|  **Standard** | **Mastery** | **Statements** |
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| A.CED.1 |  | * I can create equations and inequalities in one variable and use them to solve problems. Include equations arising from exponential functions (integer inputs only).
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| A.CED.2 |  | * I can create exponential equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. (The phrase “in two or more variables” refers to formulas like the compound interest formula, in which A = P(1 + r/n)nt has multiple variables.)
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| F.BF.1 |  | * I can write a function that describes a relationship between two quantities.
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| F.BF.1a |  | * I can determine an explicit expression and the recursive process (steps for calculation) from context.
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| F.BF.2 |  | * I can write geometric sequences recursively and explicitly, use them to model situations, and translate between the two forms.
* I can connect geometric sequences to exponential functions.
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| F.BF.3 |  | * I can identify the effect on the graph of replacing *f*(*x*) by *f*(*x*) + *k*, *k* *f*(*x*), *f*(*kx*), and *f*(*x* + *k*) for specific values of *k*(both positive and negative).
* I can find the value of *k* given the graphs.
* I can experiment with cases and illustrate an explanation of the effects on the graph using technology.
* I can include recognizing even and odd functions from their graphs and algebraic expressions for them.
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| F.IF.1 |  | * I understand that a function from one set (the input, called the domain) to another set (the output, called the range) assigns to each element of the domain exactly one element of the range. (i.e. each input value maps to exactly one output value)
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| F.IF.2 |  | * I can use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context.
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| F.IF.3 |  | * I can recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers.
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| F.IF.4 |  | * Using tables, graphs, and verbal descriptions, I can interpret the key characteristics of a function which models the relationship between two quantities.
* I can sketch a graph showing key features including: intercepts; interval where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior.
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| F.IF.5 |  | * I can relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.
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| F.IF.6 |  | * I can calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval.
* I can estimate the rate of change from a graph.
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| F.IF.7 |  | * I can graph functions expressed algebraically and show key features of the graph both by hand and by using technology.
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| F.IF.7e |  | * I can graph exponential functions, showing intercepts and end behavior.
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| F.IF.9 |  | * I can compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). (For example, given a graph of one function and an algebraic expression for another, say which has the larger maximum.)
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