Problem C
Polynomial GCD

Input: standard input
Output: standard output

Given two polynomials **f(x)** and **g(x)** in $\mathbf{Z_n}$, you have to find their **GCD** polynomial, ie, a polynomial **r(x)** (also in $\mathbf{Z_n}$) which has the greatest degree of all the polynomials in $\mathbf{Z_n}$ that divide both **f(x)** and **g(x)**. There can be more than one such polynomial, of which you are to find the one with a leading coefficient of **1** (**1** is the unity in $\mathbf{Z_n}$. Such polynomial is also called a *monic polynomial*).

(Note: A function **f(x)** is in $\mathbf{Z_n}$ means all the coefficients in **f(x)** is **modulo n**.)

Input

There will be no more than **101** test cases. Each test case consists of three lines: the first line has **n**, which will be a prime number not more than **1500**. The second and third lines give the two polynomials **f(x)** and **g(x)**. The polynomials are represented by first an integer **D** which represents the degree of the polynomial, followed by **(D + 1)** positive integers representing the coefficients of the polynomial. the coefficients are in decreasing order of Exponent. Input ends with **n = 0**. The value of **D** won't be more than **100**.

Output

For each test case, print the test case number and **r(x)**, in the same format as the input

Sample Input	Output for Sample Input
3 3 2 2 1 1 4 1 0 2 2 2 0	Case 1: 2 1 2 1

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Note: The first sample input has $2x^3 + 2x^2 + x + 1$ *and* $x^4 + 2x^2 + 2x + 2$ *as the functions.*