

## C. Die (round 1)

Input: standard input (from the keyboard)

Output: standard output (to the screen)

Time limit: 1 second

Memory limit: 256 Mb

### **Problem**

While playing in a playground near a casino, Pete found a die — a small cube with numbers from 1 to 6 on its respective faces. After bringing it home and throwing it for a while Pete found out that the die is quite unusual and for some numbers from 1 to 6 if the result of throwing the die is the number you can say for sure what the next one would be. Then Pete decided to throw his die  $n$  times and find a sum of all outcomes. Help Pete determine the maximum amount of points he can get, and define the remainder of that number when divided by 2011.

### **Input**

The first line of the input contains two integers,  $a$  and  $b$ ,  $0 \leq a, b \leq 10^9$ . The number of throws is  $n = 2^a + b$ .

The second line of the input contains six numbers,  $c_1, c_2, c_3, c_4, c_5$  and  $c_6$ . When  $c_i \neq 0$ , each occurrence of number  $i$  in sequence of throwing outcomes (except when it's the last number in sequence) is followed by  $c_i$ . When  $c_i = 0$ , number  $i$  can be followed by any number in the range from 1 to 6.

### **Output**

The only number in the output is a remainder of the maximum amount of points Pete can get after  $n$  throws when divided by 2011.

### **Example**

Input	Output
2 1 1 0 4 1 2 1	20