

Short Question

Input file: **standard input**
Output file: **standard output**
Time limit: 4 seconds
Memory limit: 1024 megabytes

I have a question, could you please answer it?

You are given two sequences (p_1, p_2, \dots, p_N) , (q_1, q_2, \dots, q_N) of length N . What is the value of this sum?

$$\sum_{i=1}^N \sum_{j=1}^N \min(|p_i - p_j|, |q_i - q_j|)$$

Input

In the first line, a single integer N is given ($1 \leq N \leq 1\,000\,000$).

In the second line, N integers p_1, p_2, \dots, p_N are given ($1 \leq p_i \leq 1\,000\,000$).

In the third line, N integers q_1, q_2, \dots, q_N are given ($1 \leq q_i \leq 1\,000\,000$).

Output

Output a single integer, the answer to the question.

Examples

standard input	standard output
3 1 3 2 1 2 3	6
4 1 1 1000000 1000000 1000000 1000000 1 1	7999992