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Irreducible Fractions

Input: Standard Input
Output: Standard Output

A fraction is irreducible if its numerator and denominator don't 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 $\mathbf{0 \le x, y \le 10^7}$ and $\mathbf{(0 \le a, b \le 32000, (a+b) > 0)}$. 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
=>n(ap+bq) + (px+qy) = 1 …(i)

The relation (i) 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** $\mathbf{(0 \le a, b \le 32000, (a+b) > 0)}$ 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 $\mathbf{(0 \le x, y \le 10^7)}$.

Sample Input	Output for Sample Input
100 223 2300 1000 0 0	89686 869565

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