

## 463 Polynomial Factorization

A polynomial is of degree  $k$  if the largest power of the variable in any term is no greater than  $k$ . For example,

$$x^2 + 4x + 2$$

is of degree 2. It is also of degree 3, 4, 5, ...

A polynomial with integer coefficients is "prime" if it cannot be expressed as the product of two lower-degree polynomials with integer coefficients.

Write a program to express a 4th degree polynomial with integer coefficients as the product of one or more prime polynomials.

The sample below tells us that the polynomial  $2x^4 + 7x^3 - x^2 - 6x - 2$  has prime factors  $x - 1$ ,  $2x + 1$  and  $x^2 + 4x + 2$ .

### Input

5 integers, representing the coefficients of a degree 4 polynomial in decreasing order of the variable power from 4 to 0.

### Output

Print the integer coefficients of each prime factor on a single line, in decreasing order of variable power. The factors must be printed in increasing order of degree, and when two or more degrees match they must be sorted by increasing value of coefficients from the first to the last.

### Sample Input

```
2 7 -1 -6 -2
```

### Sample Output

```
1 -1
2 1
1 4 2
```