

## Problem E. Evolving creatures

We just found  $n$  strangely looking creatures, and numbered them by integers from 1 to  $n$ . We don't know much information about them, but we know the color and the size of the  $i$ -th creature – the color is  $i$ , and the size is  $s_i$ .

By some inspection, we found that every creature can 'absorb' another creature whose size is *at most twice* the size of itself. More specifically, a creature with color  $a$  and size  $b$  can absorb another creature with color  $c$  and size  $d$  if and only if  $d \leq 2 \times b$ . After absorbing, they will merge into one creature of color  $a$  and size  $b + d$ . Note that depending on the sizes of two creatures, it is possible that both of them can absorb the other.

We know that these creatures will merge over and over again, and finally become a one large creature. We know the size of the final creature, but we don't know its color. Write a program that calculates the number of possible colors of this creature.

### Input

Your input consists of an arbitrary number of records, but no more than 5.

Each record contains two lines. The first line contains only an integer  $n$  ( $2 \leq n \leq 100,000$ ). The second line contains  $n$  integers  $a_1, a_2, \dots, a_n$  ( $1 \leq a_i \leq 10^9$ ), each separated by a space.

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

### Output

For each input record, print the number of possible colors of the last remaining creature, after the  $n$  creatures become one creature.

### Example

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

### Explanation of the example

For the first example: the possible colors are colors 1 and 3.

## Time Limit

1 second.