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| **LG #** | **A209** | **Standards:** | **F-IF.3.7, F-IF.3.8, F-IF.3.9** |
| **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:*** Transform a given polynomial function to attain a given characteristic. For example, state the transformation that will make $y=(x-2)^{3}+5$ an odd function.

**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 graph and write equivalent forms of functions by hand and using technology, and compare functions in different representations.****The student will be able to:*** Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior. (F-IF.3.7)
* Graph rational functions, identifying zeros and asymptotes when suitable factorizations are available, and showing end behavior. (F-IF.3.7)
* Graph exponential and logarithmic functions, showing intercepts and end behavior. (F-IF.3.7)
* Graph trigonometric functions, showing period, midline, and amplitude, and using phase shift. (F-IF.3.7)
* Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions. (F-IF.3.7)
* Interpret different properties of a function in terms of a content. (F-IF.3.8a)
* Use the properties of exponents to interpret expressions for exponential functions.

(F-IF.3.8b)* Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). (F-IF.3.9)

**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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| * Asymptotes
 | * x-intercept
 | * Maxima
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| * Zeroes
* Removable Discontinuity
 | * y-intercept
* Domain
* Range
 | * Minima
* End Behavior
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**The student will be able to:*** Identify key features of the graph such as intercepts, relative maxima/minima, removable and non-removable discontinuities, etc. (F-IF.3.7)
* Graph linear and quadratic functions and show intercepts, maxima, and minima.

(F-IF.3.7)* Factor a quadratic expression to find the zeros of the function. (F-IF.3.8a)
* Use completing the square to show extreme values and symmetry for quadratic functions. (F-IF.3.8a)
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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 |