

Learning Objectives for a Unit

Teacher: Olivia Solomon

Grade: 10th/11th

Subject: Algebra II

Unit: Polynomials/Quadratic Equations/Quadratic Formulas

Goal(s) for this Unit: I would like students to identify monomials, binomials, and polynomials, and use them to formulate equations and graphs.

Academic Standards that most clearly match this unit:

CC.2.2.HS.D.3: Extend the knowledge of arithmetic operations and apply to polynomials.

CC.2.2.HS.D.5: Use polynomial identities to solve problems.

CC.2.1.HS.F.7: Apply quantitative reasoning to choose and Interpret units and scales in formulas, graphs and data displays.

CC.2.2.HS.D.4: Understand the relationship between zeros and factors of polynomials to make generalizations about functions and their graphs.

Citation for state standards: <https://www.pdesas.org/standard/view/>

Statements of specific learning objectives students who have studied this unit must achieve in order to demonstrate that they have attained all or part of the state standard(s) given above.

	Learning Objective	Cognitive Level <i>(revised Bloom's)</i>	Standards	Formative Assessment Plan	Summative Assessment Plan
1	<i>SWBAT explain the difference between monomials, binomials, and polynomials.</i>	<i>Understand</i>	CC.2.2.HS.D.3	<i>In class activity: students will work in groups, with manipulatives, to identify the differences in polynomials. Each group will share their findings.</i>	<i>On unit exam</i>
2	<i>SWBAT add polynomials.</i>	<i>Apply</i>	CC.2.2.HS.D.3	<i>Over the course of these four lessons: students will work in groups to complete a packet of polynomial problems (addition, subtraction, multiplication, division) to turn in right before they take their quiz.</i>	<i>Quiz on adding, subtracting, multiplying, and dividing polynomials; also on unit exam</i>
3	<i>SWBAT subtract polynomials.</i>	<i>Apply</i>	CC.2.2.HS.D.3		
4	<i>SWBAT multiply polynomials.</i>	<i>Apply</i>	CC.2.2.HS.D.3		
5	<i>SWBAT divide polynomials.</i>	<i>Apply</i>	CC.2.2.HS.D.3		
6	<i>SWBAT identify and factor quadratic equations in order to find their x-values.</i>	<i>Evaluate</i>	CC.2.2.HS.D.5 CC.2.2.HS.D.4	<i>Students will apply their known skills of factoring to evaluate a completed factoring worksheet, evaluating if the posted answers</i>	<i>Partner quiz on identifying and factoring</i>

				<i>are true or false, fixing answers that are false and justifying true answers. Students will complete this in groups.</i>	<i>different equations to find their x-values; also on unit exam</i>
7	<i>SWBAT identify and factor higher-degree equations in order to find their x-values.</i>	<i>Analyze</i>	CC.2.2.HS.D.5 CC.2.2.HS.D.4	<i>Students will work in groups to complete an exit ticket worksheet, analyzing the difference between lower-degree and higher-degree equations and how to get all possible values.</i>	
8	<i>SWBAT factor more complex equations in order to find their x-values, recognizing the difference between equations.</i>	<i>Analyze</i>	CC.2.2.HS.D.5 CC.2.2.HS.D.4	<i>Students will play a game of Kahoot based on the past three lessons (6, 7, and 8). Results will be recorded and graded based on participation.</i>	
9	<i>SWBAT complete word-problems based on quadratic equations.</i>	<i>Evaluate</i>	CC.2.2.HS.D.5	<i>Students will utilize a particular online game/software to apply their knowledge of factoring to real-world world problem examples, where they will evaluate their understanding and the importance of factoring in real-world situations.</i>	<i>Take-home mini quiz; also on unit exam</i>
10	<i>SWBAT identify graphs of equations and functions of the first, second, and third degree.</i>	<i>Analyze</i>	CC.2.1.HS.F.7 CC.2.2.HS.D.4	<i>Students will participate in a game of Jeopardy based on this lesson. Results will be recorded and graded based on participation.</i>	<i>Group quiz on graphing equations of the first, second, and third degree; also on unit exam</i>
11	<i>SWBAT compose graphs of equations and functions of the first, second, and third degree.</i>	<i>Create</i>	CC.2.2.HS.D.3 CC.2.2.HS.D.4	<i>Students will work in groups to apply their knowledge by creating graphs given certain equations (including utilizing art strategies to make these graphs).</i>	
12	<i>SWBAT utilize the quadratic formula when given three variables and understand when to use the quadratic equation or the quadratic formula.</i>	<i>Apply</i>	CC.2.1.HS.F.7	<i>Students will complete an online math game on the quadratic formula. At the end of the game, their results will be recorded for a grade.</i>	<i>On unit exam</i>