

## Math Supplement for ARRL On-Line Courses

The following Web links are a compilation of on-line resources organized by topic. Students can use these materials in any order and at any time during the course.

Many of the tutorials are part of the “Interactive Mathematics” Web site (<http://www.intmath.com>) - a free, on-line system of tutorials. The system begins with basic number concepts and progresses all the way through introductory calculus. The lessons referenced here are those of most use to a student of radio electronics.

### Basic Numbers & Formulas

- Order of Operations - [http://www.intmath.com/Numbers/3\\_Order-of-operations.php](http://www.intmath.com/Numbers/3_Order-of-operations.php)
- Powers, Roots, and Radicals - [http://www.intmath.com/Numbers/4\\_Powers-roots-radicals.php](http://www.intmath.com/Numbers/4_Powers-roots-radicals.php)
- Scientific Notation - [http://www.intmath.com/Numbers/6\\_Scientific-notation.php](http://www.intmath.com/Numbers/6_Scientific-notation.php)
- Ratios and Proportions (including  $\pi$ , pi) - [http://www.intmath.com/Numbers/7\\_Ratio-proportion.php](http://www.intmath.com/Numbers/7_Ratio-proportion.php)
- Geometric Formulas - <http://www.equationsheet.com/sheets/Equations-4.html>
- Tables of Conversion Factors - [http://en.wikipedia.org/wiki/Conversion\\_of\\_units](http://en.wikipedia.org/wiki/Conversion_of_units)

### Metric System

- Metric System Overview - [http://en.wikipedia.org/wiki/Metric\\_system](http://en.wikipedia.org/wiki/Metric_system)
- Metric System Tutorial - <http://www.arrl.org/FandES/tbp/radio-lab/RLH%20Unit%203%20Lesson%20%233.1.doc>
- Conversion of Metric & English Units
  - <http://www.m-w.com/mw/table/metricsy.htm>
  - [http://en.wikipedia.org/wiki/Metric\\_yardstick](http://en.wikipedia.org/wiki/Metric_yardstick)

### Fractions

- Equivalent Fractions - [http://www.intmath.com/Factoring-fractions/5\\_Equivalent-fractions.php](http://www.intmath.com/Factoring-fractions/5_Equivalent-fractions.php)
- Multiplication and Division - [http://www.intmath.com/Factoring-fractions/6\\_Multiplication-division-fractions.php](http://www.intmath.com/Factoring-fractions/6_Multiplication-division-fractions.php)
- Adding and Subtracting - [http://www.intmath.com/Factoring-fractions/7\\_Addition-subtraction-fractions.php](http://www.intmath.com/Factoring-fractions/7_Addition-subtraction-fractions.php)
- Equations Involving Fractions - [http://www.intmath.com/Factoring-fractions/8\\_Equations-involving-fractions.php](http://www.intmath.com/Factoring-fractions/8_Equations-involving-fractions.php)

Basic Algebra - <http://www.intmath.com/Basic-algebra/Basic-algebra-intro.php>

### Graphs

- Basic Graphs - <http://www.intmath.com/Functions-and-graphs/Functions-graphs-intro.php>
- Polar Coordinates - [http://www.intmath.com/Plane-analytic-geometry/7\\_Polar-coordinates.php](http://www.intmath.com/Plane-analytic-geometry/7_Polar-coordinates.php)

Exponents & Radicals - <http://www.intmath.com/Exponents-radicals/Exponent-radical.php>

Exponential & Logarithmic Functions - <http://www.intmath.com/Exponential-logarithmic-functions/Exponential-log-functions-intro.php>

- Decibels - <http://www.arrl.org/hrlm/PowerAndDec.pdf> and <http://www.ac6v.com/db.htm>

### Trigonometry

- Basic Trig Functions - <http://www.intmath.com/Trigonometric-functions/Trig-functions-intro.php>
- Graphs of Trig Functions - <http://www.intmath.com/Trigonometric-graphs/Trigo-graph-intro.php>

Complex Numbers - <http://www.intmath.com/Complex-numbers/imaginary-numbers-intro.php>