.0	Students add, subtract, multiply, and divide complex numbers.	5	3	3	
7.0	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. •2: only multiply, divide, reduce, and evaluate rational expressions •4: only add and subtract negative exponents		6		3
8.0	Students solve and graph 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. •2: only real solutions		3		
9.0	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 a , b , and c vary in the equation $y = a(x - b)^2 + c$. •2: only translations and reflections •4: only expansion and compression		3		3
10.0	Students graph quadratic functions and determine the maxima, minima, and zeros of the function.		4		
11.1	Students understand the inverse relationship between exponents and logarithms and use this relationship to solve problems involving logarithms and exponents.			3	3
11.2	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.			3	



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Assessments

Algebra II (continued)		1	2	3	4
12.0	Students know the laws of fractional exponents, understand exponential functions, and use these functions in problems involving exponential growth and decay.			3	3
13.0	Students use the definition of logarithms to translate between logarithms in any base.			3	
14.0	Students understand and use the properties of logarithms to simplify logarithmic numeric expressions and to identify their approximate values.			3	3
15.0	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. •2: only radical expressions		3	3	
18.0	Students use fundamental counting principles to compute combinations and permutations.			3	
19.0	Students use combinations and permutations to compute probabilities.			3	
20.0	Students know the binomial theorem and use it to expand binomial expressions that are raised to positive integer powers.			3	
24.0	Students solve problems involving functional concepts, such as composition, defining the inverse function and performing arithmetic operations on functions.				3
Probability and Statistics					
2.0	Students know the definition of conditional probability and use it to solve for probabilities in finite sample spaces.			3	3
7.0	Students compute the variance and the standard deviation of a distribution of data.			3	3
Total Number of Items		21	28	39	33