

NAME

factor, *primes* — *factor* a number, generate large primes

SYNOPSIS

factor [number]

primes

DESCRIPTION

When *factor* is invoked without an argument, it waits for a number to be typed in. If you type in a positive number less than 2^{56} (about 7.2×10^{16}) it will factor the number and print its prime factors; each one is printed the proper number of times. Then it waits for another number. It exits if it encounters a zero or any non-numeric character.

If *factor* is invoked with an argument, it factors the number as above and then exits.

Maximum time to factor is proportional to \sqrt{n} and occurs when n is prime or the square of a prime. It takes 1 minute to factor a prime near 10^{14} on a PDP11.

When *primes* is invoked, it waits for a number to be typed in. If you type in a positive number less than 2^{56} it will print all primes greater than or equal to this number.

DIAGNOSTICS

'Ouch.' for input out of range or for garbage input.