Problem 1 - Big Data in Reply (`bigdata`)

Reply has recently bought a computer for computing activities in the big data field and the managers are trying to quantify the cost of its operation. The computer accepts as input a problem of difficulty D and, if necessary for its development, divides it into smaller problems whose sum of difficulties is D.

Any problem with difficulty D is solved by following these steps:

1. For D = 1 the problem is solved at a cost of 2 euro cents
2. For D = 2 the problem is solved at a cost of 3 euro cents
3. For D > 2 the problem is divided, if possible, into several problems, whose difficulties are increasing numbers starting from 1 whose sum must in any case be D (for example for D = 15 are created the problems of difficulty 1, 2, 3, 4 and 5 - as increasing numbers starting from 1 whose sum is 15). Each problem is then carried out independently of the others, always following the steps in this list.
4. For problems with D > 2 not divisible as described in the previous point, we let the highest number be not consecutive to the others, but in any case it must be the smallest possible (for example for D = 19, are created problems of difficulty 1, 2, 3, 4 and 9 since the creation of a problem of difficulty 5 creates the repetition of the problem of difficulty 4).

Here are some examples for small values of D:

- D = 3 -> D = 1, D = 2 -> 5 cents
- D = 4 -> D = 1, D = 3 -> D = 1, D = 1, D = 2 -> 7 cents
- D = 5 -> D = 1, D = 4 -> ...
- D = 6 -> D = 1, D = 2, D = 3 -> ...
- D = 7 -> D = 1, D = 2, D = 4 -> ...

Given a problem with difficulty D, calculate the total cost of its resolution expressed in euro cents.

Input data

In each file, the first line contains the number T of testcases.

Then, for each testcase, there is one line with the integer value of D:

Output data

The output file must contains T lines. For each test case in the input file, the output file must contains a line with the words:

Case #t: S

where t is the test case number (from 1 to T) and S is the solution of the testcase.

Constraints

- $D \leq 1000000$

Scoring

- **input 1** : $T = 1$ and $D \leq 100$
- **input 2** : $T = 10$ and $D \leq 1\,000$
- **input 3** : $T = 50$ and $D \leq 10\,000$
- **input 4** : $T = 100$ and $D \leq 100\,000$
- **input 5** : $T = 200$ and $D \leq 1\,000\,000$

Examples

input	output
10 913 688 942 183 597 881 368 138 101 250	Case #1: 1562 Case #2: 1177 Case #3: 1612 Case #4: 312 Case #5: 1022 Case #6: 1507 Case #7: 630 Case #8: 236 Case #9: 173 Case #10: 426