AlphaBit Coding Challenge

Problem 2: Memory Size

Statement

We have a set of different chunks of data and we want to store them all in one storage drive.
Given the size of each chunk of data, can you help us find the minimum size of the storage drive that we need, such as the size of the storage drive are all in power of 2 (2, 4, 8, 16, ... 512, ... 2048, ...).

Note: We guarantee that the sum of the size of the given data chunks is < 2^{31}.

Input

1st line: a single integer N that represents the number of data chunks we want to store.

The next N lines: each line contains the size of a data chunk.

Output

Print the minimum size of the storage drive that can store all data.

Example

Input	Output
4 6 2 4 5	32