



Reporting Measure: Rational Numbers and Expressions

Level	Description
Above & Beyond (4.0)	The student will: • Test the idea that any rational number can be expressed as the ratio of two integers (for example, simplify expressions such as $9 + \sqrt{45}$, $\frac{\sqrt{45}}{3\sqrt{5}}$, and $3\sqrt{9}$ to determine which are rational and can therefore be expressed as the ratio of two integers).
3.5	In addition to score 3.0 performance, partial success at score 4.0 content
Proficient (3.0)	The student will: RNE1—Explain the properties of rational numbers and expressions (for example, rational numbers and expressions are closed under addition, subtraction, multiplication, and division by a nonzero rational expression; the sum or product of two rational numbers is rational; the sum of a rational number and an irrational number is irrational; and the product of a nonzero rational number and an irrational number is irrational). RNE2—Generate equivalent rational expressions (for example, convert the expression $2(4f + 2g)(3f + 7g)$ into the expression $24f^2 + 68fg + 28g^2$ by distributing the factors).
2.5	No major errors or omissions regarding score 2.0 content, and partial success at score 3.0 content
Getting There (2.0)	RNE1—The student will recognize or recall specific vocabulary (for example, <i>closed</i>, <i>irrational number</i>, <i>rational expression</i>, <i>rational number</i>) and perform basic processes such as: • Show that the sum or difference of two rational numbers is always a rational number. • Show that the product or quotient of two rational numbers is always a rational number. • Show that the sum or difference of a rational number and an irrational number can never equal a rational number. • Show that the product or quotient of a rational number and an irrational number can never equal a rational number. RNE2—The student will recognize or recall specific vocabulary (for example, <i>undefined</i>) and perform basic processes such as: • Combine like terms to simplify an expression. For example, $21y - 25 - 20 - 8y = 13y - 55$. • Manipulate expressions containing variables in the numerator and denominator of fractions. • Identify variable values that will make an expression undefined and exclude them when simplifying the expression. For example, $\frac{2x^2+13x+20}{2x^2+17x+30} = \frac{(x+4)(2x+5)}{(x+6)(2x+5)} = \frac{x+4}{x+6}$ with the domain of all real numbers except $x = -6$ and $x = -\frac{5}{2}$ since those values for x would result in a denominator of 0, which is undefined.
1.5	Partial success at score 2.0 content, and major errors or omissions regarding score 3.0 content
Beginning (1.0)	With help, partial success at score 2.0 content and score 3.0 content

