QuickApps
An Overview

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QuickApps are simple, finger-friendly, engineering applications designed for Javascript capable hand-helds and web browsers.

Simple applications for:

- Reverse Polish Notation Calculator
- Length Conversion (e.g. mm → in)
- Temperature Conversion (C → F)
- Ohm's Law (E = IR)
- RC Exponentials (v(t) = vf – (vf – v0) e**(t/RC))
- db and dbm Calculations (given v or p)
- Resonant Frequencies (L, C, R, Q, BW)
- Impedance (R + jX, L, C, Fc, magnitude, angle)
- Toroid Design (inductor or transmission line transformer)

Start at: eightolives.com

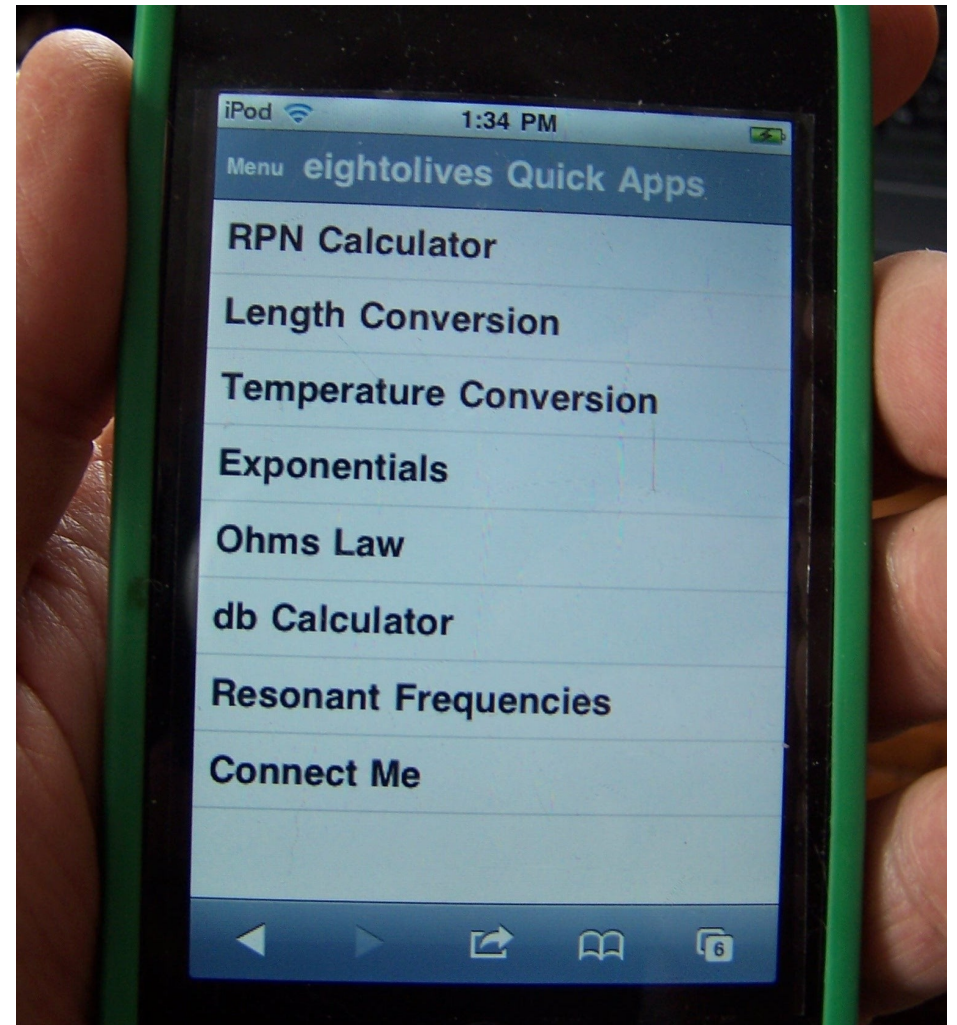http://www.eightolives.com/docs/Mobile/navigate/navigate.htm
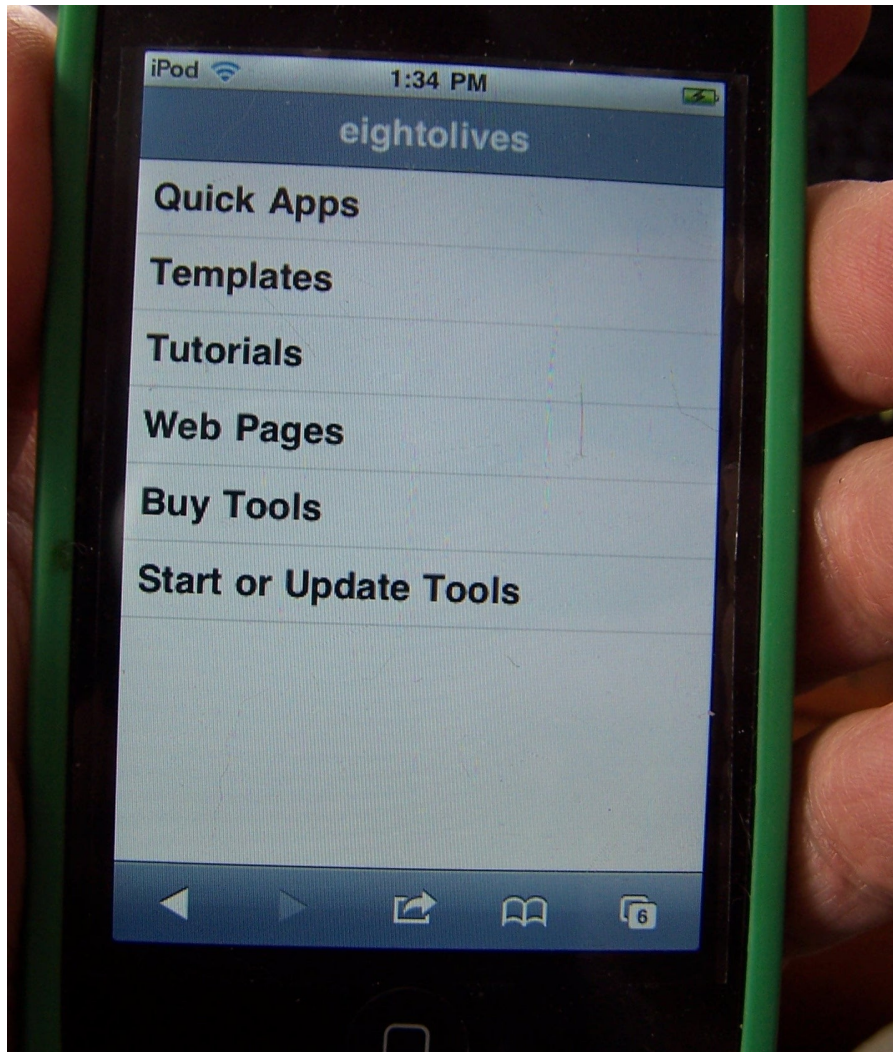
- or start from the eightolives.com Home Page and click "QuickApps"

