

# Introduction

From Vladimir Nabokov's autobiography "Speak, Memory."

A foolish tutor had explained logarithms to me much too early, and I had read (in a British publication, the *Boy's Own Paper*, I believe) about a certain Hindu calculator who in exactly two seconds could find the seventeenth root of, say, 3529471145760275132301897342055866171392 (I am not sure I have got this right; anyway the root was 212).

Example 1. Compute  $212^{17}$ . (User input is shown in blue, results are shown in black.)

$212^{17}$

3529471145760275132301897342055866171392

Example 2. Compute  $212^{17}$  and save as  $N$ , then show the value of  $N$ .

$N = 212^{17}$

$N$

$N = 3529471145760275132301897342055866171392$

Example 3. Compute the 17th root of  $N$ .

$N^{(1/17)}$

212

Example 4. Show that  $N$  is greater than 64 bits.

$N > 2^{64}$

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