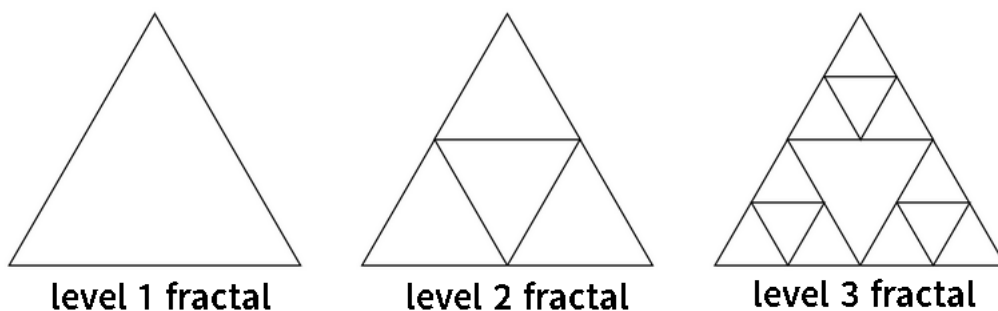


# Journey through the Fractal

Input file:            **standard input**  
Output file:          **standard output**  
Time limit:          2 seconds  
Memory limit:        1024 megabytes

A **level  $i$  triangle** is a regular triangle with side length  $2^{i-1}$ . A **level  $i$  fractal** is a figure generated by these rules:

- A level 1 fractal is a level 1 triangle.
- For  $i \geq 1$ , a level  $i + 1$  fractal is formed by placing three level  $i$  fractals so they perfectly touch each side of a level  $i$  triangle (see image below).



You are given a level  $L$  fractal.

Alice starts by picking any triangle in the fractal. Then, she can move to any unvisited triangle that shares an edge with her current triangle.

Alice can make up to  $K$  moves. The **score** is the sum of the levels of all triangles Alice visits (including her starting triangle).

Find the maximum possible score modulo 998244353. Note that you are asked for the maximum possible score, not the maximum remainder.

## Input

The input is given in the following format:

$L$ $K$
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- All input values are integers.
- $1 \leq L \leq 10^9$ .
- $1 \leq K \leq 10^{18}$ .

## Output

Print the answer in a single line.

## Examples

standard input	standard output
3 4	6
998244353 1000000000000000007	756221200

## Note

In the first testcase, Alice can visit four level 1 triangles and one level 2 triangle as below:

