Mathlab

Input file:	`standard input`
Output file:	`standard output`
Time limit:	5 seconds
Memory limit:	512 megabytes

The function $f(x)$ is defined as the sum of all digits of x in hexadecimal. Given an n-digit hexadecimal number x and an index k, calculate

$$\sum_{i=0}^{x-1} f((16^k - 1) \cdot i) \bmod 2^{64}.$$

Input

The first line contains two positive integers n and k ($1 \le k \le n \le 100$ and $5k \ge n$).

The second line contains a string of length n — the value of given x in hexadecimal.

The string only consists of decimal digits and `'A','B','C','D','E','F'`. Also the first digit is not `'0'`.

Output

The only line contains an integer — the answer.

Example

standard input	standard output
4 1 7FFF	1081320