Course Title: Algebra IA
Board Approval Date: January 17, 2019
Credit / Hours: 1.0

Course Description:

Algebra 1A focuses on mastery of Module 1 of the PA Core Standards for Mathematics. Algebra 1A aims to improve students abilities in the areas of operations of real numbers and expressions, linear equations and linear inequalities. The focus is on simplifying polynomials and expressions, writing, solving and graphing linear equations and inequalities, and writing, solving and graphing systems of linear equations and inequalities.

Learning Activities / Modes of Assessment:

ALEKS	Stations
Pre - tests	Scavenger Hunts
Teacher Observation	Nearpod
Kahoot, Quizizz and Quizlet	Edpuzzles
Notability	Flipgrid
Bell Ringers	CDTS
Exit Tickets	Multiple Choice Keystone Questions
Collaborative Projects	Constructed Response Questions
Small Group	Math Libs
Whole Group	Task Cards
Partner Work	Schoology Assignments
Whiteboard Practice	Error Analysis
Review Games	Self-checking with answer key
Desmos Activities	Word Problems- real world application
GeoGebra	Quizzes
Think-Pair-Share	Tests

Instructional Resources:

ALEKS
Desmos
Keystone Coach Book (Red and Blue)
SAS
Online Practice Tools
Khan Academy
IXL
Teachers Pay Teachers
Teacher created resources
Kuta Software
Instructional Multimedia Tools

Curriculum: Math
Course: Grade 9 Algebra IA

Unit/Lesson: Foundations of Algebra

Know:	Understand:	Do:
A1.1.1.1 Represent and/or use numbers in equivalent forms (e.g., integers, fractions, decimals, percents, square roots, and exponents). A1.1.1.3 Use exponents, roots, and/or absolute values to solve problems.	*Students will understand that...* ● Numbers can be represented in equivalent forms. ● Expressions can be simplified ● Numbers belong to different groups ● Words or phrases can be represented by numbers and variables ● Properties are used to simplify expressions ● All representations of numbers have a numerical value in a common form	A1.1.1.1.1 Compare and/or order any real numbers. Note: Rational and irrational may be mixed. A1.1.1.3.1 Simplify/evaluate expressions involving properties/laws of exponents, roots, and/or absolute values to solve problems. *Note: Exponents should be integers from –10 to 10.*

Unit/Lesson: Multi-Step Equations and Inequalities

Know:	Understand:	Do:
A1.1.2.1 Write, solve, and/or graph linear equations using various methods. A1.1.3.1 Write, solve, and/or graph linear inequalities using various methods. A1.1.1.4 Use estimation strategies in problem-solving situations.	*Students will understand that...* ● Inequalities can have a range of solutions ● Equations have various solution types ● Properties of equality are used to solve equations ● An inequality solution can be represented visually on a number line ● A real world scenario can be represented and solved using an equation	A1.1.2.1.1 Write, solve, and/or apply a linear equation (including problem situations). A1.1.2.1.2 Use and/or identify an algebraic property to justify any step in an equation-solving process. A1.1.2.1.3 Interpret solutions to problems in the context of the problem situation. A1.1.3.1.1 Write and/ or solve compound inequalities and/or graph their solution sets on a number line (may include absolute value inequalities) A1.1.3.1.2 Identify or graph the solution set to a linear inequality on a number line A1.1.3.1.3 Interpret solutions to problems in the context of the problem situation A1.1.1.4.1 Use estimation to solve problems

Unit/Lesson: Functions

Know:	Understand:	Do:
A1.2.1.1 Analyze and/or use patterns or relations. A1.2.1.2 Interpret and/or use linear functions and their equations, graphs, or tables.	*Students will understand that...* ● Numbers can be represented in equivalent forms. ● Expressions can be simplified ● Numbers belong to different groups ● Words or phrases can be represented by numbers and variables ● Properties are used to simplify expressions ● All representations of numbers have a numerical value in a common form	A1.2.1.1.1 Analyze a set of data for the existence of a pattern and represent the pattern algebraically and/or graphically. A1.2.1.1.2 Determine whether a relation is a function, given a set of points or a graph. A1.2.1.1.3 Identify the domain or range of a relation (may be presented as ordered pairs, a graph, or a table). A1.2.1.2.1 Create, interpret, and/or use the equation, graph, or table of a linear function. A1.2.1.2.2 Translate from one representation of a linear function to another *(i.e., graph, table, and equation).*

Unit/Lesson: Coordinate Geometry

Know:	Understand:	Do:
A1.2.2.1 Describe, compute, and/or use the rate of change (slope) of a line. A1.1.2.1 Write, solve, and/or graph linear equations using various methods. A1.2.2.1 Describe, compute, and/or use the rate of change (slope) of a line. A1.2.2.2 Analyze and/or interpret data on a scatter plot.	*Students will understand that…* ● Linear Equations can be represented in multiple forms. ● There are different types of slope. ● Parallel and perpendicular lines are related through slope. ● A line of best fit is a linear equation that best represents a scatter plot.	A1.2.2.1.1 Identify, describe, and/or use constant rates of change. A1.2.2.1.3 Write or identify a linear equation when given the graph of the line, two points on the line, or the slope and a point on the line. A1.2.2.1.4 Determine the slope and/or *y*-intercept represented by a linear equation or graph. A1.1.2.1.1 – Write, solve and/ or apply a linear equation (including problem situations). A1.1.2.1.3 – Interpret solutions to problems in the context of the problem situation (linear equations only). A1.2.2.1.2 Apply the concept of linear rate of change (slope) to solve problems. A1.2.2.2.1 Draw, identify, find, and/or write an equation for a line of best fit for a scatter plot.

Unit/Lesson: Systems of Equations and Inequalities

Know:	Understand:	Do:
A1.1.2.2 Write, solve, and/or graph systems of linear equations using various methods. A1.1.3.2 Write, solve, and/or graph systems of linear inequalities using various methods.	*Students will understand that...* ● There are different methods to solving systems of equations. ● There are one, infinite, or no solutions to a system of equations. ● Graphs will look different depending on the solution. ● Graphs of linear inequalities differ based on the range of solutions ● You can apply systems of equations and inequalities to real world situations	A1.1.2.2.1 - Write and/or solve a system of linear equations (including problem situations) using graphing, substitution and/or elimination. A1.1.2.2.2 - Interpret solutions to problems in the context of the problem situation A1.1.3.2.1 - Write and/or solve a system of linear inequalities using graphing A1.1.3.2.2 - Interpret solutions to problems in the context of the problem situation

Algebra 1A Pacing Guide

Course:

Course Unit (Topic)	**Length of Instruction (Class Periods)**
Foundations of Algebra	15 Days
Multi-Step Equations and Inequalities	22 Days
Functions	13 Days
Linear Equations	22 Days
Systems of Equations and Inequalities	18 Days
Total	**90 Days**