Weighty Decisions

Time limit: *2000 ms*
Memory limit: *512 MB*

You have N lead balls weighing respectively $w_1, w_2, ...w_N$ grams each.

The list of weights is given but we do not know which weight corresponds to which ball.

Our objective is, using a two-pan balance, to find the minimum number of comparisons to associate each ball with its corresponding weight.

A weighing is obtained by putting a subset A of balls on one pan and a disjoint subset B of balls on the other pan. Three outcomes are possible: A weighs more than B, B weighs more than A or they weigh the same.

Standard input

The input of the problem is a list of integers, each on a line by itself. These integers correspond to the weights $w_1, w_2, ..., w_n$.

Standard output

For each test case, output, on a line by itself, the minimum number of sufficient comparisons to identify each ball.

Constraints and notes

- Each weight is between 1 and 100.
- There will never be more than 9 balls. Moreover, there will never be more then 7 different weights. For example, if there are 8 balls, at least two balls must have the same weight.

Input	Output
2 2 2 3	2