

# File System

Time Limit: 1 Second  
Memory Limit: 256 MB

Mattox just invented a new file system that runs faster than an existing ones! In the new system, each file is assigned a unique integer identifier in range  $[1, n]$  (where  $n$  is the number of files) based on the size of the files. To access files, the system supports two operations:

1. **forward**: if you are currently accessing file with identifier  $x$ , you can move to access any file with identifier  $y$  such that  $y < x$ . The operation takes  $\text{lcm}(x, y)$  ms, where  $\text{lcm}(x, y)$  is the least common multiple of  $x$  and  $y$ .
2. **backward**: you can undo the previous **forward** operation and return to the previous file you visited. The operation can be done instantly.

To empirically compare the performance of his new file system with prior works, Mattox asks you to find out the minimum time needed to access all files in a file system starting at file number  $n$ .

## Input

The only line of input contains a single integer  $n$  ( $1 \leq n \leq 5 \times 10^4$ ) - the number of files in the system.

## Output

Output a single integer denoting the minimum time needed (in ms) to access all files in the system using **forward** and **backward** operations.

## Sample Inputs

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4

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## Sample Outputs

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18

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## Note

You can visit the files in the following order:

1. Access file 4.
2. Access file 3 using **forward** operation, taking 12 ms.
3. Access file 4 using **backward** operation.
4. Access file 2 using **forward** operation, taking 4 ms.
5. Access file 1 using **forward** operation, taking 2 ms.