Helping Homework

Nabil has a little sister who is studying at the fourth grade of elementary school. One day his sister asked him to help her with a mathematics homework about fraction addition. There are several problems in this homework and an example of these problems is to determine the value $\frac{5}{6} + \frac{-4}{9}$. Of course, this problem is too easy yet tedious for Nabil. Instead of helping her sister manually, Nabil decided to make a program which calculate the simplest form of the sum of two fractions. For instance, the result of $\frac{5}{6} + \frac{-4}{9}$ is $\frac{7}{18}$

A fraction $\frac{a}{b}$ is said to be in the simplest form if we cannot divide both values of a and b by an integer k to get a fraction $\frac{c}{d}$ such that $a = kc$ and $b = kd$. For example, the simplest form of $\frac{20}{25}$ is $\frac{4}{5}$ because we can divide both 20 and 25 by 5.

Input Format

The input consists of two lines, each line contains two integers separated by a space. The second integer in each line is never zero. Suppose the first line contains two number a and b while the second line is two numbers c and d. The first line represents the fraction $\frac{a}{b}$ while the second line represents the fraction $\frac{c}{d}$.

Constraints

$-10^6 \leq a, b, c, d \leq 10^6$

$b, d \neq 0$

Output Format

The output of the program are two numbers e and f separated by a space. These numbers represent the simplest fraction $\frac{e}{f}$ such that $\frac{a}{b} + \frac{c}{d} = \frac{e}{f}$. In addition, if the value of $\frac{e}{f} < 0$, then the negative signed is only affected e. For example, $\frac{-5}{6} + \frac{4}{-9} = \frac{-23}{18}$. Here, $e = 23$ and $f = 18$.

Sample Input 0

```
5 6
-4 9
```

Sample Output 0

```
7 18
```

Explanation 0

For this example, the first line of the input represents the fraction $\frac{5}{6}$ while the second line represents the fraction $\frac{-4}{9}$. The output represents the fraction $\frac{7}{18}$, and we have $\frac{5}{6} + \frac{-4}{9} = \frac{7}{18}$.

Sample Input 1

```
-5 6
4 -9
```

Sample Output 1

```
-23 18
```

Explanation 1

For this example, the first line of the input represents the fraction $\frac{-5}{6}$ while the second line represents the fraction $\frac{4}{-9}$. The output represents the result of $\frac{-5}{6} + \frac{4}{-9} = -\frac{23}{18}$. We write $-\frac{23}{18}$ as $\frac{-23}{18}$ instead of $\frac{23}{-18}$ because we put the negative sign to the numerator.