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| **LG #** | **A212** | **Standards:** | **G-GPE.1.2, N-CN.1.1, N-CN.1.2, N-CN.3.7, A-REI.2.4** |
| **4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond instruction to the standard.****The student will be able to:*** Graph the focus, directrix, and parabola when given its equation.
* Simplify complex numbers under the operation of division.

**No major errors or omissions regarding the score 4.0 content.** |
| **3.5** | In addition to 3.0, in-depth inferences and applications with partial success. |
| **3.0** | **Students will be able to derive complex solutions from quadratic functions and perform operations on complex numbers.****The student will be able to:*** Use the relation i² = –1 and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers (N-CN.1.2)
* Solve quadratic equations with real coefficients that have complex solutions. (N-CN.3.7)
* Derive the equation of a parabola given a focus and directrix. (G-GPE.1.2)
* Use the method of completing the square to transform any quadratic equation in x into an equation of the form $(x-p)^{2}=q$ that has the same solutions. (A-REI.2.4a)
* Derive the quadratic formula from a quadratic equation of the form $(x-p)^{2}=q$. (A-REI.2.4a)
* Recognize when the quadratic formula gives complex solutions and write them as a±bi for real numbers a and b. (A-REI.2.4b)

**No major errors or omissions regarding the score 3.0 content (simple or complex).** |
| **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of 3.0 content. |
| **2.0** | **The student recognizes and describes specific terminology such as:**

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| * Complex Number
 | * Directrix
 | * Focus
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| * Imaginary Number
 | * Parabola
 | * Focal Chord
 |
| * Real Number
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**The student will be able to:*** Know there is a complex number i such that i² = –1, and every complex number has the form

a + bi (a and b are real numbers). (N-CN.1.1)* Solve quadratic equations by inspection taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. (A-REI.2.4b)
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| **1.5** | Partial knowledge of the score 2.0 content, but major errors or omissions regarding score 3.0 content. |
| **1.0** | With partial understanding of some of the simpler details and processes and some of the more complex ideas and processes. |
| **0.5** | With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes. |
| **0.0** | Even with help, no understanding or skill is demonstrated |