Calculator User Model

Facilities offered:

- Results calculated using complex numbers.
- Predefined programmer-extensible constant table (pi, exp, j) common to all calculators
- User definable variable list - static calculation
- User definable equation list - dynamic calculation

Evaluation precedence:

Equation Evaluation   (Hierarchic dynamic evaluation)
-> Compound Evaluation   (eg summation, prodation)
    -> Variable Evaluation   (static evaluation)
        -> Simple Evaluation   (literal evaluation)

6-Level Operator precedence:

level 1 -   +   -
level 2 -   *   /
level 3 -   ^(infix) xth Root (prefix)   xth Log(infix)
level 4 -   Factorial(postfix)
level 5 -   Engineering symbols(post fix) (powers of 10)
          MILLI, MICRO, NANO, PICO, FEMTO
          KILO, MEGA, GIGA, TERA, PETA, EXA
level 6 -   Number, Names, unary -, ( ), [ ] (complex modulus)
          sqrt(prefix)   cbrt(prefix)   sin   cos   tan
          asin   acos   atan   sinh   cosh   tanh
          acosh atanh ln   log10 log2   complex argument
          SUM(var, upper)   PROD(var, upper)
          SUM(var, lower, upper)   PROD(var, lower, upper)

- Invalid Operand checks made in all applicable cases.
- Name/Name & Name/operator clashes prohibited.
- complex number operands not permitted in trigonometric or log functions.
- Engineering symbols multiply by appropriate power of 10.

- () and [] allow unlimited* nesting.
- Equation hierarchy permits unlimited* nesting.
- Variable and Expression lists unlimited* in length

* computer memory permitting