Project Euler #201: Subsets with a unique sum

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This problem is a programming version of Problem 201 from projecteuler.net

For any set A of numbers, let $sum(A)$ be the sum of the elements of A.
Consider the set $B = \{1, 3, 6, 8, 10, 11\}$.

There are 20 subsets of B containing three elements, and their sums are:

$$\begin{aligned}
\text{sum}(\{1,3,6\}) &= 10 \\
\text{sum}(\{1,3,8\}) &= 12 \\
\text{sum}(\{1,3,10\}) &= 14 \\
\text{sum}(\{1,3,11\}) &= 15 \\
\text{sum}(\{1,6,8\}) &= 15 \\
\text{sum}(\{1,6,10\}) &= 17 \\
\text{sum}(\{1,6,11\}) &= 18 \\
\text{sum}(\{1,8,10\}) &= 19 \\
\text{sum}(\{1,8,11\}) &= 20 \\
\text{sum}(\{1,10,11\}) &= 22 \\
\text{sum}(\{3,6,8\}) &= 17 \\
\text{sum}(\{3,6,10\}) &= 19 \\
\text{sum}(\{3,6,11\}) &= 20 \\
\text{sum}(\{3,8,10\}) &= 21 \\
\text{sum}(\{3,8,11\}) &= 22 \\
\text{sum}(\{3,10,11\}) &= 24 \\
\text{sum}(\{6,8,10\}) &= 24 \\
\text{sum}(\{6,8,11\}) &= 25 \\
\text{sum}(\{6,10,11\}) &= 27 \\
\text{sum}(\{8,10,11\}) &= 29
\end{aligned}$$

Some of these sums occur more than once, others are unique.

For a set A, let $U(A, k)$ be the set of unique sums of $k-element$ subsets of A, in our example we find $U(B, 3) = \{10, 12, 14, 18, 21, 25, 27, 29\}$ and $sum(U(B, 3)) = 156$.

Now consider the n-element set $S = \{s_1, s_2, \cdots, s_n\}$.

S has $\binom{n}{m}$ m-element subsets.

Determine the sum of all integers which are the sum of exactly one of the m-element subsets of S, i.e. find $sum(U(S, m))$.

Input Format

First line of input contains two integers n and m. Second line of input contains n integers $s_1, \ldots, s_n$.

Constraints

- $1 \leqslant n \leqslant 100$,
- $1 \leqslant m \leqslant n$,
- $1 \leqslant s_i \leqslant 100$.

Output Format

Print one integer containing answer to the problem.

Sample Input

```
6 3
1 3 6 8 10 11
```

Sample Output

```
156
```