Random Arithmetic

Input file:	`standard input`
Output file:	`standard output`
Time limit:	2 seconds
Memory limit:	64 megabytes

Bobo was playing with n integers $a_1, a_2, \ldots, a_n$. Each time he chose uniformly randomly two integers x, y from them, and replaced them with either $x + y$ or $x \cdot y$ (Thus, there were $n \cdot (n-1)$ outcomes with equal probability after the 1st operation).

After repeated $(n-1)$ times, exactly one integer remained. Bobo would like to know the expectation of the remaining integer.

Input

The first line contains 1 integer n $(2 \leq n \leq 2000)$.

The second line contains n integers $a_1, a_2, \ldots, a_n$ $(0 \leq a_i \leq 10^9)$.

Output

If the expectation is $\frac{P}{Q}$, output $P \cdot Q^{-1} \bmod (10^9 + 7)$.

Note that Q^{-1} is the multiplicative inverse to Q where $Q \cdot Q^{-1} \equiv 1 \pmod{(10^9 + 7)}$.

Examples

standard input	standard output
2 1 1	500000005
3 1 2 3	250000008