12434 Infinite Stable Integer

For any infinite-length decimal integer $S = d_1d_2d_3d_4\dots$ ($0 \le d_i \le 9$, $i \ge 1$), let $prefix(S,p)$ be the integer formed by the first p digits of S (i.e. $d_1d_2d_3\dots d_p$), and $F(S,i,p)$ be the percentage of digit i in $prefix(S,p)$.

For example, if $S = 122312231223...$, $F(S,2,7) = \frac{4}{7} * 100$

We say S is stable if and only if every for digit i ($0 \le i \le 9$), there exists a real number $L(i)$ such that

$$\lim_{p\to\infty} F(S,i,p) = L(i)$$

Given three positive integers M, X and Y ($0 \le X \le Y < M$), and 10 pairs of integers $(A(0), B(0))$, $(A(1), B(1))$, ..., $(A(9), B(9))$, find an infinite stable integer S such that:

1. Every $L(i)$ satisfies $A(i) \le L(i) \le B(i)$
2. For every integer $p \ge 1$, $X \le (prefix(S,p) \bmod M) \le Y$.

If there are more than one solution, maximize the average value of all the digits in S. Since S is stable, it can be proven that the average value converges.

For example, if $M = 9$, $X = 1$ and $Y = 8$, $B(3) = B(4) = 100$, all other $A(i)$ and $B(i)$ are zero, then the optimal S is 44(4444443)*, where * means "repeated forever". It's not hard to see that $prefix(S,p)$ will never be a multiple of 9, and $L(3) = \frac{1}{7} * 100$, $L(4) = \frac{6}{7} * 100$, all other $L(i) = 0$.

Input

There will be multiple test cases. Each test case contains 23 integers: M, X, Y, $A(0)$, $A(1)$, ..., $A(9)$, $B(0)$, $B(1)$, ..., $B(9)$. $2 \le M \le 50$, $0 \le X \le Y < M$, $0 \le A(i) \le B(i) \le 100$.

Output

For each test case, print case number and the maximal average value rounded to 8 decimal places. If no infinite stable integer can be found, print '`NO SOLUTION`' instead. Look at the output for sample input for details.

Sample Input

```
2  1  1  0  0  0  0  0  0  0  0  0  0 20  20  20  20  20  20  20  20  20  20
9  1  8  0  0  0  0  0  0  0  0  0  0  0   0   0 100 100   0   0   0   0   0
8  0  7  1  1  1  1  1  1  1  1  1  1  2   2   2   2   2   2   2   2   2   2
19 2  3  0  0  0  0  0  0  0  0  0  0 100 100 100 100 100 100 100 100 100 100
```

Sample Output

```
Case 1: 5.00000000
Case 2: 3.85714286
Case 3: NO SOLUTION
Case 4: 1.00000000
```