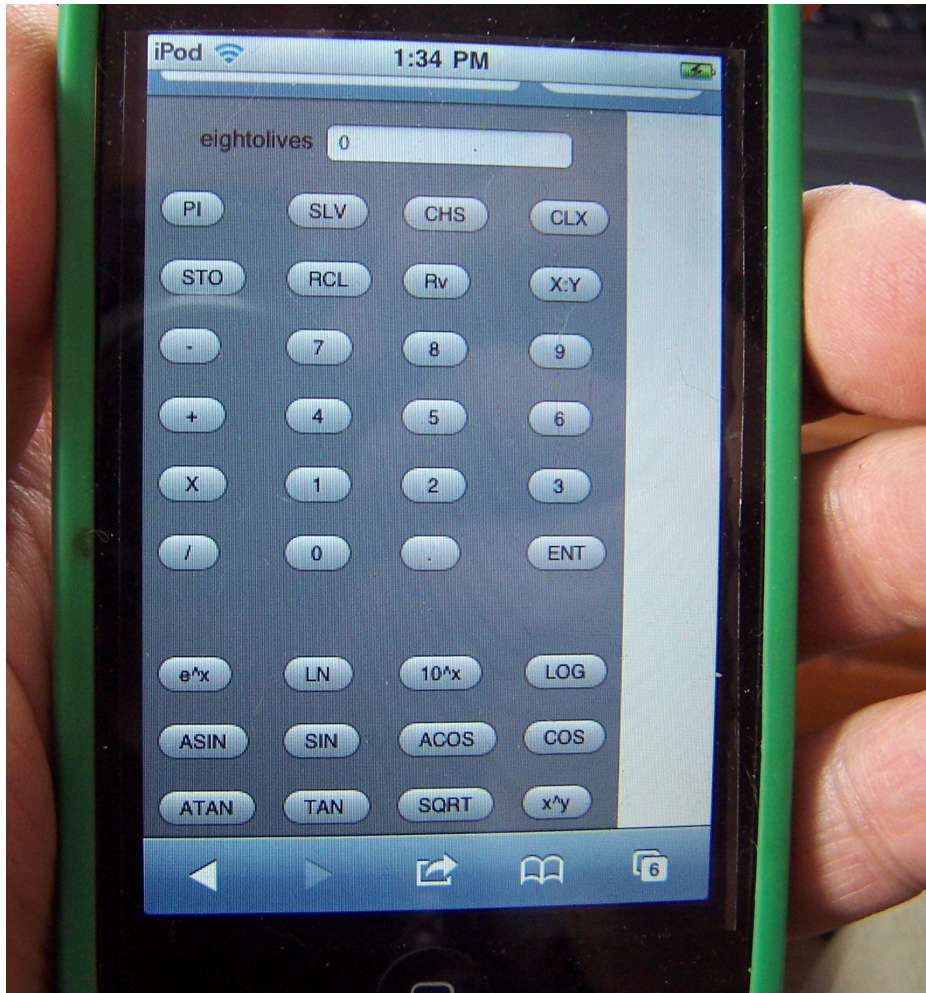- The main menu lets you select the QuickApps menu or other eightolives resources

