The Nth digit

The number A(K) is defined by writing the numbers 1^K, 2^K, 3^K, ... sucessively in a right to left order.

For example, A(1) = ...18171615141312111098 7654321.

A(2)= ...1691441211008164493625 16941.

Consider the sum S = A(1) + A(2). The end of S is: ...3508602725139375603 50171262.

Given N, K1, K2. Your task is to find the N-th digit from the right of S = A(K1) + A(K2)(the rightmost digit of S is counted as the first digit).

Input

There are 3 sub test cases. Each test case is written in a line containing 3 integers N, K1, K2 (1 ≤ K1, K2 ≤ 5. 1 ≤ N ≤ 1,000,000,000)

Output

Print out 3 corresponding answers to the sub test cases.

Grading

In each test case, you will get 5 marks for 3/3 correct answers, 3 marks for 2/3 correct answers, 1 marks for 1 correct answer, and 0 otherwise.

Example

Input
1 1 2
3 1 2
5 1 2

Output
2
2
7