# Telerik Software Academy – C# Fundamentals Part 1 – Sample Exam

## Problem 5 – Subset Sums

You are given a list of **N** numbers. Write a program that counts all non-empty subsets from this list, which have sum of their elements exactly **S**.

Example: if you have a list with 4 elements: { 1, 2, 3, 4 } and you are searching the number of non-empty subsets which sum is 4, the answer will be 2. The subsets are: { 1, 3 } and { 4 }.

### Input

The input data is being read from the console.

On the first input line there will be the number **S.**

On the second line you must read the number **N**.

On each of the following **N** lines there will be one integer number written – all the numbers from the list.

The input data will always be valid and in the format described. There is no need to check it explicitly.

### Output

The output must be printed on the console.

On the only output line you must print the number of the non-empty subsets, which have sum of all its elements exactly **S**.

### Constraints

* The number **N** is a positive integer between 1 and 16, inclusive.
* All of the **N** numbers are integer numbers and will be between -1 337 000 000 000 and 1 337 000 000 000, inclusive.
* The number **S** is an integer number between -21 392 000 000 000 and 21 392 000 000 000, inclusive.
* All of the **N** numbers will be distinct.
* Allowed work time for your program: 1 second.
* Allowed memory: 16 MB.

### Examples

|  |  |
| --- | --- |
| **Input Example** | **Output Example** |
| 1  1  1 | 1 |
| 0  5  -2  -1  1  2  3 | 4 |
| 1337  4  12  23  34  45 | 0 |