

Problem IKEA: IKEA

Building an IKEA kitchen is not as trivial as you might think. The construction manual is incomprehensibly written and some screws are always missing. However, the biggest problem is that the packages are always in the wrong place. The carrier placed all packages as one big stack in the corner of your kitchen. Unfortunately, you want to start the construction of your new kitchen in exactly that corner. Thus, you need to move the stack away. However, the packages are very heavy. In one step, you can only move the topmost package from one stack to another stack. Furthermore, the carrier sorted the packages from heavy (bottom) to lightweight (top). You also do not want to place a heavier on a lighter package. There is enough space in the kitchen to create two more stacks.

Input

The first line denotes the number of test cases $1 \leq t \leq 100$. Each of the following t lines contains one integer p ($1 \leq p \leq 50$), the number of packages in the stack.

Output

For each test case, print one line containing the number of moves required to move every package from the original stack in the corner to a new stack (probably not in that corner) using at most one “helper” stack.

Sample Input 1

```
2
3
42
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Sample Output 1

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7
4398046511103
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