Hint: Bookmark the link to this menu.

Then Pick Your Tool

- ## Select the QuickApp tool

- Also there's a link to the Connect Me page to connect to your network's modem

RPN Calculator

- A Reverse Polish Notation (RPN) calculator has no "=" button.

- Once you enter the first number, you hit the "ENT" (Enter) button or function button.

- Then enter the second number

- Then select the operation

RPN Calculation Examples

- "2 ENT 3 +" displays the answer 5

  - Traditionally: 2 + 3 = 5

- "5 ENT 7 X 2 ENT 3 X -" gives the answer 29

  - Traditionally: (5 * 7) – (2 * 3) = 29

- "PI ENT 4 / COS" gives the answer 0.707...

- "144 SQRT" gives the answer 12

- "3 ENT 2 X^Y" is 2 to the 3rd power or 8

- "3 ENT X 4 ENT X + SQRT" gives the answer 5

  - The square root of 3 squared plus 4 squared is 5

The Calculator Keys

- **0-9 .**   Enters numbers in the display
- **CLX**   Clears the display (X)
- **CHS**   Changes the sign of the display
- **STO**   Stores the number in memory
- **RCL**   Recalls the number from memory
- **ENT**   ENTERS the number onto the stack
- **Rv**   Rotates the 4 level stack
- **X:Y**   Exchanges the display and stack bottom (Y)

More Calculator Keys

- **X^Y**	The displayed number is raised to the power specified by the bottom stack entry

- **PI**	Displays the value of PI, 3.14159...

