Simple Calculation

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	1024 megabytes

Define $f(x)$ as the number of integers y such that $1 \leq y \leq x$ and $\gcd(x, y) = 1$. Here, $\gcd(x, y)$ is the greatest common divisor of x and y.

Define $g(x) = k \cdot f(x)$.

Define $g^{(t)}(x) = g(g^{(t-1)}(x))$ when $t > 1$, and $g^{(1)}(x) = g(x)$.

Find $g^{(t)}(n) \bmod 998\,244\,353$.

Input

The only line contains three integers n, k, t ($1 \leq n, k, t \leq 998\,244\,352$).

Output

Output an integer, denoting the answer modulo 998 244 353.

Examples

standard input	standard output
5 3 4	12
114514 1919 810	565299374