Congruent Numbers

A *congruent* number is an integer that is the area of some right triangle where the length of each side of the triangle is a *rational* number. For this problem, we'll only consider the legs of the right triangle, and not the hypotenuse.

A *rational* number is a fraction, p/q, where p, the numerator, and q, the denominator, are integers. Note that if q = 1, then $p/1$ is an integer, so any integer is a *rational* number.

Given two *rational* numbers which are the non-hypotenuse legs of a right triangle, determine if the area of that triangle is a *congruent* number. For the purposes of this problem, it is not necessary for the length of the hypotenuse to be a *rational* number.

Input

Each input will consist of a single test case. Note that your program may be run multiple times on different inputs. Each test case will consist of a single line with four integers $p1$, $q1$, $p2$ and $q2$ (1 ≤ $p1,q1,p2,q2$ ≤ 100,000) where $p1/q1$ and $p2/q2$ are the *rational* numbers which are the sides of a right triangle.

Output

Output a single integer, which is **1** if the area of the triangle is an integer, **0** if not. Note that the area has to be an integer, not just a *rational* number.

Sample Input	Sample Output
3 1 4 1	1
15 1 28 3	1
1 2 3 4	0
1 1 10 1	1