

## Problem Description

Given two vectors, compute their dot product. The dot product is the sum of the product of the corresponding components of the two vectors. For example, the dot product of [1,2,3] and [4,5,6] is 32 because  $1*4+2*5+3*6 = 32$ .

We may represent a high-dimensional sparse vector using the following format:

dim1:value1 dim2:value2 dim3:value3 ... dimN:valueN 0:0

where 0:0 denotes the end of the vector.

An example: The vector [0,4,0,0,9,0,0,33] is an eight-dimensional vector, which can be represented as

**5:9 2:4 8:33 0:0**

That is, we may omit all dimensions whose values are zero. Such a representation is compact and particularly suitable for high-dimensional sparse vectors.

## Input

The input has two lines. Each line contains a vector of integer values represented in the sparse format. The usage of memory is limited to 32 MB. The dimension of the vector is no greater than 2 to the 31th power, and the N of dimN will not exceed 2 to the 20th power. Note that the order of the dimensions is arbitrary.

## Output

The output is the dot product of the two input vectors. The answer should be printed in one line with a newline character at the end.

## Sample Input

1:5 1000:55 1000000:555 0:0  
1000:66 10:6 100000:666 1000000:2 0:0

## Sample Output

**4740**