Algebra I Honors
Unit 9: Quadratic Equations and Functions

Essential Understandings	▪ Future success in algebra is based on the knowledge of quadratic equations and functions.
Essential Questions	▪ How do you evaluate and approximate square roots? ▪ How do solve quadratic equations by finding square roots? ▪ How do you use the properties of radicals to simplify radicals? 　○ How do you sketch the graph and identify the key features (axis of symmetry, vertex, minimum value, maximum value, y-intercept, quadratic roots, x-intercepts) of a quadratic function? ▪ How do you use a graph to find or check a solution of a quadratic equation? ▪ How do you solve quadratic equations using the quadratic formula? ▪ How do you use the discriminant to find the number of solutions of a solve quadratic equations? ▪ How do you solve quadratic equations by completing the square?
Essential Knowledge	▪ Certain square roots must be memorized. ▪ Quadratic equations can be solved by finding square roots. ▪ Properties of radicals can be used to simplify radicals. ▪ Quadratic equations can be solved by graphing. ▪ Quadratic equations can be solved by completing the square. ▪ Quadratic functions can be written in 3 forms (standard form, vertex form, and intercept form)
Vocabulary	▪ Terms: 　○ Square root, radicand, radical expression, quadratic equation, parabola, quadratic formula, discriminant, vertex, axis of symmetry, quadratic roots. 　○ Minimum value, maximum value, parent quadratic function 　○ 3 forms of quadratic equations: standard, vertex, and intercept forms.
Essential Skills	▪ Evaluate and approximate square roots. ▪ Solve quadratic equations by finding square roots. ▪ Use the properties of radicals to simplify radicals. ▪ Graph quadratic functions in 3 forms: standard, vertex, and intercept forms. ▪ Solve quadratic equations by graphing in all 3 forms. ▪ Solve quadratic equations by quadratic formula. ▪ Determine and understand discriminant to find the number of solutions of a quadratic equation. ▪ Solved by quadratic equations by completing the square. ▪ Graph, interpret and model quadratic functions using technology.
Related Maine Learning Results	A. Real Numbers 1bc D. Symbols and Expressions 1a D. Equations and Inequalities 2b
Sample Lessons and Activities	▪ Students will orally respond to questions. ▪ Students will utilize worksheets and in their notes to demonstrate individual understanding of the concepts.
Sample Classroom Assessment Methods	▪ Quizzes, take-home worksheets, and tests.
Sample Resources	▪ Publications:　Algebra 1 Textbook (Larson) ▪ Other:　Graphing calculators.
Technology Link	▪ http://www.brunswick.k12.me.us/curriculum