

# Math: Algebra, Functions, Expressions & Equations: Expressions & Properties of Operations

## Students: DesCartes Statements:

### Students:

#### RIT Above 260:

- Simplifies monomials
- Simplifies polynomial expressions using power laws
- Factors polynomials by identifying a common monomial and then factoring the trinomial

### Students:

#### RIT 251-260:

- Uses the additive inverse property with rational numbers
- Solves problems with scientific notation
- Uses expressions to represent situations that involve variable quantities with exponents
- Uses expressions with absolute value to represent situations
- Evaluates expressions by substituting with rational numbers
- Simplifies monomials
- Simplifies polynomial expressions
- Multiplies binomials
- Multiplies a polynomial by a polynomial
- Divides a polynomial by a monomial
- Factors polynomials by identifying common factors
- Factors trinomials in the form  $x^2 + bx + c$
- Factors polynomials using difference of squares

### Students:

#### RIT 241-250:

- Writes a number expressed in scientific notation in standard form
- Writes a whole number in scientific notation
- Writes a decimal in scientific notation
- Evaluates expressions using the order of operations, including exponents (whole numbers only)
- Evaluates numerical expressions using the order of operations (using integers)
- Evaluates expressions using the order of operations, including exponents (using integers)
- Simplifies rational expressions with scientific notation
- Solves problems with scientific notation
- Uses expressions to represent situations that involve variable quantities with exponents
- Evaluates expressions by substituting with rational numbers
- Simplifies polynomial expressions
- Multiplies binomials
- Factors trinomials in the form  $x^2 + bx + c$
- Factors polynomials using difference of squares

### Students:

#### RIT 231-240:

- Translates a problem to a symbolic expression or equation (analysis)
- Writes whole numbers in standard and exponential form
- Writes a number expressed in scientific notation in standard form
- Writes a whole number in scientific notation
- Writes a decimal in scientific notation
- Evaluates numerical expressions using the order of operations (whole numbers only)
- Evaluates expressions using the order of operations, including exponents (whole numbers only)
- Evaluates numerical expressions using the order of operations (using integers)
- Uses the distributive property
- Solves problems with scientific notation
- Uses expressions to represent situations that involve variable quantities with exponents
- Uses basic operations on algebraic expressions (substituting for unknowns)
- Recognizes commutative, associative, distributive, symmetric, transitive, and reflexive properties
- Uses basic operations on algebraic expressions (combining like terms)
- Uses basic operations on algebraic expressions (expanding - monomial by a binomial)
- Writes equivalent forms of algebraic expressions (e.g.,  $(x + 3)/2 = x/2 + 3/2$ )
- Represents relationships of quantities in the form of an expression

### Students:

#### RIT 221-230:

- Translates a problem to a symbolic expression or equation (analysis)
- Writes whole numbers in standard and exponential form
- Uses the distributive property
- Describes and uses a variable with whole numbers, multiplication, and division in a contextual situation
- Uses basic operations on algebraic expressions (substituting for unknowns)

- Recognizes commutative, associative, distributive, symmetric, transitive, and reflexive properties
- Uses basic operations on algebraic expressions (expanding - monomial by a binomial)
- Demonstrates an understanding of properties (e.g., commutative, associative, distributive, properties of 0)
- Writes equivalent forms of algebraic expressions (e.g.,  $(x + 3)/2 = x/2 + 3/2$ )
- Represents relationships of quantities in the form of an expression
- Uses basic operations on algebraic expressions (uses correct order of operations)

**Students:**

**RIT 211-220:**

- Writes whole numbers in standard and expanded form through the hundred thousands
- Demonstrates an understanding of the associative property of multiplication
- Demonstrates an understanding of the distributive property of multiplication by decomposing a term
- Uses basic operations on algebraic expressions (uses correct order of operations)

**Students:**

**RIT 201-210:**

- Writes whole numbers in standard and expanded form through the hundred thousands
- Evaluates numerical expressions using grouping symbols (whole numbers only)
- Demonstrates an understanding of the associative property of addition
- Demonstrates an understanding of the commutative property of addition
- Uses basic operations on algebraic expressions (uses correct order of operations)

**Students:**

**RIT 191-200:**

- Writes whole numbers in standard and expanded form through the hundreds
- Writes whole numbers in standard and expanded form through the thousands
- Evaluates numerical expressions using grouping symbols (whole numbers only)

**Students:**

**RIT 181-190:**

- *none*

**Students:**

**RIT 171-180:**

- *none*

**Students:**

**RIT Below 171:**

- Writes whole numbers in standard and expanded form through the tens