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:

sweetness $=$ $(1\times$ Least sweet cookie $+$ $2\times$ 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
-----               --------
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.