Problem B: Anti-prime Sequences

Given a sequence of consecutive integers $n, n+1, n+2, \ldots, m$, an *anti-prime sequence* is a rearrangement of these integers so that each adjacent pair of integers sums to a composite (non-prime) number. For example, if $n = 1$ and $m = 10$, one such anti-prime sequence is $1, 3, 5, 4, 2, 6, 9, 7, 8, 10$. This is also the lexicographically first such sequence.

We can extend the definition by defining a degree d anti-prime sequence as one where all consecutive subsequences of length $2, 3, \ldots, d$ sum to a composite number. The sequence above is a degree 2 anti-prime sequence, but not a degree 3, since the subsequence 5, 4, 2 sums to 11. The lexicographically first degree 3 anti-prime sequence for these numbers is $1, 3, 5, 4, 6, 2, 10, 8, 7, 9$.

Input

Input will consist of multiple input sets. Each set will consist of three integers, n, m, and d on a single line. The values of n, m and d will satisfy $1 \leq n < m \leq 1000$, and $2 \leq d \leq 10$. The line 0 0 0 will indicate end of input and should not be processed.

Output

For each input set, output a single line consisting of a comma-separated list of integers forming a degree d anti-prime sequence (do not insert any spaces and do not split the output over multiple lines). In the case where more than one anti-prime sequence exists, print the lexicographically first one (i.e., output the one with the lowest first value; in case of a tie, the lowest second value, etc.). In the case where no anti-prime sequence exists, output

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No anti-prime sequence exists.
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Sample Input

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1 10 2
1 10 3
1 10 5
40 60 7
0 0 0
```

Sample Output

```
1,3,5,4,2,6,9,7,8,10
1,3,5,4,6,2,10,8,7,9
No anti-prime sequence exists.
40,41,43,42,44,46,45,47,48,50,55,53,52,60,56,49,51,59,58,57,54
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