- **SIN**	Calculates the sine of the displayed angle in radians

- **COS**	Calculates the sine of the displayed angle in radians

- **TAN**	Calculates the sine of the displayed angle in radians

More Calculator Keys

- **ASIN**   Calculates the angle in radians of displayed sine

- **ACOS** Calculates the angle in radians of displayed cosine

- **ATAN** Calculates the angle in radians of displayed tangent

- **e^X**   Raises e (2.718..) to the power in display

- **LN**   Calculates the natural logarithm of the display

- **10^X**   Raises 10 to the power in the display

- **LOG**   Calculates the logarithm base 10 of the number in display
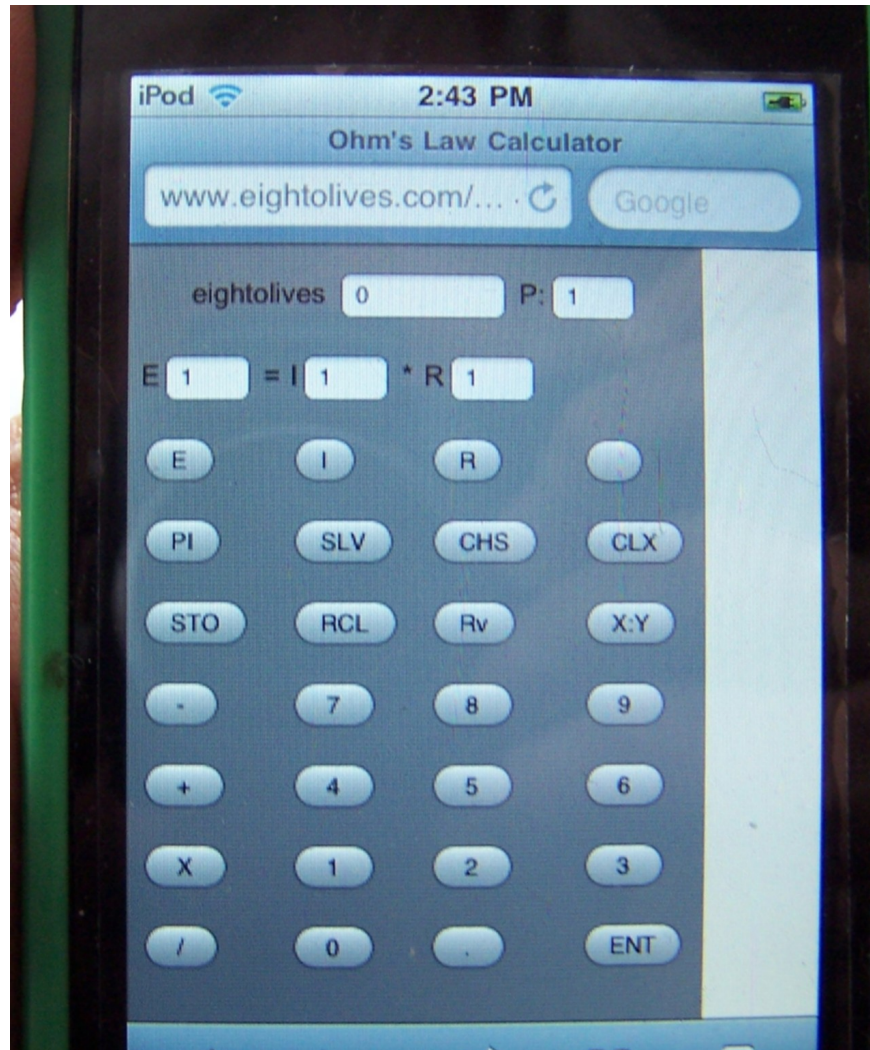
Length Conversion

