

# O. April Fools' Problem (hard)

time limit per test: 10 seconds  
memory limit per test: 256 megabytes  
input: standard input  
output: standard output

The plans for HC<sup>2</sup> are rather far-fetched: we are just over 500 000 days away from HC<sup>2</sup> 3387, for example, and accordingly we are planning to have a couple hundred thousand problems in that edition (we hope that programming contests will become wildly more popular). The marmots need to get to work, and they could use a good plan...

## Input

Same as the medium version, but the limits have changed:  $1 \leq k \leq n \leq 500\,000$ .

## Output

Same as the medium version.

## Example

input
8 4 3 8 7 9 9 4 6 8 2 5 9 4 3 8 9 1
output
32