Pythagorean Legacy

It is necessary to find a minimal integer value R which is equal to the length of the hypotenuse (the side opposite the right angle) of N non-identical rectangular triangles with integer lengths of sides.

Input

t - number of test cases [t <= 100], than t lines follow, each line contains one integer - N, equal to the required number of different rectangular triangles. [1 <= N <= 2000]

Output

For each test case your program should output a number R in a separate line (R fits in a 64-bit integer), equal to the minimal integer value of a hypotenuse for which exactly N different rectangular triangles can be constructed; then in separate lines follow exactly N numbers equal to the shorter cathetus (side adjacent to the right angle) of each of the rectangular triangles, in ascending order.

Example

Input:
2
1
2

Output:
5
3
25
7
15