- Select the units you want to convert between

- Enter the number in the calculator display

- Press "ENT->" next to item you wish to load

- The calculation occurs on load

Temperature Conversion

- Enter the number in the calculator display

- Press "ENT->" next to item you wish to load

- The calculation occurs on load
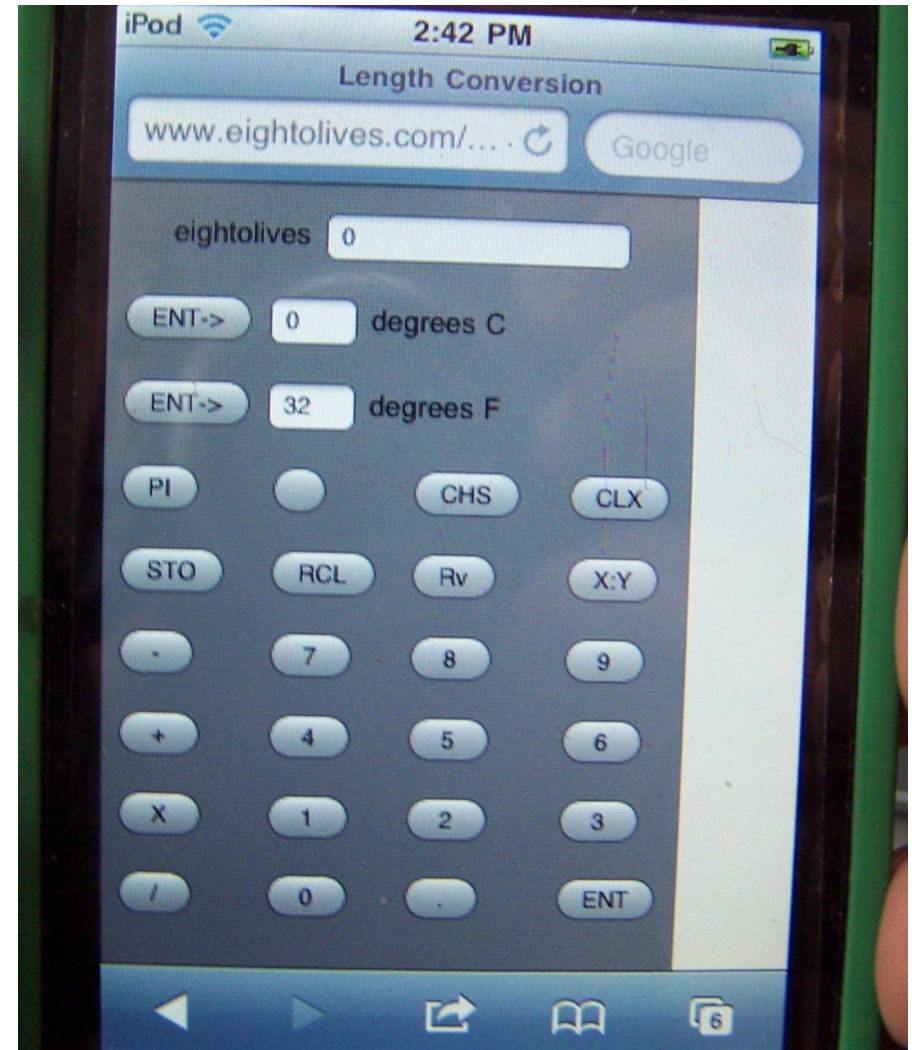
Ohm's Law

- Enter number in the calculator display

- Press E (voltage), I (current) or R (resistance) to load that field

- Calculation occurs on load
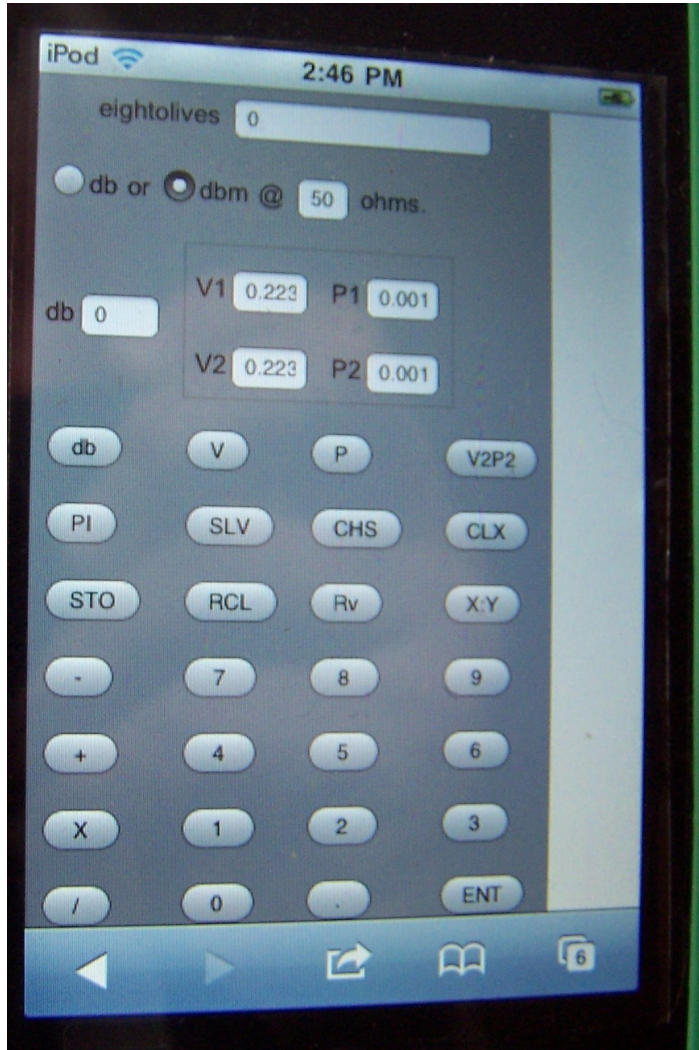
- Power is displayed as P

