Unit 5: Rational Functions

	4 – Mastery	3 – Proficient	2 - Basic	1 – Below Basic	0 – No Evidence
Rewrite expressions (A.SSE.2)	Can extend thinking beyond the standard, including tasks that may involve one of the following: • Designing • Connecting • Synthesize • Applying • Justifying • Critiquing • Analyzing • Creating • Proving	Rewrite polynomial expressions in different equivalent forms by using **all of the following:** • greatest common factors • difference of two squares • trinomials • quadratic-like trinomials (degree 4 or higher) • sums or difference of cubes	Rewrite polynomial, rational, and exponential expressions in different equivalent forms by doing **4 of the following**: • greatest common factors • difference of two squares • trinomials • quadratic-like trinomials (degree 4 or higher) • sums or difference of cubes	Rewrite polynomial, rational, and exponential expressions in different equivalent forms by doing **3 of the following**: • greatest common factors • difference of two squares • trinomials • quadratic-like trinomials (degree 4 or higher) • sums or difference of cubes	Little evidence of reasoning or application to solve the problem Does not meet the criteria in a level 1
Create rational equations and inequalities (A.CED.1)		Create a polynomial equation in **expanded form** given the zeros, multiplicity, and leading coefficient	Create a polynomial equation in factored form given the zeros, **multiplicity, and leading coefficient**	Create a polynomial equation in **factored form given the zeros**	
Solve rational equations (A.REI.2)		Solve a radical equation **with multiple radicals** and identify extraneous solutions	Solve a radical equation **with a variable on both sides and identify extraneous solutions**	Solve a **multi-step radical equation**	
Rewrite rational expressions (A.APR.6)		Factor a polynomial using either synthetic division or long division, writing $\frac{a(x)}{b(x)}$, in the form $q(x) + \frac{r(x)}{b(x)}$ **and identify** • if p(a) is zero, then (x-a) is a factor • if p(a) is not zero, then (x-a) is not a factor • p(a) is the remainder when dividing p(x) by x-a. • the remainder is equivalent to p(a)	Can perform synthetic or long division **correctly and are able to state the remainder, writing** $\frac{a(x)}{b(x)}$, in the form $q(x) + \frac{r(x)}{b(x)}$	Can perform synthetic or long division **with a structural error, but were able to follow through with their mistake**	
Rational expression operations(A.APR.7)		Add, subtract, multiply and divide rational expressions, **using multiple operations,** simplifying the expression **and** identifying any restricted values	Add, subtract, multiply **and** divide rational expressions, simplifying the expression **or** identifying any restricted values	Add, subtract, multiply **or** divide rational expressions **(Can perform 2 of the 4),** simplifying the expression **or** identifying any restricted values	
Produce inverse functions (F.BF.4)		Compose functions to verify if one function is the inverse of another function Read values of an inverse function from a graph and table **Produce an invertible function** from a non-invertible function by restricting the domain so that the function is one-to-one	**Compose functions** to verify if one function is the inverse of another function Read values of an inverse function from a graph **and** table **Identify a domain** that that will produce an invertible function from a non-invertible function	Given a simple function, **find its inverse** Read values of an inverse function from a graph **or** table **Identify if a function is invertible** from a graph	

Identify key features (F.IF.7)		Graph rational functions, given the model, and interpret all related key features of a graph **in context of a real world situation**. ● equations of asymptotes ● intercepts (x and y) ● end behavior	**Graph** rational functions, given the model, and identify all related key features of a graph. ● equations of asymptotes ● intercepts (x and y) ● end behavior	**Given the graphs** of rational functions, identify all related key features of a graph. ● equations of asymptotes ● intercepts (x and y) ● end behavior
Compare key features (F.IF.4)		Identify and compare key features of two functions represented in **all** of the following ways ● algebraically ● graphically ● tables ● in context	Identify and compare key features of two functions represented in **three** of the following ways ● algebraically ● graphically ● tables ● in context	Identify and compare key features of two functions represented in **two** of the following ways ● algebraically ● graphically ● tables ● in context