Problem H
Radar
Problem ID: radar

Photo by alex.ch

After your boat ran out of fuel in the middle of the ocean, you have been following the currents for 80 days. Today, you finally got your radar equipment working. And it's receiving signals!

Alas, the signals come from the "radar" station owned by the eccentric lighthouse keeper Hasse. Hasse's radar station (which does not work quite like other radar stations) emits continuous signals of three different wave-lengths. Therefore, the only interesting thing you can measure is the phase of a signal as it reaches you. For example, if the signal you tuned on to has a wave-length of 100 meters and you are 1456 meters from the station, your equipment can only tell you that you are either 56, or 156, or 256, or ... meters away from the lighthouse.

So you reach for your last piece of paper to start calculating – but wait, there's a catch! On the display you read: "ACCURACY: 3 METERS". So, in fact, the information you get from this signal is that your distance from Hasse's radar station is in the union of intervals $[53, 59] \cup [153, 159] \cup [253, 259] \cup \dots$.

What to do? Since the key to surviving at sea is to be optimistic, you are interested in what the smallest possible distance to the lighthouse could be, given the wavelengths, measurements and accuracies corresponding to the three signals.

Task

Given three positive prime numbers m_1, m_2, m_3 (the wavelengths), three nonnegative integers x_1, x_2, x_3 (the measurements), and three nonnegative integers y_1, y_2, y_3 (the accuracies), find the smallest nonnegative integer z (the smallest possible distance) such that z is within distance y_i from x_i modulo m_i for each $i = 1, 2, 3$. An integer x' is *within distance* y from x modulo m if there is some integer t such that $x \equiv x' + t \pmod{m}$ and $|t| \leq y$.

Input

There are three lines of input. The first line is m_1 m_2 m_3, the second is x_1 x_2 x_3 and the third is y_1 y_2 y_3. You may assume that $0 < m_i \leq 10^6$, $0 \leq x_i < m_i$, and $0 \leq y_i \leq 300$ for each i. The numbers m_1, m_2, m_3 are all primes and distinct.

Output

Print one line with the answer z. Note that the answer might not fit in a 32-bit integer.

Sample Input 1	Sample Output 1
11 13 17 5 2 4 0 0 0	2095

Sample Input 2	Sample Output 2
941 947 977 142 510 700 100 100 100	60266