RC Exponentials

- This tool solves the equation:

V(t) = V(0) + (VEND - V(0)) (1 – e**(-t/RC)

- Enter numbers for the parameters you know

- Calculations update on each entry

- A report window at the bottom summarizes the results.
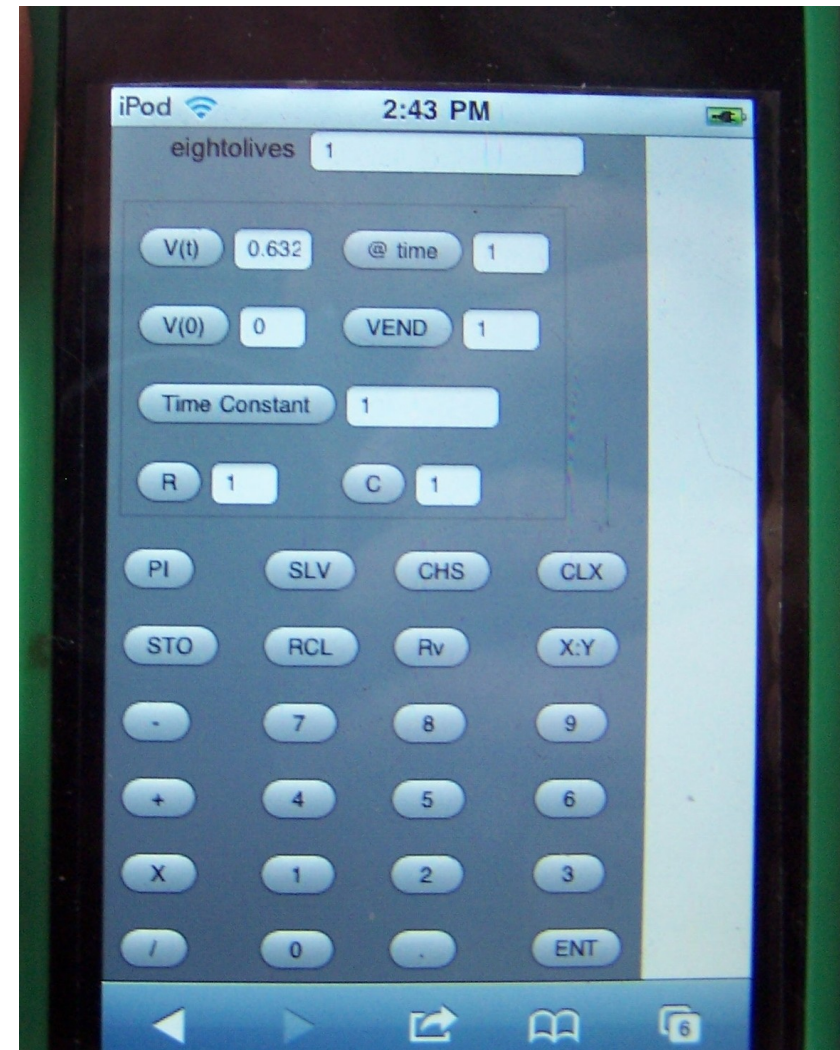
db or dbm Calculations

- The decibel calculator solves the equation:

db = 20 * log(V1/V2) = 10 * log(P1/P2)

