# Math: Number & Operations: Fractions: Add, Subtract, Multiply & Divide

| Students: | DesCartes Statements: |
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**Students:**

**RIT Above 240:**
- Solves open sentences with fractions

**Students:**

**RIT 231-240:**
- Adds fractions with unlike denominators with reducing or converting to a mixed fraction
- Adds mixed fractions where converting from improper fractions is necessary
- Subtracts whole numbers, fractions, and mixed fractions with regrouping
- Solves real-world problems involving addition and subtraction of fractions where converting both denominators is necessary
- Uses models to multiply and divide fractions and connect the actions to algorithms
- Multiplies mixed fractions
- Divides a fraction by a fraction
- Solves 2- or more step real-world problems involving fractions with multiplication and division
- Solves problems involving fractions (e.g., multiple operations, conversions)

**Students:**

**RIT 221-230:**
- Uses alternative algorithms to explain the meaning of "fraction"
- Adds fractions with like denominators with reducing or converting to a mixed fraction
- Adds fractions with unlike denominators without reducing
- Adds fractions with unlike denominators with reducing or converting to a mixed fraction
- Adds mixed fractions where converting from improper fractions is necessary
- Subtracts fractions with like denominators with reducing
- Subtracts fractions with unlike denominators without reducing
- Subtracts fractions with unlike denominators with reducing
- Subtracts mixed fractions with unlike denominators with no regrouping
- Subtracts whole numbers, fractions, and mixed fractions with regrouping
- Solves real-world problems involving addition and subtraction of fractions where converting one denominator is necessary
- Multiplies a fraction by a fraction without reducing to simplest form (complex problem)
- Multiplies a fraction by a fraction where reducing to simplest form is necessary
- Multiplies a fraction by a whole number
- Multiplies mixed fractions
- Divides a fraction by a fraction
- Solves 1-step real-world problems involving fractions with multiplication and division
- Solves 2- or more step real-world problems involving fractions with multiplication and division
- Solves problems involving fractions (e.g., multiple operations, conversions)

**Students:**

**RIT 211-220:**
- Adds fractions with like denominators without reducing
- Adds fractions with like denominators with reducing or converting to a mixed fraction
- Adds fractions with unlike denominators without reducing
- Adds simple mixed fractions with unlike denominators (e.g., halves, thirds, fourths, eighths)
- Subtracts simple fractions with unlike denominators without reducing (e.g., halves, quarters, thirds, eighths)
- Subtracts fractions with unlike denominators without reducing
- Subtracts mixed fractions with like denominators with no regrouping
- Subtracts mixed fractions with unlike denominators with no regrouping
- Solves real-world problems involving addition and subtraction of fractions where converting one denominator is necessary
- Multiplies a fraction by a fraction where reducing to simplest form is necessary
- Multiplies a fraction by a whole number
- Solves 1-step real-world problems involving fractions with multiplication and division

**Students:**

**RIT 201-210:**
- Adds fractions with like denominators without reducing
- Adds simple mixed fractions with unlike denominators (e.g., halves, thirds, fourths, eighths)
- Uses models to add and subtract fractions and connect the actions to algorithms
- Subtracts fractions with like denominators without reducing
- Subtracts mixed fractions with like denominators with no regrouping

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| | • Subtracts whole numbers, fractions, and mixed fractions<br>• Solves real-world 1-step problems involving addition and subtraction of fractions with like denominators<br>• Multiplies a fraction by a fraction without reducing to simplest form (simple problem) |
| **Students:** | **RIT 191-200:**<br>• Uses models to add and subtract fractions and connect the actions to algorithms<br>• Subtracts fractions with like denominators without reducing<br>• Solves real-world 1-step problems involving addition and subtraction of fractions with like denominators<br>• Solves real-world 1-step problems involving multiplication or division of a whole number by a fraction |