Tyrion and wine

locked


by vatsalchanana

Tyrion is a wine lover. He wants the goodness of his wines to be greater than a value K. To do this, Tyrion repeatedly mixes two wines with the least goodness. He creates a perfect combination of these wines to create a special wine with goodness = ($1\times$ Goodness of the wine with the least goodness + $2\times$ Goodness of the wine with second smallest goodness). He repeats this procedure until all the wines in his collection have a goodness $\geq K$. Tyrion wants you to calculate the number of such operations he will need to perform if he wishes to have all wines with goodness $\geq K$.
You are given the wines in Tyrion's collection, you need to print the number of operations that will be required. Print -1 if it isn't possible to increase goodness of all the wines in the collection to be $\geq K$.

Input Format

The input consists of an integer N, the number of wines in Tyrion's collection and an integer K, the minimum required goodness for the wines. The next line contains N integers describing the array A where A_i is the goodness of the i^{th} wine in Tyrion'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 a single value equal to the number of operations that are need to increase the goodness of his wine collection such that all wines in the resulting collection have goodness $\geq K$.
Output -1 if it isn't possible to increase the goodness of all the wines in his collection to $\geq K$

Sample Input

```
6 7
1 2 3 9 10 12
```

Sample Output

```
2
```

Explanation

Tyrion will first combine the first two wines to create a wine with goodness =$1 \times 1 + 2 \times 2 = 5$
The wines in his collection after this operation are {3,5,9,10,12}
Then, tyrion will combine wines with goodness 3 and goodness 5, to create a wine with resulting goodness = $1 \times 3 + 2 \times 5 = 13$
The wines in his collection are {9,10,12,13}. All the wines have goodness ≥ 7. Thus 2 operations are required to increase the goodness.


```
1  import java.io.*;
2  import java.util.*;
3  import java.text.*;
4  import java.math.*;
5  import java.util.regex.*;
6
7  public class Solution {
8
9      public static void main(String[] args) {
10         /* Enter your code here. Read input from STDIN. Print output to STDOUT. Your class should be named Solution. */
```

```
    }
}
```

Line: 1 Col: 1

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