- For dbm, V2 is fixed as 0.223 Volts and P2 is fixed at .001 W

- Enter number, press db, V or P button to load

- To enter V2 or P2 in db mode, press V2P2 before pressing V or P

- For dbmV, set db mode then "0.001 V2P2 V" to set V2 to   1 mV

Resonant Frequencies
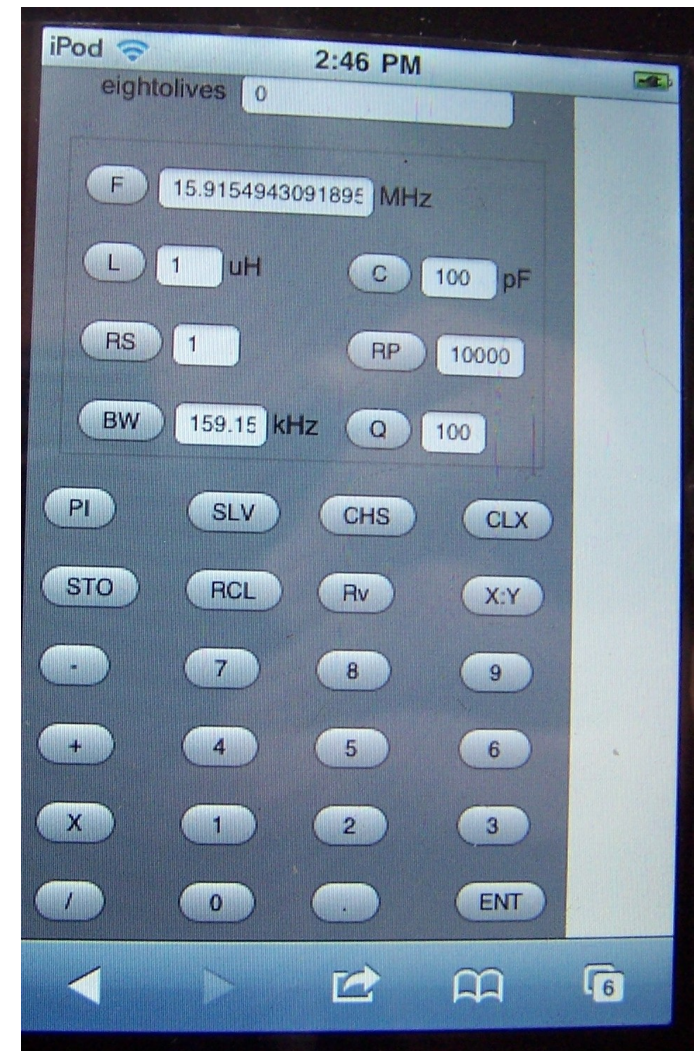
- **This calculator solves the equations:**

F = 1 / (2 * PI * SQRT(L * C))

BW = F / Q

RP = ((2 * PI * F **L)****2) / RS where RP is a parallel resistance and RS is the equivalent series resistance

Q = RP /(2 * PI * F * L)

- **Enter values in practical MHz, uH, pF and kHz**

- **A report window at the bottom summarizes the results.**

Impedance

- In the top window you can enter 2 complex impedance values and compute the parallel, series or voltage divider result

- In the middle window you can view or specify a frequency, resistance, inductance or capacitance and get the complex result

- A report window at the bottom summarizes the calculated result.

Toroid Design

- This tool is used to design inductors and transmission line transformers using iron powder or ferrite toroidal cores.

- See separate tutorial: QuickApp Toroid Design for details

- You specify inductance, frequency, current, core material, core size and wire size

- It estimates wire turns, flux density, power dissipation, temperature rise and core capability

- A report window at the bottom summarizes the design.

Hints

- Bookmark the menu page or tool page so can easily access the tools

- Calculations automatically occur on data entry solving for a likely parameter. To specify the parameter to solve, press the parameter button then press the SLV button

eightolives.com

For more information

- Check the tutorials at:
  http://www.eightolives.com/tutorials.htm

- Review bug reports and status from the QuickApps home page at: http://www.eightolives.com/docs/Mobile/index.htm