	Student/Class Goal
Solving Quadratic Equations Real Roots	Students will solve quadratic equations for real roots.

	Time Frame
Outcome (*lesson objective*) Students will use factoring and/or the quadratic formula to solve a quadratic equation.	4 hours

Standard *Use Math to Solve Problems and Communicate*	NRS EFL 6

Components of Performance (COPs)	**Activity Addresses COPs** (process)
Understand, interpret, and work with pictures, numbers, and symbolic information.	Students will recognize quadratic equations and will find the appropriate real root solution(s).
Apply knowledge of mathematical concepts and procedures to figure out how to answer a question, solve a problem, make a prediction, or carry out a task that has a mathematical dimension.	Students will determine whether to use factoring or the quadratic formula when solving quadratic equations.
Define and select data to be used in solving the problem.	Students will determine the values for a, b, and c.
Determine the degree of precision required by the situation.	Students will only find real root solutions.
Solve problem using appropriate quantitative procedures and verify that the results are reasonable.	Students will substitute values into the original equation to verify correctness.
Communicate results using a variety of mathematical representations, including graphs, charts, tables, and algebraic models.	Students will use a graphing calculator's table and graph to check the value of their solution(s).

Activity Addresses Benchmarks (content)
M.6.20, M.6.29, M.6.30, M.6.31

Materials
Graphing calculator
Providing practice material

Learner Prior Knowledge
- Factoring methods
- Setting equation equal to zero
- Square roots and powers
- Evaluating expressions

Instructional Activities
Step 1
Solve quadratic equations by factoring.
- Set the equation equal to zero.
- Factor the equation.
- Set each factor equal to zero.
- Solve for the variable.
- Substitute values into the original equation to check that they are real roots.

Step 2
In a group, or with a partner, students will practice solving quadratic equations by factoring.

Step 3
Solve quadratic equations by using the quadratic formula.
- Set the equation equal to zero.
- Determine the values of a, b, and c.

- Substitute the values into the quadratic formula.
- Remind students that the square root of a negative value indicates no real solution.
- Substitute values into the original equation to check that they are real roots.

Step 4
In a group, or with a partner, students will practice solving quadratic equations using the quadratic formula.

Step 5
Students will independently practice using the best method to solve a particular quadratic equation.

Assessment/Evidence (*based on outcome*)
Informal assessment by monitoring group/partner discussion and work. Formally check students' individual work for process and accuracy. Assign additional practice if necessary.

Teacher Reflection/Lesson Evaluation
Not yet completed.

Next Steps