Problem G. Gifts of Santa Claus

In Santa Claus' house, there are n bags of gifts. Each bag is numbered by an integer from 1 to n, and bag i $(1 \le i \le n)$ contains exactly a_i gifts.

Santa Claus would like to choose some of the bags and give gifts for children. However, as Santa Claus is somehow an odd person, the total number of gifts inside the bags that he chose should be an ***odd*** number! Among the possible $2^n - 1$ choices of bags, how many ways are there for Santa Claus to choose the bags? Write a program that calculates that number.

Input

Your input consists of an arbitrary number of records, but no more than 100.

Each record consists of two lines. The first line contains only an integer n $(1 \le n \le 50)$. The second line contains n integers $a_1, a_2, \cdots, a_n$ $(1 \le a_i \le 100)$.

The end of input is indicated by a line containing only the value -1.

Output

For each input record, print the number of ways of choosing the bags such that the total number of gifts is odd. Note that you might need to use a 64-bit integer type, and usually in contests, authors don't tell this information.

Example

Standard input	Standard output
2 1 3 1 100 3 1 1 1 -1	2 0 4

Explanation of the example

For the first example: Two ways - Only choosing bag 1, and only choosing bag 2.

For the second example: There is only one bag and it has even number of gifts, so there is no way to make the number of gifts odd.

For the third example: All bags have exactly one gift, so the answer is $\binom{3}{1} + \binom{3}{3} = 4$. Note that bags are distinguished even if they have the same number of gifts.

Time Limit

1 second.