1. Polynomial multiplication.

Given two polynomials $A(x) = a_0 + a_1x + a_2x^2 + ... + a_{n-1}x^{n-1}$ and $B(x) = b_0 + b_1x + b_2x^2 + ...+b_{n-1}x^{n-1}$,
find the product C(x) = A(x) * B(x) in O(N logN) time using fast fourier transforms.

Input:

1. The first line contains ***n***, the **degree bound** of polynomials A(x) and B(x).
   *The degree of a polynomial of degree bound **n** may be any integer between 0 and n -1 (For example the polynomial $1 + x + x^3$ is degree bound by 4).*
   Constraints:
      1. 1 <= n <= 100
      2. **n will always be a power of 2.**

2. The second line contains the ***n*** integer coefficients of polynomial A(x) separated by a whitespace starting from the lowest order coefficient (a_0 a_1 a_2 a_3 ….. a_{n-1}). For example if the degree bound n is 4, the input for the polynomials:
   $6x^3 + 7x^2 - 10x + 9$ will be "9 -10 7 6". ($a_3x^3 + a_2x^2 + a_1x + a_0$ will be "a_0 a_1 a_2 a_3")
   $x^2 + 3$ will be "3 0 1 0".
   x will be "0 1 0 0".
   Constraints:
   $-200 <= a_i <= 200$

3. The second line contains the ***n*** integer coefficients of polynomial B(x) separated by a whitespace starting from the lowest order coefficient (b_0 b_1 b_2 b_3 ….. b_{n-1}).
   Constraints:
   $-200 <= b_i <= 200$

Use long not int.

Output:

Print ***2n*** integer coefficients of C(x) separated by a whitespace starting from the lowest order coefficient (c_0 c_1 c_2 c_3 ….. c_{2n-1}).

Example 1:

Input:	**Output:**
4 9 -10 7 6 -5 4 0 -2	-45 86 -75 -20 44 -14 -12 0

Explanation:
$A(x) = 6x^3 + 7x^2 - 10x + 9$
$B(x) = -2x^3 + 4x - 5$
$C(x) = - 12x^6 - 14x^5 + 44x^4 - 20x^3 - 75x^2 + 86x - 45$

Example 2:

Input:	**Output:**
4 3 0 1 0 0 1 0 0	0 3 0 1 0 0 0 0

Explanation:
$A(x) = x^2 + 3$
$B(x) = x$
$C(x) = x^3 + 3x$