

Unit 4 - Polynomial Functions

Overview

We move from quadratics to a study of polynomials and the relationship between the degree, the number of terms and the zeros. Multiplicity of zeros will be investigated and students will discover the relationship between the number of zeros the graph. The Rational Roots Theorem, Remainder Theorem and Factor Theorem will also be investigated in this unit.

21st Century Capacities: Analyzing

Stage 1 - Desired Results

<p>ESTABLISHED GOALS/ STANDARDS MP 1 Make sense sense of problems and persevere in solving them MP4 Model with Mathematics MP5 Use appropriate tools strategically MP6 Attend to precision</p> <p>A.APR.1 Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials. A.APR.2 Know and apply the Remainder Theorem: For a polynomial $p(x)$ and a number a, the remainder on division by $x - a$ is $p(a)$, so $p(a) = 0$ if and only if $(x - a)$ is a factor of $p(x)$.</p> <p>A.APR.3 Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomials</p>	Transfer:		
	<p><i>Students will be able to independently use their learning in new situations to...</i></p> <ol style="list-style-type: none"> 1. Model relationships among quantities. 2. Manipulate equations/expressions or objects to create order and establish relationships.(Analyzing) 3. Draw conclusions about graphs and equations.(Analyzing) 		
	Meaning:		
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Algebra II Level 1 Curriculum

	<ol style="list-style-type: none">3. How to identify multiplicity of a function4. Understand usefulness of the remainder theorem to evaluate complicated functions5. The Fundamental Theorem of algebra6. The relationship between factors of a polynomial and intercepts7. Vocabulary: multiplicity, roots, synthetic division, rational, real, complex, zeros	<ol style="list-style-type: none">4. Using the factor theorem5. Using rational roots theorem to determine possible zeros6. Using long and synthetic division to determine complete factorization of a polynomial7. Determining right and left end behaviors from leading term8. Sketch a graph of a polynomial function, using end behavior, degree, x and y intercepts, zeros and multiplicities9. “Building a polynomial function” from a graph or from a set of parameters such as degree and zeros (including complex)
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