Berlin Brothersvalley School District
Curriculum Frame 3rd 9 Weeks
Algebra 1

Big Idea(s) of 1st nine weeks	**Concept(s) of 3rdnine weeks**	**Competencies of 1st nine weeks**	**Essential Questions of 1st nine weeks**
Mathematical relationships can be represented as expressions, equations and inequalities in mathematical situations.	**Students will know:** ● Systems of linear equations and inequalities ● Exponents ● Operations with polynomials ● Factoring	**Students will be able to:** ● Solve systems using substitution, elimination, and graphing ● Use exponent properties to solve and simplify problems ● Classify, add, subtract, and multiply polynomials ● Factor polynomials using various methods	How can expressions, equations and inequalities be used to model, and/or analyze mathematical situations? How are relationships represented mathematically?
Unit/Chapter/Selection of Study **Solving Systems of Linear Equations by Graphing** Check solutions of systems Solve systems by graphing Use systems to solve real-life problems **Solving Systems of Linear Equations by Substitution** Solve systems by substitution Use systems to solve real-life problems **Solving Systems of Linear Equations by Elimination** Solve systems by elimination	**Approx. # of weeks - % of time** 4.5 weeks	**PA Academic Standards** **CC.2.2.HS.D.10** Represent, solve, and interpret equations/inequalities and systems of equations/inequalities algebraically and graphically **CC.2.2.HS.D.7** Create and graph equations or inequalities to describe numbers or relationships.	**Assessment Anchors & Eligible Content** **A1.1.2.2.1** Write and/or solve a system of linear equations (including problem situations) using graphing, substitution, and/or elimination. Note: Limit systems to two linear equations **A1.1.2.2.2** Interpret solutions to problems in the context of the problem situation. Note: Limit systems to two linear equations. **A1.1.3.2.1** Write and/or solve a system of linear inequalities using graphing. Note: Limit systems to two linear inequalities **A1.1.3.2.2** Interpret solutions to problems in the context of the problem situation. Note: Limit systems to two linear inequalities

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Use systems to solve real-life problems **Systems of Linear Inequalities** Check solutions of systems of linear equalities Graph solutions of systems of linear inequalities Write systems of linear inequalities Use systems of linear inequalities to solve real-life problems			
Unit/Chapter/Selection of Study **Properties of Exponents** Use zero and negative exponents Use the properties of exponents to simplify expressions	**Approx. # of weeks - % of time** 1 week	**PA Academic Standards** **CC.2.1.HS.F.1** Apply and extend the properties of exponents to solve problems with rational exponents.	**Assessment Anchors & Eligible Content**

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Unit/Chapter/Selection of Study	Approx. # of weeks - % of time	PA Academic Standards	Assessment Anchors & Eligible Content
Adding and Subtracting Polynomials Find the degrees of polynomials Classify polynomials Add and subtract polynomials Solve real-life problems **Multiplying Polynomials** Multiply binomials (FOIL) Multiply binomials and trinomials **Special Products of Polynomials** Square of a binomial Sum and difference Use patterns to solve real-life problems **Factoring** Factor by GCF Factor trinomials when a=1 Factor trinomials when a>1 Factor special products **Solving Polynomial Equations in Factored Form** Use the zero-product property Factor using the GCF Solve real-life problems	3.5 weeks	**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.2.2.HS.D.1** Interpret the structure of expressions to represent a quantity in terms of its context. **CC.2.2.HS.D.2** Write expressions in equivalent forms to solve problems. **CC.2.2.HS.D.6** Extend the knowledge of rational functions to rewrite in equivalent forms	**A1.1.1.5.1** Add, subtract, and/or multiply polynomial expressions (express answers in simplest form). Note: Nothing larger than a binomial multiplied by a trinomial. **A1.1.1.5.2** Factor algebraic expressions, including difference of squares and trinomials. Note: Trinomials are limited to the form ax2 + bx + c where a is equal to 1 after factoring out all monomial factors. **A1.1.1.2.1** Find the Greatest Common Factor (GCF) and/or the Least Common Multiple (LCM) for sets of monomials.

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