# Project Euler #186: Connectedness of a network.

Here are the records from a busy telephone system with one million users:

| RecNr | Caller | Called |
|-------|--------|--------|
| 1 | 200007 | 100053 |
| 2 | 600183 | 500439 |
| 3 | 600863 | 701497 |
| ... | ... | ... |

The telephone number of the caller and the called number in record $n$ are $Caller(n) = S_{2n-1}$ and $Called(n) = S_{2n}$ where $S_{1,2,3...}$ come from the "Lagged Fibonacci Generator":

For $1 \leq k \leq 55$, $S_k = 100003 - 200003k + 300007k^3 \pmod{1000000}$
For $56 \leq k$, $S_k = S_{k-24} + S_{k-55} \pmod{1000000}$

If $Caller(n) = Called(n)$ then the user is assumed to have misdialled and the call fails; otherwise the call is successful.

From the start of the records, we say that any pair of users $X$ and $Y$ are friends if $X$ calls $Y$ or vice-versa. Similarly, $X$ is a friend of a friend of $Z$ if $X$ is a friend of $Y$ and $Y$ is a friend of $Z$; and so on for longer chains.

The Prime Minister's phone number is $NUMBER$. After how many successful calls, not counting misdials, will $p$% of the users (including the PM) be a friend, or a friend of a friend etc., of the Prime Minister?

**Input Format**

Every input file contains exactly one line with two integers separated by a single space: $NUMBER$ and $p$.

**Constraints**

$NUMBER$ is a $6$-digit integer from $000000$ to $999999$.

$1 \leq p \leq 100$.

**Output Format**

Output the only number - an answer to the problem.

**Sample Input**

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000000 1
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**Sample Output**

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622572
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