We’ve spent 2+ weeks talking about quadratic equations, how to graph them, how to factor them, and how to solve them. As we get ready for our unit exam, we are going to create a small project. It is due no later than the beginning of class on Wednesday, October 26. **NO LATE PROJECTS WILL BE ACCEPTED!!**

For your project, you can choose to either make a poster, scrapbook, or flipbook. Whichever style of project you choose, it needs to have information on 6 topics. Each project must include the following:

1. How to graph quadratics in standard form \((y = ax^2 + bx +c)\), including finding the axis of symmetry, the vertex, making a small table, and an example!
2. Solving quadratic equations by taking square roots, including some examples!
3. Solving quadratic equations by factoring, including some examples!
4. Solving quadratic equations by completing the square, including some examples!
5. Solving quadratic equations using the quadratic formula, including some examples!
6. Simplifying Complex Numbers, including square roots, addition, subtraction, multiplication, and division problems!

This project is worth a total of 100 points and will be graded using the rubric/checklist included on the back of this page. You will be given 30 minutes of class time on Friday of this week, and 1 class block on Monday to work on the project, any additional time will need to be taken at home; make the most of the time you are given!

This should be a fun way to review for the test, a chance to be creative, and an opportunity to help your grade. **Not doing the project completely would be a poor choice!**
# Quadratics Project Rubric

<table>
<thead>
<tr>
<th>Graphing Standard Form</th>
<th>Solving Quad’s w/ Square Roots</th>
<th>Solving Quad’s w/ Factoring</th>
<th>Solving Quad’s by completing the square</th>
<th>Solving Quad’s with the Quadratic Formula</th>
<th>Complex Numbers</th>
<th>Overall Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Explanation of standard quadratic form (3pts)</td>
<td>Explanation of what a “root” is (3pts)</td>
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<td>Explanation of what a complex number is (3pts)</td>
<td>Clear &amp; Easy to Read (2pts)</td>
</tr>
<tr>
<td>Explanation of finding axis of symmetry (3pts)</td>
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<td>Explanation of finding axis of symmetry (3pts)</td>
<td>Explanation of finding axis of symmetry (3pts)</td>
<td>Example of simplifying a complex square root. (1 perfect square, 1 non-perfect)</td>
<td>Colorful (2pts)</td>
</tr>
<tr>
<td>Explanation of finding vertex (3pts)</td>
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<td>Example of finding vertex (3pts)</td>
<td>Example of finding vertex (3pts)</td>
<td>Example of finding vertex (3pts)</td>
<td>Example of multiplying 2 complex #’s in a+bi form (must show method used)</td>
<td>Decorated (2pts)</td>
</tr>
<tr>
<td>Clear &amp; correct example of graphing a quadratic in standard form (6pts)</td>
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<td>Example of graphing a quadratic in standard form (6pts)</td>
<td>Example of graphing a quadratic in standard form (6pts)</td>
<td>Example of simplifying fractions w/ complex #’s &amp; the definition of a complex conjugate</td>
<td>Something to be Proud of! (4pts)</td>
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<td>T O T A L S</td>
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</table>

- **Explanation of what a “root” is**: How to find the roots of a quadratic equation.
- **Explanation of finding axis of symmetry**:
  - **Explanation of finding axis of symmetry (3pts)**: Detail of finding the axis of symmetry for a quadratic equation.
  - **Example of finding axis of symmetry (3pts)**: Example of finding the axis of symmetry.
- **Explanation of finding vertex**:
  - **Explanation of finding vertex (3pts)**: Detail of finding the vertex of a quadratic equation.
  - **Example of finding vertex (3pts)**: Example of finding the vertex.
- **Clear & correct example of graphing a quadratic in standard form (6pts)**: Clear and correct graphing example.
- **Explanation of what a “root” is**:
  - **Explanation of what a “root” is (3pts)**: Explanation of finding roots.
  - **Example of what a “root” is (3pts)**: Example of finding roots.
- **Explanation of how square roots can be used to solve quadratics**:
  - **Explanation of how square roots can be used to solve quadratics (3pts)**: Explanation of solving quadratics using square roots.
  - **Example of solving quadratic equation using square roots (3pts)**: Example of solving a quadratic equation using square roots.
- **Explanation of finding axis of symmetry (3pts)**: Explanation of finding the axis of symmetry.
- **Example of finding axis of symmetry (3pts)**: Example of finding the axis of symmetry.
- **Explanation of finding vertex (3pts)**: Explanation of finding the vertex.
- **Example of finding vertex (3pts)**: Example of finding the vertex.
- **Example of graphing a quadratic in standard form (6pts)**: Example of graphing a quadratic in standard form.
- **Example of solving quadratic equation using square roots (3pts)**: Example of solving a quadratic equation using square roots.
- **Example of solving quadratic equation using factoring (3pts)**: Example of solving a quadratic equation using factoring.
- **Example of solving quadratic by completing the square (3pts)**: Example of solving a quadratic by completing the square.
- **Example of solving quadratic using Quadratic Formula (3pts)**: Example of solving a quadratic using the Quadratic Formula.
- **Example of solving quadratic using Quadratic Formula w/ a complex solution (3pts)**: Example of solving a quadratic using the Quadratic Formula with a complex solution.
- **Example of simplifying a complex square root. (1 perfect square, 1 non-perfect)**: Example of simplifying a complex square root.
- **Example of simplifying fractions w/ complex #’s & the definition of a complex conjugate**: Example of simplifying fractions with complex numbers.
- **Example of simplifying an addition and subtraction problem involving complex #’s & show’s method used (3pts)**: Example of simplifying a complex addition and subtraction problem.
- **Clear & Easy to Read (2pts)**: Clarity and easy reading of the project.
- **Colorful (2pts)**: Use of color.
- **Decorated (2pts)**: Decorative elements.
- **Something to be Proud of! (4pts)**: Pride and satisfaction in the project.