

Jesse and Cookies

Jesse loves cookies. He wants the sweetness of all his cookies to be greater than value K . To do this, Jesse repeatedly mixes two cookies with the least sweetness. He creates a special combined cookie with:

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

He repeats this procedure until all the cookies in his collection have a sweetness $\geq K$.

You are given Jesse's cookies. Print the number of operations required to give the cookies a sweetness $\geq K$. Print **-1** if this isn't possible.

Input Format

The first line consists of integers N , the number of cookies and K , the minimum required sweetness, separated by a space.

The next line contains N integers describing the array A where A_i is the sweetness of the i^{th} cookie in Jesse's collection.

Constraints

- $1 \leq N \leq 10^6$
- $0 \leq K \leq 10^9$
- $0 \leq A_i \leq 10^6$

Output Format

Output the number of operations that are needed to increase the cookie's sweetness $\geq K$.

Output **-1** if this isn't possible.

Sample

| Sample input | Sample output |
|----------------------|---------------|
| 6 7 1 2 3 9 10 12 | 2 |

Explanation

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

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 $\text{sweetness} = 1 \times 3 + 2 \times 5 = 13$

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

All the cookies have a sweetness ≥ 7 .

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