bc Precision calculator

CONCEPTS

Division truncates to scale digits and scale starts at 0, so 10/3 prints 3. Set scale=N first, or use -l (scale 20).

Set obase before ibase when both change: after ibase=16, the number 10 means sixteen. Use A for ten while ibase is 16.

RUNNING BC

bc
Start interactive calculator

bc -l
Math library and scale 20

echo '*<expr>*' | bc -l
Evaluate an expression from a pipe

bc -e '*<expr>*'
Evaluate an expression argument

bc *<file>*
Run a script file, then read stdin

bc -L
Do not wrap long output lines

PRECISION AND BASES

scale=*<n>*
Digits kept after the decimal point

obase=*<n>*
Output base (2 to max)

ibase=*<n>*
Input base (2 to 36)

obase=16; *<n>*
Convert decimal to hex

ibase=16; *<HEX>*
Read hex as input (uppercase digits)

last or .
Last printed result

OPERATORS

+ - * / %
Basic arithmetic and remainder

OPERATORS (cont.)

^
Power with integer exponent

sqrt(*<x>***)**
Square root

MATH LIBRARY (-L)

s(*<x>***)**
Sine in radians

c(*<x>***)**
Cosine in radians

a(*<x>***)**
Arctangent in radians

l(*<x>***)**
Natural logarithm

e(*<x>***)**
e to the power x

4*a(1)
Pi to current scale

l(*<x>***)/l(10)**
Log base 10 (or l10(x))

p(*<x>***,** *<y>***)**
Power with non-integer exponent

PROGRAMMING

define *<f>***(***<a>***,** *<b>***) { ... }**
Define a function

auto *<i>***,** *<j>*
Local variables (first line in function)

return (*<x>***)**
Return a value

if (*<c>***) { } else { }**
Conditional

while (*<c>***) { ... }**
Loop while true

for (i=0; i<10; i++) { ... }
Counting loop

quit
Exit bc