A fraction is irreducible if its numerator and denominator dont have any common factor greater than 1. For example $\frac{3}{1}$, $\frac{4}{7}$, $\frac{1}{10}$, $\frac{9}{25}$ are all irreducible fractions. But there are some fractions like

$$\frac{21n+10}{14n+7}$$

which is irreducible for any integer value of n. It is not quite straightforward to identify such fractions.

Now consider the fraction with general form,

$$\frac{an+x}{bn+y}$$

where a, b, x, y are always integers satisfying $0 \leq x, y \leq 10^7$ and $(0 \leq a, b \leq 32000, (a+b) > 0)$. If values of a and b are given then we will be able to find some pair of values (x, y) such that for any integer value of n, fraction $\frac{an+x}{bn+y}$ is irreducible.

One possible way of finding some of such pairs (x, y) is by using the **theorem**: "*If there exist integers p and q such that $rp + sq = 1$ (r and s are also integers), then r and s are relatively prime*".

So if $(an + x)$ and $(bn + y)$ are relative prime then we can write

$$(an+x)p + (bn+y)q = 1 \Longrightarrow n(ap+bq) + (px+qy) = 1 \tag{1}$$

The relation (1) above can hold for any value of n, if $ap + bq = 0$ and $px + qy = 1$. Given the value of a and b your job is to count how many different (x, y) pairs there are such that there exist integers p, q satisfying $ap + bq = 0$ and $px + qy = 1$.

Input

There can be up to 100000 lines of inputs. Each line contains two non-negative integers which denote the value of a and b $(0 \leq a, b \leq 32000, (a+b) > 0)$ respectively.

Input is terminated by a line containing two zeroes. These two zeroes need not be processed.

Output

For each line of input except the last one, produce one line of output. This line contains an integer P. This P denotes the total number of different pair of integer values for x and y, which ensures that $ap + bq = 0$ and $px + qy = 1$, where $(0 \leq x, y \leq 10^7)$.

Sample Input

```
100 223
2300 1000
0 0
```

Sample Output

```
89686
869565
```