

## D. Magic Numbers

time limit per test: 2 seconds  
 memory limit per test: 256 megabytes  
 input: standard input  
 output: standard output

Consider the decimal presentation of an integer. Let's call a number *d-magic* if digit *d* appears in decimal presentation of the number on even positions and nowhere else.

For example, the numbers 1727374, 17, 1 are 7-magic but 77, 7, 123, 34, 71 are not 7-magic. On the other hand the number 7 is 0-magic, 123 is 2-magic, 34 is 4-magic and 71 is 1-magic.

Find the number of *d-magic* numbers in the segment  $[a, b]$  that are multiple of *m*. Because the answer can be very huge you should only find its value modulo  $10^9 + 7$  (so you should find the remainder after dividing by  $10^9 + 7$ ).

### Input

The first line contains two integers *m*, *d* ( $1 \leq m \leq 2000$ ,  $0 \leq d \leq 9$ ) — the parameters from the problem statement.

The second line contains positive integer *a* in decimal presentation (without leading zeroes).

The third line contains positive integer *b* in decimal presentation (without leading zeroes).

It is guaranteed that  $a \leq b$ , the number of digits in *a* and *b* are the same and don't exceed 2000.

### Output

Print the only integer *a* — the remainder after dividing by  $10^9 + 7$  of the number of *d-magic* numbers in segment  $[a, b]$  that are multiple of *m*.

### Examples

input	Copy
2 6 10 99	
output	Copy
8	

input	Copy
2 0 1 9	
output	Copy
4	

input	Copy
19 7 1000 9999	
output	Copy

### Educational Codeforces Round 8

Finished

#### → Practice?

Want to solve the contest problems after the official contest ends? Just register for practice and you will be able to submit solutions.

Register for practice

#### → Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ACM-ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

#### → Problem tags

dp \*2200

No tag edit access

#### → Contest materials

- Announcement #1 (en) ✕
- Announcement #2 (ru) ✕
- Tutorial (en) ✕

**Note**

The numbers from the answer of the first example are 16, 26, 36, 46, 56, 76, 86 and 96.

The numbers from the answer of the second example are 2, 4, 6 and 8.

The numbers from the answer of the third example are 1767, 2717, 5757, 6707, 8797 and 9747.

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