See this page in the course material.

Key Concepts

- **Summary of Fraction Operations**
  - **Fraction multiplication:** Multiply the numerators and multiply the denominators.

    [latex]\Large\frac{a}{b}\cdot\Large\frac{c}{d}=\Large\frac{ac}{bd}[/latex]
  - **Fraction division:** Multiply the first fraction by the reciprocal of the second.

    [latex]\Large\frac{a}{b}+\Large\frac{c}{d}=\Large\frac{a}{b}\cdot\Large\frac{d}{c}[/latex]
  - **Fraction addition:** Add the numerators and place the sum over the common denominator. If the fractions have different denominators, first convert them to equivalent forms with the LCD.

    [latex]\Large\frac{a}{c}+\Large\frac{b}{c}=\Large\frac{a+b}{c}[/latex]
  - **Fraction subtraction:** Subtract the numerators and place the difference over the common denominator. If the fractions have different denominators, first convert them to equivalent forms with the LCD.

    [latex]\Large\frac{a}{c}-\Large\frac{b}{c}=\Large\frac{a-b}{c}[/latex]
- **Simplify complex fractions.**
  1. Simplify the numerator.
  2. Simplify the denominator.
  3. Divide the numerator by the denominator.
  4. Simplify if possible.
- **Determine whether a number is a solution to an equation.**
  1. Substitute the number for the variable in the equation.
  2. Simplify the expressions on both sides of the equation.
  3. Determine whether the resulting equation is true. If it is true, the number is a solution. If it is not true, the number is not a solution.
- **Addition, Subtraction, and Division Properties of Equality**
  - For any numbers [latex]a[/latex], [latex]b[/latex], and [latex]c[/latex], if [latex]a=b[/latex] , then [latex]a+c=b+c[/latex] . Addition Property of Equality
  - if [latex]a=b[/latex] , then [latex]a-c=b-c[/latex] . Subtraction Property of Equality
  - if [latex]a=b[/latex] , then [latex]\Large\frac{a}{c}=\Large\frac{b}{c}[/latex] , [latex]c\ne 0[/latex] . Division Property of Equality
- **The Multiplication Property of Equality**
  - For any numbers [latex]a[/latex], [latex]b[/latex], and [latex]c[/latex], [latex]a=b[/latex] , then [latex]ac=bc[/latex] .
  - If you multiply both sides of an equation by the same quantity, you still have

equality.

- **Translate a word sentence to an algebraic equation.**
  1. Locate the “equals” word(s). Translate to an equal sign.
  2. Translate the words to the left of the “equals” word(s) into an algebraic expression.
  3. Translate the words to the right of the “equals” word(s) into an algebraic expression.

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