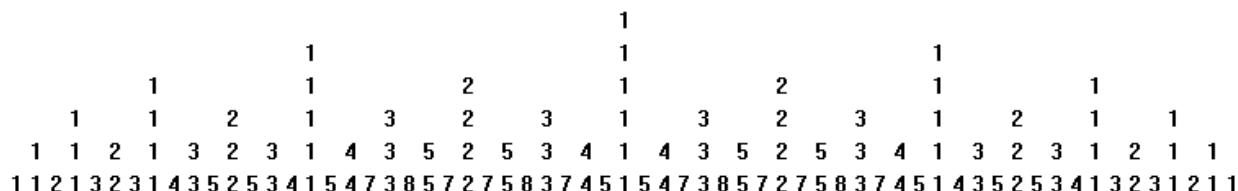




K • Stern's Sequence

Stern's Triangle is similar to *Pascal's Triangle* in that some values in each row are the sums of values in the previous row. In this case the previous row values are also copied down:



Row n has $2^n - 1$ elements $S(n, k)$. Where:

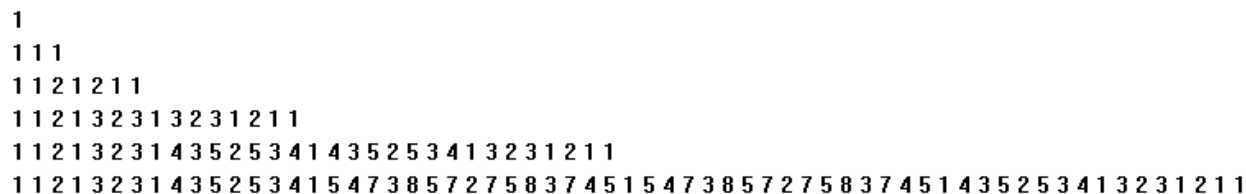
$$S(n, k) = 0 \text{ for } k \leq 0 \text{ or } k \geq 2^n$$

$$S(1, 1) = 1$$

$$S(n+1, 2^k) = S(n, k) \text{ for } n \geq 1$$

$$S(n+1, 2^k+1) = S(n, k) + S(n, k+1)$$

If we align the $S(n, k)$ values so $S(n+1, k)$ is directly below $S(n, k)$, we get:



We see that for n sufficiently large, $S(n+1, k) = S(n, k)$.

The sequence of these limiting values is called *Stern's Diatomic Sequence*:

$$b(1), b(2), b(3), \dots$$

It has the property that for every positive rational number, r , there is exactly one value k for which $r = b(k)/b(k+1)$.

$$\text{For example: } 3 / 5 = b(10) / b(11)$$

Write a program which takes as input a rational number p/q in lowest terms and outputs the value k for which $p = b(k)$ and $q = b(k+1)$. This number can get quite large, so output it modulo the large prime **998,244,353**.



Input

Input consists of a single line containing two relatively prime, space separated decimal integers, p and q ($1 \leq p, q \leq 400000$).

Output

The single output line consists of the integer k , for which $p = b(k)$ and $q = b(k+1)$ printed modulo 998,244,353.

Sample 1:

Sample Input	Sample Output
3 5	10

Sample 2:

Sample Input	Sample Output
1234 763	525909