NAME

dc – desk calculator

SYNOPSIS

dc [file]

DESCRIPTION

Dc is an arbitrary precision integer arithmetic package. The overall structure of *dc* is a stacking (reverse Polish) calculator. The following constructions are recognized by the calculator:

number	The value of the number is pushed on the stack. A number is an unbroken string of the digits 0-9. It may be preceded by an underscore _ to input a negative number.
+ – * % ˆ	The top two values on the stack are added (+), subtracted (–), multiplied (*), divided (/), remaindered (%), or exponentiated (ˆ). The two entries are popped off the stack; the result is pushed on the stack in their place.
s*x*	The top of the stack is popped and stored into a register named *x*, where *x* may be any character.
l*x*	The value in register *x* is pushed on the stack. The register *x* is not altered. All registers start with zero value.
d	The top value on the stack is pushed on the stack. Thus the top value is duplicated.
p	The top value on the stack is printed. The top value remains unchanged.
f	All values on the stack and in registers are printed.
q	exits the program. If executing a string, the nesting level is popped by two.
x	treats the top element of the stack as a character string and executes it as a string of dc commands.
[|...|]	puts the bracketed ascii string onto the top of the stack.
<*x* =*x* >*x*	The top two elements of the stack are popped and compared. Register *x* is executed if they obey the stated relation.
v	replaces the top element on the stack by its square root.
!	interprets the rest of the line as a UNIX command.
c	All values on the stack are popped.
i	The top value on the stack is popped and used as the number radix for further input.
o	The top value on the stack is popped and used as the number radix for further output.
z	The stack level is pushed onto the stack.
?	A line of input is taken from the input source (usually the console) and executed.
new-line	ignored except as the name of a register or to end the response to a **?.**
space	ignored except as the name of a register or to terminate a number.

If a file name is given, input is taken from that file until end-of-file, then input is taken from the console. An example which prints the first ten values of n! is

```
[la1+dsa*pla10>x]sx
0sa1
lxx
```

FILES

/etc/msh	to implement ‘!’

DIAGNOSTICS

(x) ? for unrecognized character x.
(x) ? for not enough elements on the stack to do what was asked by command x.
‘Out of space’ when the free list is exhausted (too many digits).
‘Out of headers’ for too many numbers being kept around.
‘Out of pushdown’ for too many items on the stack.
‘Nesting Depth’ for too many levels of nested execution.

BUGS