

# Mathematical Order of Operations

## When simplifying or evaluating (doing):

1. Parentheses, and grouping symbols: ( ), [ ], [( )]
  - a. If you have a Rational Algebraic Expression (variables in numerator or denominator), or a fraction where the numerator and denominator are not already simplified, there are implied parentheses around the numerator and denominator. Simplify the numerator and denominator before dividing the fraction.
2. Exponents and Roots:  $x^2$ ,  $\sqrt{x}$
3. Multiplication and Division (from left to right)
4. Addition and Subtraction (from left to right)

## When solving (undoing):

1. Isolate any absolute values, parentheses, or radicals that contain a variable.
2. Addition and Subtraction
3. Multiplication and Division
4. Exponents and Roots:  $x^2$ ,  $\sqrt{x}$
5. Parentheses, and grouping symbols: ( ), [ ], [( )]
6. If there are any Algebraic Expressions inside grouping symbols, you can start over again at #1.