



Goal

After a long time preparing pancake batter and cooking it, you are suddenly seized with an aesthetic dissatisfaction by looking at your stack of pancakes: all your pancakes having different diameters, the pile looks like nothing! Failing to have pancakes of the same size, it would be nicer if they were sorted with the smallest at the top and the largest at the bottom.

So you decide to sort the stack using a spatula. By inserting the spatula between the k^{th} and the $(k + 1)^{\text{th}}$ crepe from the top, you can flip at once the first k pancakes of the pile. How many times do you have to repeat this kind of operation before getting a sorted stack?

For simplicity, we will consider in this exercise only piles containing exactly 6 pancakes. It is known that in this case, there is always a way to sort in at most 7 flips.

Indication: this means that you can proceed by exhaustive enumeration (brute force). However the memory used by your script should not exceed 128MB, so you may need to exclude a few cases that have no chance of succeeding (for example flip the first pancake alone).

Data

Input

Row 1 to 6: an integer between 15 and 50 representing the diameter of a pancake of the stack starting from the top one.

You are guaranteed that pancakes have different diameters two by two.

Output

An integer, indicating the minimum number of flips required to obtain a sorted stack from the given stack.

Example

In this example, pancakes of size between 20 and 45 cm are considered, arranged in the following stack:

45
40
35
20
25
30

Putting the spatula all the way down and thus turning the whole stack, you get:

30
25
20
35
40
45

To finish sorting, you just have to flip the first 3 pancakes, inserting the spatula between the 20 cm pancake and the 35 cm pancake:

20
25
30
35
40
45

So, in this example, the minimum number of flips needed to sort is 2 (we can verify that it is impossible in a single flip).

You can download sample input and output data files to work locally by clicking on the link at the bottom of the French version of the question



Téléchargez des fichiers d'exemple ainsi qu'un modèle de code pour travailler localement.