Problem E
Eatcoin

Time limit: 3 seconds

Memory limit: 2048 megabytes

Problem Description

Eric developed a new algorithm to mine a cryptocurrency called Eatcoin. Since Eric's algorithm is an evolutionary algorithm, its performance keeps improving. On the d-th day of the execution of Eric's algorithm, it consumes p Eatcoins and then produces $q \times d^5$ Eatcoins where p and q are positive constants.

Eric wants to become a "duotrigintillionaire". A duotrigintillionaire is a person who has at least 10^{99} Eatcoins. Eric plans to exploit his algorithm to achieve his goal. Eric's algorithm can soon produce a massive amount of Eatcoins if he has enough Eatcoins. However, his algorithm cannot continue if he does not have p Eatcoins when needed.

Eric gives the values of p and q to you. Please write a program to help Eric to compute two numbers x and y defined as follows.

- x is the minimum number of Eatcoins required to execute Eric's algorithm to make him a duotrigintillionaire.
- y is the minimum number of days required to make Eric a duotrigintillionaire if Eric has exactly x Eatcoins before executing his algorithm.

Input Format

Two positive integers p and q are given in one line and separated by a space.

Output Format

Output two lines. Print x on the first line and y on the second line.

Technical Specification

- $1 \leq q \leq p \leq 10^{18}$

Sample Input 1

```
50 1
```

Sample Output 1

```
117
42627697484524538
```

Sample Input 2

```
10 10
```

Sample Output 2

```
10
29041912218408574
```