KingCalc

COLLABORATORS			
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Chapter 1

KingCalc

1.1 King Calc Help

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1.2 KingCalc Features

The things that I was looking for, and thus programmed into a calculator, are:

- Enter entire function before evaluation
- Registers that may be assigned values or formulas
- Hex or Decimal output
- Free to mix Hex and Dec input on same line.

1.3 Formula Input

Kingcalc accepts an entire formula in the Input String Gadget ↩
, before any
actions are performed. After the formula has been entered, either by
hitting the enter key, or clicking the equals gadget, it is parsed. If the
formula does not contain any errors, it will be assigned to the
current
register

```
                If the input formula can be reduced to a value, the value is ↩
                   displayed, and
the current register is assigned that value.

If the input formula depends on any registers, it cannot be reduced to a
value.  The current register is assigned the formula, and the value is
displayed.

If the input formula contains Trig functions, then the evaluation will
depend on the  Angle Cycle Gadget . If the Angle Cycle Gadget contains
"Deg" then the trig will be evaluated in degrees. Otherwise it will be
evaluated in radians.

For input of Exponential numbers, Hexadecimal numbers, or calculating powers,
see
             Strange notation
            .


Some sample questions:

Input
             6 * 9
             into the Input String Gadget, and hit enter.
Input
             1 + R2 * 3
            .
Input
             sin(2 * 3)
            .
```

1.4 KingCalc Strange Notation

```
Entering Hex Numbers:
  Hexadecimal numbers may be entered using the 'C' convention of preceding
  the number with '0x'.  ie: 0x0A is the decimal number 10.  Hex numbers
  may be mixed with Decimal.  ie: 0x0A + 16 results in 26 or 0x1A.

Entering Exponentials:
  Exponential numbers like 1.6 times ten to the power of 6, (1600000) may
  be entered using 'E' or 'e'.  The E from the Hex letters is ok to use.
  So, 1600000 may be entered as 1.6e6 or 1.6E6.  This is the standard C
  printf format.

Powers:
  To specify a number such as 4 to the power of 5 using the gadgets, you
  click on the following gadgets:
  4 y$\times$ 5
  However, this is not appears in the string gadget.  4!5 appears.  '!' is
  actually the symbol used for 'power of'.  So, to type in the number 4 to
  the power 5, you should type 4!5.
```

1.5 Sample Trig call

```
sin(2 * 3)

This formula will first evaluate 2 * 3  (6!) and then evaluate sin(6).

However, the trig function sin() depends on the  Angle Cycle Gadget
```

1.6 Sample Register Calc

```
  1 + R2 * 3
This formula will be calculated according to order of operations, ie:
(((R2) * 3) + 1).

This formula depends upon a register, and cannot be reduced to a value.  The
current register will be assigned the formula "1 + R2 * 3".

After this occurs, R2 will be evaluated, and then the current register will be
evaluted.  The result will then be displayed.

If the current register is R2, then R2's formula will be evaluated twice, and
R2 will actually return the value (1 + (1 + R2 *3) * 3).
```

1.7 What is Six Times Nine

```
What is 6 * 9?
Although KingCalc will supply the numerical equivalent of 54, we all know
the answer is 42.
```

1.8 Registers

```
                KingCalc has 9 registers that may be assigned
             Formula Input
            .

The current register may be set with the  Register Cycle Gadget

If a formula is assigned to the current register, the formula will be
displayed on the status line.

Although a register may be assigned a formula depending on any of the 8
registers, results may be unpredictable if a register depends upon itself,
such as if R1's formula  was set to R1 + R2.
```

1.9 Output Base

The output of numerical values can be either in Decimal, or Hexadecimal. To change the output base, click on the base Cycle gadget . The base cycle gadget will contain either "Hex" or "Dec".

The status line will indicate the new base, but the output value will not be changed. The next calculated output value will be output in the new base.

1.10 Helpful Hints

A few tips that may speed your use of KingCalc

- Holding the Shift key while clicking a Cycle gadget will select the previous entry.
- When using the keyboard, the Enter keys are used to evaluate a function, not the equals key.
- Intuition String Gadget Keyboarding Shortcuts
    - Right Amiga X will clear a string gadget
    - Right Amiga Q will undo the last string gadget change
    - Shift Right Arrow will go to last position in string gadget
    - Shift Left Arrow will go to first position in string gadget
    - Shift Backspace will delete all characters before prompt
    - Shift Delete will delete all characeters after prompt