2009 SUMMING SQUARES

Given an integer we can form a new number by summing the squares of its individual digits. For example, transforming 123 into $1^2 + 2^2 + 3^2 = 14$.

Write a program that determines the result of repeated transformations. You should input a single line containing a pair of integers, n $(1 \leq n < 2^{31})$ followed by r $(1 \leq r < 2^{63})$. You should output a single number, the result of applying the summing squares operation r times on the number n.

SAMPLE INPUT

```
111 6
```

SAMPLE OUTPUT

```
37
```