

Jesse loves cookies and wants the sweetness of some cookies to be greater than value k . To do this, two cookies with the least sweetness are repeatedly mixed. This creates a special combined cookie with:

$$\text{sweetness} = (1 \times \text{Least sweet cookie} + 2 \times \text{2nd least sweet cookie}).$$

This occurs until all the cookies have a sweetness $\geq k$.

Given the sweetness of a number of cookies, determine the minimum number of operations required. If it is not possible, return -1 .

Example

$k = 9$
 $A = [2, 7, 3, 6, 4, 6]$

The smallest values are $2, 3$.
Remove them then return $2 + 2 \times 3 = 8$ to the array. Now $A = [8, 7, 6, 4, 6]$.
Remove $4, 6$ and return $4 + 6 \times 2 = 16$ to the array. Now $A = [16, 8, 7, 6]$.
Remove $6, 7$, return $6 + 2 \times 7 = 20$ and $A = [20, 16, 8, 7]$.
Finally, remove $8, 7$ and return $7 + 2 \times 8 = 23$ to A . Now $A = [23, 20, 16]$.
All values are $\geq k = 9$ so the process stops after 4 iterations. Return 4 .

Function Description

Complete the *cookies* function in the editor below.

cookies has the following parameters:

- *int k*: the threshold value
- *int A[n]*: an array of sweetness values

Returns

- *int*: the number of iterations required or -1

Input Format

The first line has two space-separated integers, n and k , the size of $A[]$ and the minimum required sweetness respectively.

The next line contains n space-separated integers, $A[i]$.

Constraints

$1 \leq n \leq 10^6$
 $0 \leq k \leq 10^9$
 $0 \leq A[i] \leq 10^6$

Sample Input

STDIN	Function
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6 7	A[] size n = 6, k = 7
1 2 3 9 10 12	A = [1, 2, 3, 9, 10, 12]

Sample Output

2

Explanation

Combine the first two cookies to create a cookie with $sweetness = 1 \times 1 + 2 \times 2 = 5$

After this operation, the cookies are **3, 5, 9, 10, 12**.

Then, combine the cookies with sweetness **3** and sweetness **5**, to create a cookie with resulting $sweetness = 1 \times 3 + 2 \times 5 = 13$

Now, the cookies are **9, 10, 12, 13**.

All the cookies have a sweetness ≥ 7 .

Thus, **2** operations are required to increase the sweetness.