Instructional Flow – Unit 3 – Polynomial Functions

5.1 Graphing Quadratic Functions
- standard and vertex form

5.2 Solving Quadratic Equations by Factoring
- zero product property

5.3 Solving Quadratic Equations by Finding Square Roots
- solutions of quadratic equations using square roots

5.4 Complex Numbers
- definition and properties
- relationships between real and complex numbers
- operations and applications

5.5 Completing the Square
- solutions of quadratic equations with complex roots

5.6 The Quadratic Formula and the Discriminant
- nature of the roots of a quadratic equation
- applications

5.7 Graphing and Solving Quadratic Inequalities
- one variable inequalities
- solutions of quadratic inequalities graphically and algebraically

5.8 Modeling with Quadratic Functions
- *algebraic representation of a function given points on the graph*

6.2 Evaluating and Graphing Polynomial Functions
- definition of polynomial functions
- evaluation of polynomial functions by synthetic substitution
- end behavior of graphs of polynomial functions

6.4 Factoring and Solving Polynomial Equations
- factoring the sum and difference of cubes
- solutions of polynomial equations using factoring

6.5 The Remainder and Factor Theorems
- long and synthetic division
- solutions of polynomial equations by factoring

6.6 Finding Rational Zeros
- the rational zero (root) theorem

6.7 Using the Fundamental Theorem of Algebra
- multiplicity of zeros
- use of zeros to write polynomial functions
- application of the Fundamental Theorem of Algebra

IG Solving Polynomial Inequalities Algebraically

6.8 Analyzing Graphs of Polynomial Functions
- local maxima and minima

6.9 Modeling With Polynomial Functions
- finite differences and the degree of polynomial functions
- polynomial regression