Problem 6

Undergraduate Problem Solving Contest
due April 3rd, 2017

March 19, 2017

1 Too Long

The number: $n = 6,332,659,870,762,850,625$ is long - 19 characters long (omitting commas). This is too long. Using the symbols: $+, -, *, \div, (,), \wedge$ (for exponentiation, as in $2 \wedge 3 = 8$), !(factorial), and the usual numbers $0 - 9$, write n in as few symbols as possible.

You may make multiple submissions, and you do *not* need a proof that your expression is minimal.

2 Examples

1. We can write 120 in 2 symbols as 5!.
2. We can write $43,046,721$ as $3 \wedge 16$, which uses 4 symbols, but a better representation would be $9 \wedge 8$, which uses 3.
3. $7,122,217,027 = 1924 \wedge 3 + 3$, which uses 8 symbols. Parenthesis are omitted due to the usual assumed order of operations.